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ADVENTURES IN SCOTLAND

THE MOTOR CYCLE

1D

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MOTOR BICYCLES — SIDECARS — CYCLE CARS

No. 588. Vol. 13. Thursday, July 2nd, 1914. Price 1d.

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TOURIST TROPHY

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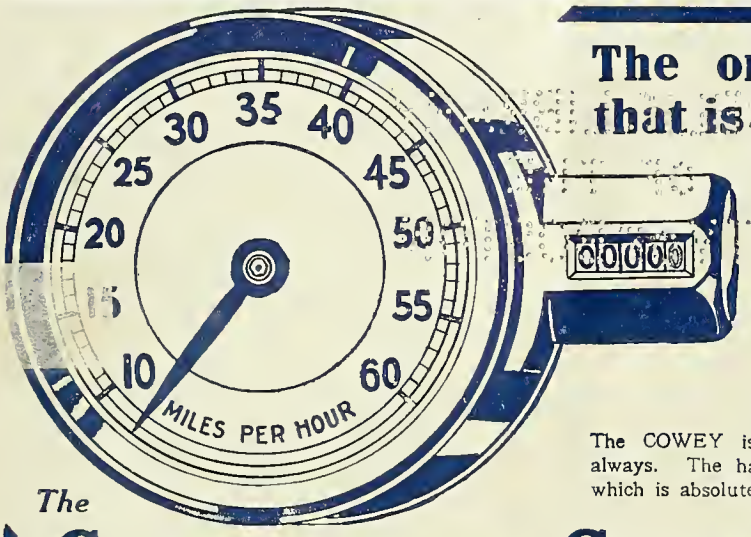

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Instruments built on Centrifugal or Magnetic principles cannot possibly give satisfaction on a motor bicycle, and only end in disappointment and failure.

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Or with Trip, **£5 - 5s.**

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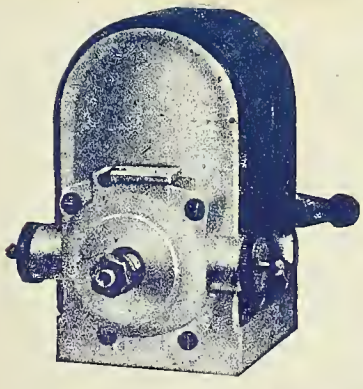

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An index to advertisements will be found on the page facing the back cover.

The Problem of the Noisy Engine.

FOR many a year now purchasers of cars, even of the cheapest variety, have obtained a considerable degree of silence and refinement in the running of the engines supplied. Indeed, it is doubtful if a car engine with really noisy valves or cams would find any purchasers at all. But, unfortunately, this is not generally the case with motor cycle engines—at any rate, those of the four-stroke type. Now the average motor cyclist is probably far more of an engine expert than is the average car user, and, as such, he ought to be a trifle more critical as regards refinement and not quite so insistent on mere power and vim. It may be retorted that most motor cycle engines are limited to a greater degree than car engines in the number of their cylinders, and are thus less likely to afford smooth and quiet running, while, of course, inside flywheels are not so conducive to quiet even turning as the larger diameter, though lighter, outside variety universal on car engines. In these days of high-priced sidecar outfits, which in some cases cost about as much as a small car, buyers have the right to expect engine and transmission silence for their money. Indeed, it should be possible for the driver and passenger of such an outfit to converse as easily and with as little raising of the voice as on a car, always allowing for the presence of a greater volume of air rushing by owing to the absence of a windscreen. But, alas, it is not often so. Probably the suppression of the exhaust noises by the Local Government Board has accentuated cam rattles to the ear of the rider, and now that the L.G.B. has overcome one noise, it is up to motor cycle manufacturers to produce engines devoid of valve clatter.

Protected Engines the Solution.

IT does not take any great mental effort to understand that it is perfectly possible to put the same high quality of material into a motor cycle engine equally well proportioned to its work and in every way as well fashioned as are similar parts in the most expensive car engine, and, therefore, on the face of things, a motor cycle engine should wear quite as well as its larger brother in the four-wheeler. We do not think that it is far to seek to discover the cause of this unfortunate state of affairs. We believe we are correct when we say that rapid wear in motor cycle engines is almost entirely due to external and not to internal causes. It is simply caused by the continuous dust and foreign matter thrown up from the road and settling on every moving part of the engine. Some effort is now made to exclude road dust from passing into the cylinder *via* the carburetter by the fitting of gauzes, but another entrance for foreign bodies, and perhaps the greatest offender of all, is *via* the valve tappets.

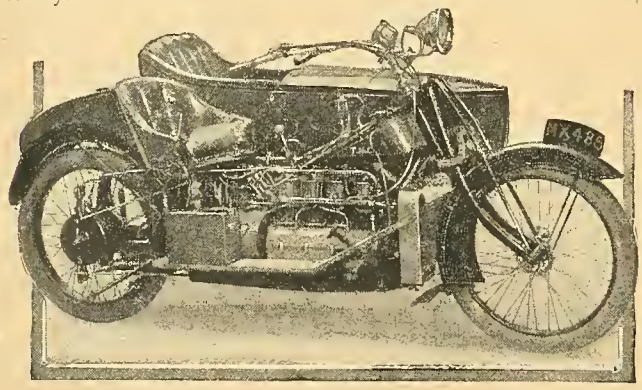
Naturally, continuous ingress of minute grit when constantly conveyed to moving parts of machinery will rapidly cause disintegration. It may be retorted that valves should be enclosed as on car engines, but unfortunately with an air-cooled motor it is highly undesirable to shut off any portion of the cylinder from the cooling air, and to obtain complete immunity from this vexatious cause of trouble it may possibly in the future be necessary to employ a different type of motor from that which now obtains. The success of the slide valve engine in the recent Isle of Man car races points unmistakably to the fact that this type of motor can be run at a very high rate of revolutions, and this would indicate that there is no radical reason why such types of engine should not be possible for motor cycles. Here we should have at once a complete exclusion of dust, dirt, and wet, and equally important a very large measure of silence.

We cannot believe that our manufacturers will remain dormant under the stimulating example set them in the Isle of Man, and we are so bold as to look forward with confidence to the ultimate triumph of the internal combustion engine for motor cycles with totally enclosed valve mechanism.

The T.M.C. nearing the top of a steep incline in a lane near Haslemere.

AT this time of the year a tour through country possessing wooded hills is always sure to please. With a comfortable, or, better still, a luxurious sidecar combination such as the T.M.C. to travel in, the ability to appreciate the beauties of nature is accentuated, for physical discomforts which arise through an unreliable mount divert the attention and very soon take the edge off one's appreciative faculties.

This machine is fitted with a four-cylinder water-cooled engine, three-bearing crankshaft, and large Ferodo cone clutch, three-speed gear box, which is provided with operating mechanism in the form of a quadrant, and shaft and bevel final drive, which in proper adjustment will wear well, run silently, as well as being positive in action. A point of luxury is the bucket seat, allowing long journeys to be taken without an aching back or feeling of soreness resulting. Even if the regulation type of saddle were utilised the machine would be comfortable, for the rear springing is excellent. The sidecar track is slightly in excess of what is usual, but this design leaves plenty of room for the positioning of the springs upon which the body is mounted. There is no doubt whatever that this attachment is as free from vibration as any other type it has been our pleasure to try.

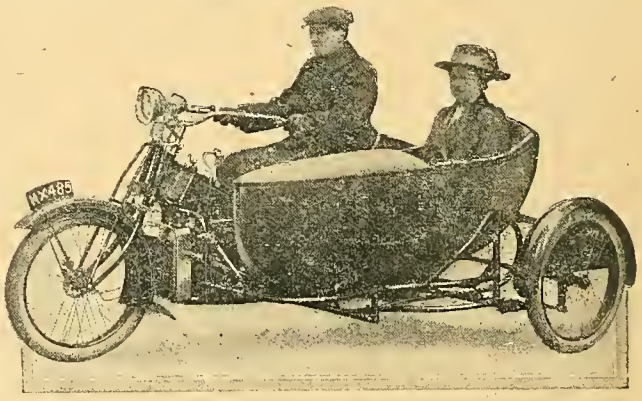


Offside of the T.M.C. sidecar outfit, showing footboards, radiator, bucket seat, and rear springing.

In selecting a course for a trial run, it was decided to take the outfit down into Surrey, where hills abound and roads are good. With this aim in view, the exit chosen from London was *via* Hammersmith Bridge, straight through Roehampton, and thence to Kingston.

On the Portsmouth Road.

Rumours of police activities at Cobham enforced a speed within the legal limit for some distance, for no one was quite certain as to the whereabouts of the trap, which was known to be working in this locality. Once through the danger zone, with the aid of a fully opened throttle, 40 m.p.h. was soon recorded on the speedometer, in spite of the heavy head wind. At this speed the running was very sweet, but even in accelerating up to this velocity no unpleasant periods of vibration were passed through, which speaks well for the way in which the various components of the engine are machined and balanced. Guildford and Godalming were passed through slowly. Taking the Haslemere Road at Milford, a series of long hills and sharp corners brought forth such salient features as power and smoothness of brakes, easy steering, together with marked capabilities of hill-climbing, which would prove to the most conservative of single cylinder experts that there is a future for the four-cylinder

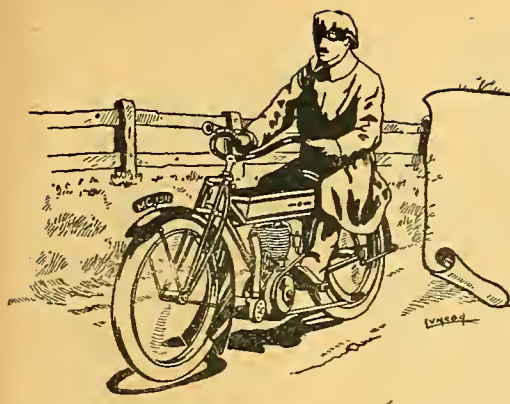


The four-cylinder T.M.C. sidecar outfit ready for the road. Note the efficient method of springing the sidecar.

motor cycle designed on correct principles, with a careful eye for the initial cost.

It was on the section from Haslemere to Midhurst that the steepest gradient was encountered, but this would not have been considered out of the way at all had not a stoppage taken place in order to scrape the Ferodo clutch lining, because, through lack of attention, its surface had worn hard and smooth at the expense of the necessary friction required to transmit the power without loss occasioned by slipping. But for this little interruption, every hill would have been climbed on top, although the highest gear ratio employed is perfectly normal.

A return was made through Cowdray Park, a beautiful estate which time would not permit us to explore, thence through Northchapel and Chiddingfold to Godalming. The journey back to town took a comparatively short time, even though a halt was made at the popular Wisley Hut for tea. It should be mentioned here that Guildford High Street was taken on top, quite a commendable performance when one considers the gradient and the compulsory slow speed limit at which it is necessary to negotiate it.



Round Scotland on a Borrowed Motor Cycle

Experiences, Instructive and Otherwise, which befell one of "The Motor Cycle" Representatives.

AT the last moment I was compelled to take a borrowed 3½ h.p. chain-driver as my means of locomotion to the Car T.T. in the Isle of Man, and in the Scottish Six Days. The machine was a somewhat aged sample, guaranteed by its owner to be in splendid tune, and equipped with enclosed chain drive and a 500 c.c. engine, kick starter, and three-speed counter-shaft gear. I had originally offered to escort a novice, who had just bought his first machine at second-hand, from the Midlands to Liverpool. We took half an hour to cover five miles, after which—in his interests—we ignominiously took the train. He was a fair sample of the handicaps under which the trade prospers. Some unscrupulous agent had sold him a 1913 mount in rotten condition; it could not exceed 25 m.p.h. on the flat, nor climb a long grade of 1 in 17 with any certainty; nor had he the least notion that the machine was seriously amiss. I waited fifteen minutes for him five miles out, and he told me he was "all out." I examined the machine, found it had no compression, and that the front chain of the two-step drive was actually so loose that it was jumping the teeth of its sprockets. I took him back home, lent him one of my machines, and we caught the train to Liverpool. Incidentally, his own engine seized up solid on his return journey.

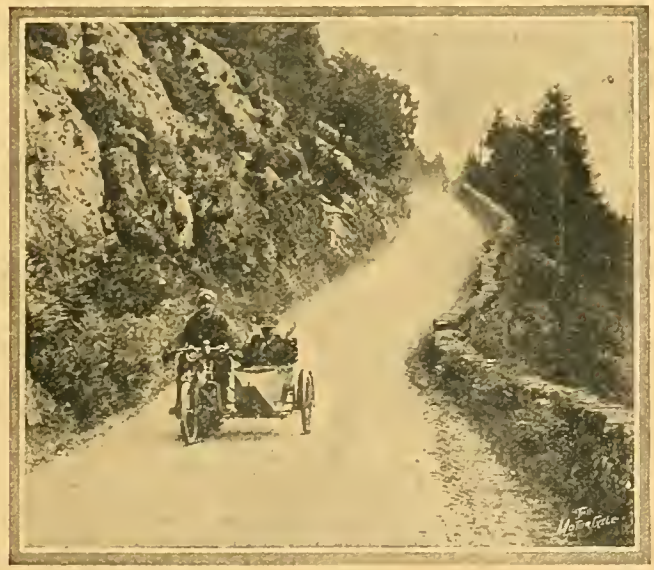
Trials other than Scotch.

In the Island my chain-driver proved all one could desire, giving no trouble of any sort or kind, and climbing the rough hairpinny ascent of Sulby Glen on second gear, which augured well for Scotland. On arrival in Edinburgh I was immediately stopped by the police for dangerous driving. As a wag says, the T.T. makes one oblivious of speed limits, and the Scottish Trials make one drive as if there could never be anything or anybody round a blind corner! I managed to see everything of interest on the Monday's run, though I had cartloads of trouble. *Inprimis*, my engine was lubricated by a drip feed operated by crank case suction through a non-return ball valve at the lower end of the pipe. This dodge is admirable in the level Midlands, but it floods the engine with oil during the descent of the long Scottish hills, for there was no tap to stop the drip. I had only one spare plug, and if carbonised plugs are cleanable, it is no easy matter to scrape burnt oil off the inside insulation. Furthermore, some wag had apparently put a teaspoonful of potting loam from an hotel flower pot into my carburetter. I cleared the jet several times, and finally dismantled the entire carburetter. Then I had a bad nail puncture, and finally the petrol union came away from the tank—one of the most awkward mishaps to "fake" imaginable. However, the machine took Amulree on less than quarter throttle, and as it was now pretty well tuned up, I looked forward to a comfortable week.

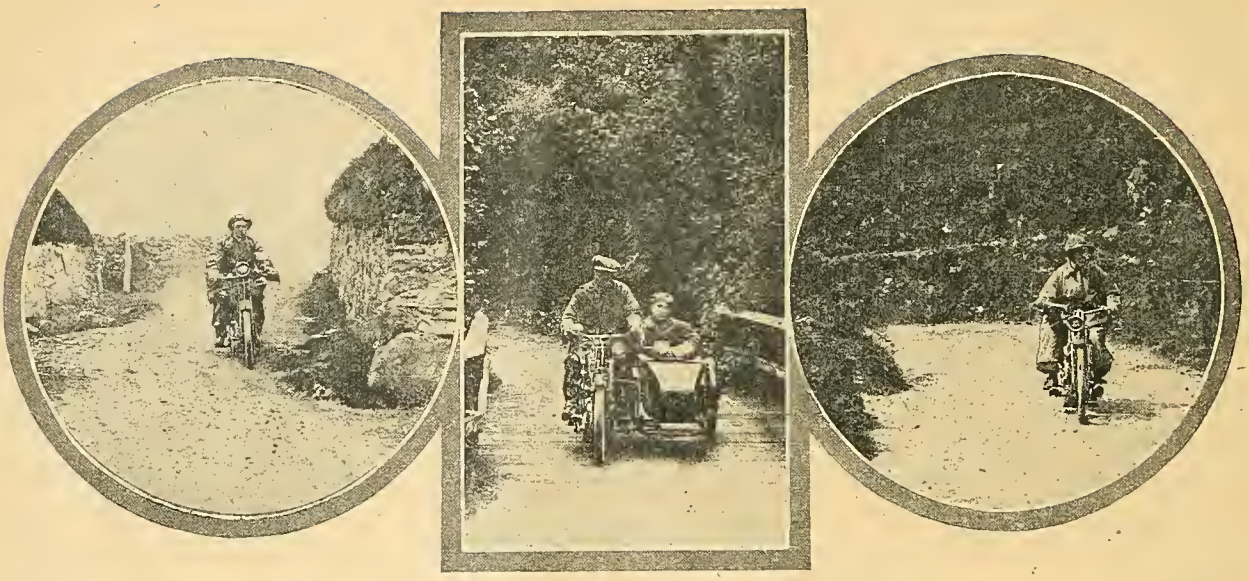
Hairpins Galore, and Poor Driving.

Tuesday was a very severe day, and the machine ran like a clock—absolute non-stop.

Wednesday ditto. I was the first man up Abriachan Hill, and thought nothing of it; but the subsequent ascents cut up the bad corner considerably—the first sidecar ploughed a rut several inches deep clean round the centre of the hairpin; and there was, perhaps, more excuse for the many failures than I was inclined to credit. Every Scottish Trial is the same in one respect. On the opening days the men who are sampling the Scottish hairpins for the first time bungle their speed and steering abominably. In previous trials the bad corners have generally been reserved till late in the week. This year the men had two hairpins on Amulree, one on Trinafour, two on Cairn-o'-Mount, eight on Cockbridge, two on Abriachan, and one on Gruinard, all in the first three days, not to mention countless others of minor severity; so there



A. F. Downie (5-6 h.p. Ariel sidecar) coming down the road to Drumnadrochit during Thursday's run in the Scottish Trials.



SCENES DURING THE SCOTTISH TRIALS

A Sunbeam rider passing old farmhouses on the moors.

W. E. Grange (6 h-p. Bradbury sidecar) coming down Abriachan Hill

Mrs. Hardee (3½ h.p. P. and M.) rounding one of the bends on Glendoe.

was some excuse for the initial failures. Many riders of repute were already near the danger line between gold and silver medals by Monday night.

Applecross, and Other Worries.

On Thursday I had a very trying day. I had been troubled by an intermittent leak in the back tyre, similar to one which worried other riders on the same make of tyres. The tyre deflated slowly. When in a hurry, one blew it up, and it lasted from ten to thirty miles. When one had a little leisure, one enquired into matters and found no sign of a leak, but the tube would not hold up half the day. On the Thursday morning the leak got worse, and out came the tube. One of the many patches which decorated it was "lifting." I pulled it off, cleaned and solutioned the tube, and got my patch ready. Returning to the tube, I saw a bead of ugly glutinous moisture oozing from the hole—evidently some patent puncture-sealing nostrum. The patch would not stick on the top of this mess; after some trouble, by holding the tube with the hole uppermost and draining the sticky mess round to the bottom, I got the patch to stick. When I blew the tube up, I found half a dozen other leaks, and the joint was also oozing the yellow sticky stuff. Out came the knife, and I slashed the tube in half, only to find that the spare tube was endless. Out came the wheel, a job which occupied no small time, as the axle nuts were rusted home on their spindle, so that it was very difficult to get both of them loose simultaneously; moreover, the hub-disc details of the rear chain case had been badly strained by the real owner and could not be induced to clear the sprocket all the way round. I now had a most fiendish "blind" to the summit of Tornapress, having lost over two hours on the riders. However, as the engine was a real "revver" and no more trouble cropped up, I got there just ahead of the riders, and cooled off lunchless in the thick blanket of white fog—lunchless, because as soon as the last men were over the hill, the first men were due back again, and it was not fair to descend in the fog whilst others were trying to ascend the rough tortuous track.

On the return journey, which was non-stop, I swopped machines for some miles with a retired competitor, who could not get up Tornapress at any price. I formed the impression that the works 'bus, which he was riding, had been tuned with an eye to Brooklands rather than Highland hairpins. The ignition was timed so fast that it conked like a shipyard of Sunderland riveters when it was picking up on the flat; very nice when it once got "revving," but how *could* such a mount be coaxed round the Applecross hairpins?

Transmission Troubles in the Wilds.

Friday was a terrible day. The machine ran like a Rolls-Royce to Glendoe. The last competitors to ascend had tailed out so badly that the trial was now miles ahead of me, and I resolved to take things easily on the way home, instead of scrapping madly after the main body. Gibson and Mundy came along on their withdrawn Morgans, together with two merry Scottish journalists on a plucky little Baby Peugeot, and we foregathered at the Whitebridge Inn a few miles over the summit of Glendoe for tea, little knowing what awaited some of us along the sixty-four miles which still lay between us and bed. Two miles further on my back chain broke; it did not jam and skid the wheel, as *confrère* "Ixion" is wont to allege in his more pessimistic moments—the machine simply freeled into a deathly silent stop uphill. I began with the plan of detaching the chain case to recover any fractured bits. Gibson, Mundy, and their passengers beguiled my labours with humorous remarks, mostly taking the form of prophecies that my frame or engine were on the point of dissolution, and that they would see me carbonised before giving me a friendly lift. The makers of the machine tell me that the chain cases on this mount had been badly strained; but at any rate the five of us reluctantly concluded that to dismount the rear chain case, we should have to take off the back wheel and both the front sprockets. So I waxed

Round Scotland on a Borrowed Motor Cycle.—

reckless; prising the top split of the case apart an inch or so, I fished out the broken ends of the chain with a bent wire, mended them, spun the wheel, heard no noises save such has had always characterised the rear chain case, and left the broken fragments of the chain to do their worst; what became of them is a mystery, for they never reappeared, though I drove for miles with a finger on the clutch control for fear of an almighty jam-up.

A Novel Method of Starting.

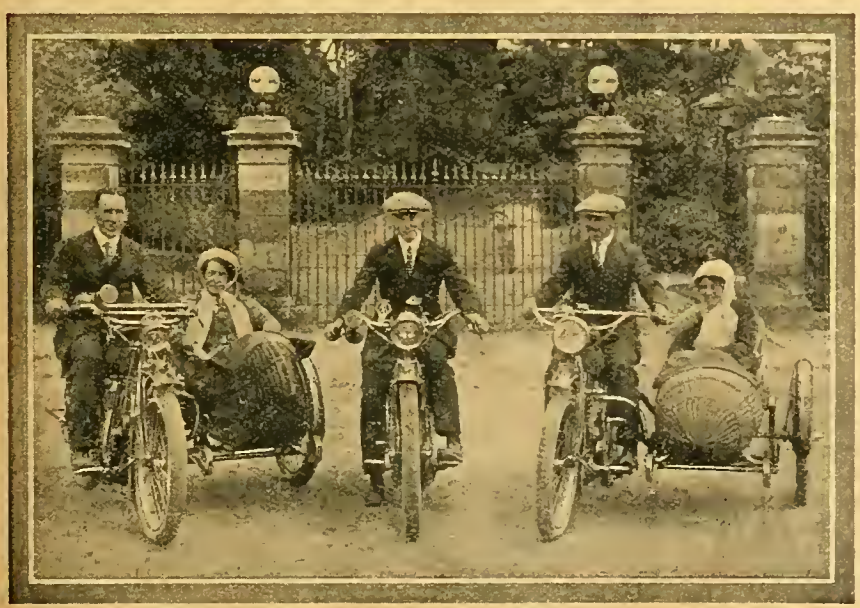
After this all went well till we hit the lovely speed straights near Cawdor, where I had the fright of my life. I heard a terrible uproar astern, and looking round saw the two Grand Prix Morgans coming up behind me, one on each side of the road at a level sixty; and Mundy, I knew, was running on the canvas of his back tyre. I wriggled hastily to one side and let them through. These two machines, by the way, were hunting in couples because one of them would not start on the handle, and so the other used to tow it off by a rope which the passenger held. The groans of the passenger if the engine did not start within fifty yards, and the rope half cut his palm through, were frightful to hear. I let their dust subside—this took about ten minutes, and then "blinded" off after them. Presently my engine began to get very hot, and glowed between my calves like a live coal. I oiled it up vigorously and slowed down. Clouds of blue smoke followed me, but it got hotter and hotter. I stopped and investigated to find the crank case drain plug missing. At a friendly smithy near by I got a huge rusty bolt, which I lashed into the orifice with wire and proceeded. At this point our photographer turned up. His own machine had broken its forks, and he was riding a borrowed twin, which would not look at Glendoe, and could only do 25 m.p.h. all out. He had been compelled to go round by Drumnadrochit and Inverness after snapping the men on Glendoe, and was looking a thought weary.

Rags and Patches.

We rode on together, and about 9.30 p.m.—fifteen miles from the night's destination on top of a lonely moor in the rain—he punctured! His stand had already collapsed, so we laid the machine with the belly of its engine on a bank, and one of us steadied it whilst the other repaired the tube, which, incidentally, showed an enormous blister just by the valve. While we were thus busy the Baby Peugeot arrived, and we noticed that the neck of the umbrella coat, which was its driver's chief pride in life, looked rather ragged. He explained that eleven punctures had exhausted their supply of patches, and he'd had recourse to his coat collar. We got going, and overtook them further on, with yet another puncture, and gave them patches. Dropping into Grantown, my engine developed the most frightful moans, presumably the results of the previous oil leaks from the crank case. A congregation of experts at Grantown dismally surmised either "con. rod" or "big ends," but after the 10 p.m. meal (the first since 7 a.m.) I fancied the noise came from the front chain case, and aided by the kindly P. W. Bischoff, we took the front chain case off, and found the chain sagging against a security stud, having stretched a whole link in the five days. As all the adjustments were at their limit, and the nuts rusted home, and the tools in the kit grossly inadequate, it took us nearly two hours to adjust the chain, and shortly after midnight a weary pressman retired to bed, only to be awakened by shrieks of merriment when the barman dropped a marble-topped table from the top of a huge tree outside, whither two or three merry spirits had conveyed it.

An Inglorious Finish.

Next morning it was proved in the first mile or so that the slack chain had *not* been solely responsible for all the moans of Friday, and miles from anywhere the engine suddenly seized up solid at speed, another motoring fatality being averted by the writer's cautious habit of keeping a finger near the clutch control when driving on rigid transmissions. I draw a veil over my progress to the station; I *ran* the machine thither, as the time-table showed that by catching the first train I could overtake the trial and get a lift on a car. The cross-country route to the station was far more truly Colonial than anything previously encountered, and in one place a small loch had overflowed it for 100 yards to a depth of 6in. or so. Next year I shall report the Scottish Six Days on my own machine. It is false economy to subject a borrowed mount to the gruelling such a week implies, and it is absolutely necessary to have a complete and intimate acquaintance with one's machine.



J. R. Alexander, E. A. Colliver, and E. Frasetti, who formed the winning Indian team in the Scottish Trials, all of them riding the 7-9h.p. models.

Occasional Comments by "IXION"

Broken Spokes.

From all I hear the old nuisance of broken spokes has been a little too common this year, especially on machines produced by firms who have recently adopted chain drive without much experience of the strains which a comparatively rigid drive, in conjunction with a low emergency gear, can throw upon all the fittings from stem to stern. A correspondent tells me he has suffered untold things from this cause during the early summer, as he has to unscrew his chain sprocket before he can insert a new spoke; and on one occasion he was unable to shift the sprocket, even with the aid of his local dealer. He enquires whether there is any objection to the old dodge employed on the B.S.A. pushbicycle of cutting holes in the hub shell flange so shaped that a new spoke could be slipped in without removing the sprocket. I know of none, and hope designers will consider the point. It is quite independent of weak wheels, for a spoke may easily be damaged by accident; and any design which encourages riders to drive with a few spokes damaged or missing is radically bad; it is bound to lead to buckled wheels, whereas the mere replacement of a spoke is a perfectly trifling matter.

Renewing Piston Rings.

Every sensible rider is aware that the "spring" of a piston ring will keep it a sufficiently tight fit in the cylinder bore after thousands of miles have worn much metal off its frictional surface. He is equally aware that wear is not confined to the rubbing surface, but takes place at least as rapidly in an up-and-down direction, as the piston rises and falls, and the ring is thrust forcibly, first against the lower wall of its groove, secondly against the upper wall, most of the wear probably occurring against the lower edge of the groove. This play cannot be taken up automatically, and new rings are requisite at regular periods. A good many makers are too stupid to stock rings a little wider than their original standard, but I am glad to learn that the Triumph Co. are setting a very wise example. They are prepared to supply rings, five, ten, and fifteen-thousandths of an inch wider than standard for replacement purposes, thus saving the fastidious rider the expense of having special replacement rings turned up by a repairer.

The Indian Electric Equipment.

I have just had my first longish night ride on a Hendee Special with the full electric equipment; and as I had not ridden a very recent sample of the 7 h.p., the excellence of the engine absorbed the whole of my admiration for a considerable time; I do not know whether all the 7 h.p. engines are as good as the one I tested, but it was positively delicious—it cooed along like a sucking dove on the pilot jet, and, when the throttle was opened, it instantly transformed itself into a torpedo boat destroyer on its time trials. "Pro-deegious!" as Dominie Sampson used to say. When I grew accustomed to the potency and flexibility of the power unit, I began to turn my attention to the electrical equipment, and came to the conclusion it is a most desirable addition to a heavy mount *de luxe*, especially when loaned one for a short period. We may remain obstinately faithful to acetylene, because we understand it, and can rely on overcoming its most fantastic whimsies, but it is undoubtedly very pleasant to switch on an electric lamp, and that without any anxiety about the batteries, because you know a dynamo is busy replacing the current you are using. I have long had a weakness for the electric hooter, and was very reluctant to decide, as I did, that it is not good enough on a motor cycle unless you have a dynamo. I have a Klaxon on my cycle car, and experience with small 4-volt hooters and batteries on my cycles has led me to put a huge 30 lb. accumulator to run the Klaxon; the Indian, with its engine contantly recuperating the batteries, stands in a very different category. Whether I should have a peaceful time with the Hendee Special if I bought one for keeps is another question. The makers issue a ten-page booklet, the pages of which are mostly filled with the phrase "Let it Alone" in capitals, and as my bump of inquisitiveness is about 100 c.c. bigger than my bump of prudence, I should probably dissect the whole affair in the first week, and borrow an acetylene lamp and a pneumatic hooter to serve my turn till I

Monsieur H. Sipiere, the Judge of the Court of Appeal at Algiers. He is seen mounted on a 6 h.p. Enfield sidecar in front of a Moorish villa.

Occasional Comments.—

got the electric gear together again. The weights are interesting and total 62¾ lb., viz., electric motor, 25¼ lb.; batteries, 14½ lb. each; head light, 2¼ lb.; tail light ½ lb.; hooter, 2 lb.; regulator, 1½ lb.; switchblock, 1 lb.; connecting block, ¼ lb.; wiring, 1¼ lb. These are rather depressing, so far as they reflect on the possibilities of using electricity for similar purposes on light touring machines of 3½-4 h.p. The total can be reduced by more than half by omitting the spare battery and the dynamo; but a battery minus a dynamo would never stand the racket of starting an engine and blowing a hooter; and 62¾ lb. is too formidable an addition with which to burden a medium powered machine. However, the 7 h.p. Indian would not complain if its luxurious kit were twice as heavy.

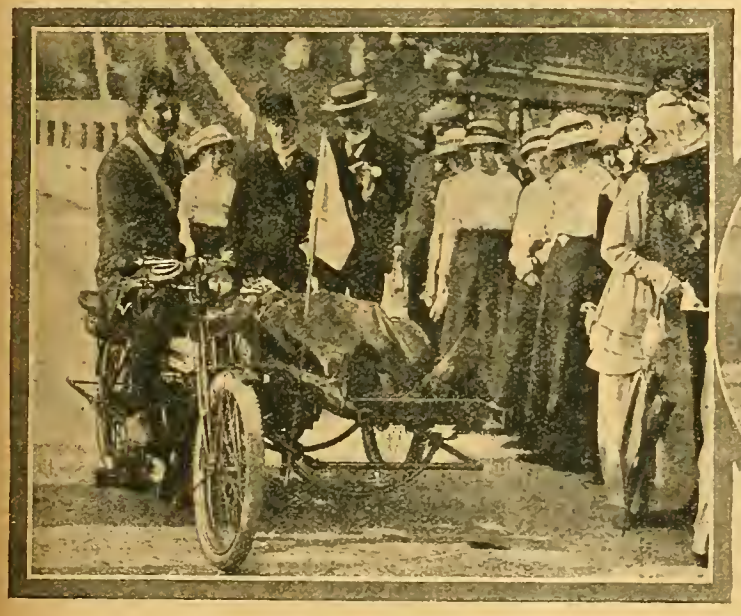
A Tip for Springs on Bad Roads.

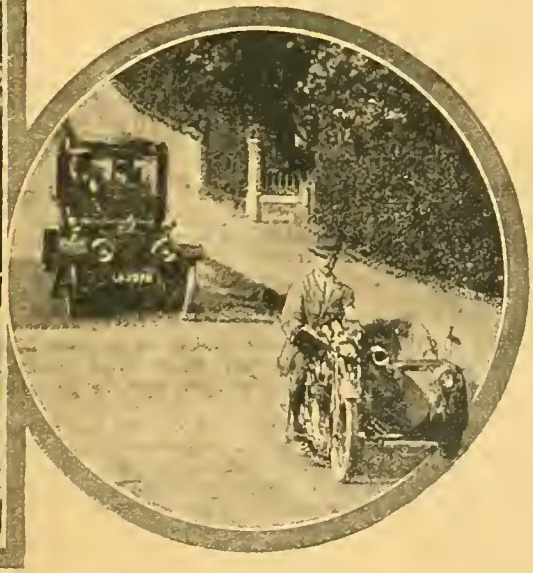
If the springing of your cycle car is a shade too lively on bad roads, and the consequent motion reminds you too keenly of that ocean greyhound the ss. *Fenella* in a choppy sea off Douglas Head, or of the Wiggle-woggle at Earl's Court after too rich a lunch in the sun, try binding the lower halves of the rear springs with trawl twine. We all know what a "corrugated" road is, but there is a worse species still; an actual sample may be inspected between St. Albans and Barnet; my better half describes it as "scolloped," but for the sake of the happy northerner who never has to drive over it I may liken it to hammered copper-work as viewed through an extremely powerful micro-scope. After my last trip to town I decided to leave my cycle car for disposal at a Euston Road slaughter-house, and to return to Coventry by aeroplane. But a kindly garage manager produced about 300 yards of what he was pleased to identify as "trawl twine." We took the back wheels off, and bound the rear springs in a manner reminiscent of repairing a cricket bat. On the return journey the car negotiated the scolloped surface at 15 m.p.h., as against 3 m.p.h. on the south-ward journey; and we only shed three grease cups, as compared with eleven on the outward journey. But beware—it takes more twine than one would fancy; I estimated the quantity required at thirty yards. I believe we bought three hundred, and when we had finished there wasn't quite enough left to bind the entire periphery of a 14in. steering wheel.

Batteries for Electric Hooters.

We live and learn. I have hinted lately that my theoretic enthusiasm for electric hooters had received sundry heavy dampers, and last week I unbosomed myself to an accumulator manufacturer. He waxed very wroth. "Yes!", he exclaimed indignantly, "there are a lot of idiots who are supplying ignition accumulators and small dry cells for the job, and they can never stand the heavy discharges. They will work moderately well, for the first month or two, but after a few rechargings the accumulators will be done for, and the cost of replacing the dry cells at such short intervals will inspire you to give away the hooter if you can find anybody fool enough to take it. I'll make you the right sort of accumulator!"

I waited expectantly, after nominating an eight-volt hooter which adorns my cycle car, and which has been silent for a month or two because it buckled the plates of the original accumulators with sickening regularity, and ate up dry cells with a speed which made its upkeep as heavy as the tyre bill. Finally an enormous package arrived, and I unearthed an accumulator measuring 12in. × 10in. × 5in. and weighing—well, it broke the domestic balance which registers up to 15 lb.! This is an accumulator maker's idea of the kind of cell which is desirable for an eight-volt hooter, when there is no dynamo to keep the cell constantly up to the mark; and his notion suggests that electric alarms are best confined to powerful cars, save where (as on the Indian) a dynamo replenishes the cells faster than the hooter drains them. The accumulator in question is catalogued at 50s.





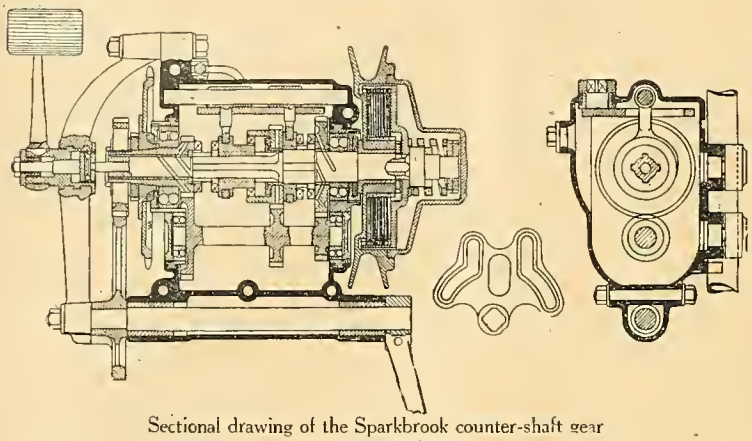
THE RED CROSS FIELD-DAY AT BROOKLANDS

The only motor cycle ambulance—a 3½ h.p. Triumph and Gloria sidecar.

T. W. Loughborough (7 h.p. Matchless sidecar), who escorted T.M. Queen Alexandra and Empress Marie of Russia to Brooklands.

The Sparkbrook Three-speed Gear.

FOR some time past the Sparkbrook Co., of Paynes Lane, Coventry, have been testing a new three-speed counter-shaft gear, which made its first public appearance in the London-Edinburgh run, on which occasion it performed excellently, and, besides giving no trouble, proved itself particularly free from oil leakage. The gear will not be standardised on Sparkbrook models till 1915, but in the meantime it will be produced for the trade as a fitment suitable for new or converted machines. Before examining the interior of the gear box we had a short trial run, and found that the gears ran remarkably silently on all three ratios, and the change of gears can be effected quietly at almost any speed. The control lever is conveniently placed, and in thick traffic one changed gear almost automatically and without the slightest noise or jar

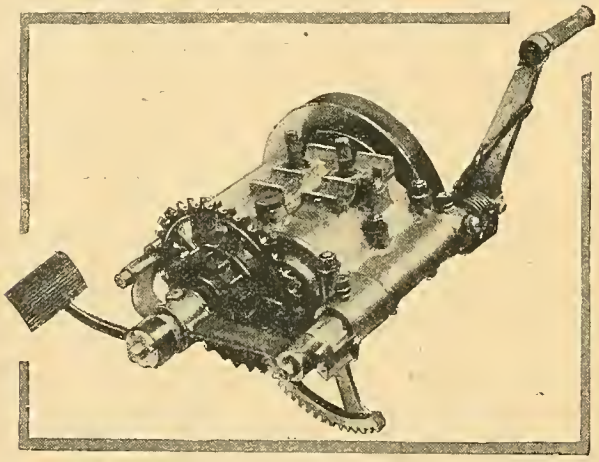


Sectional drawing of the Sparkbrook counter-shaft gear

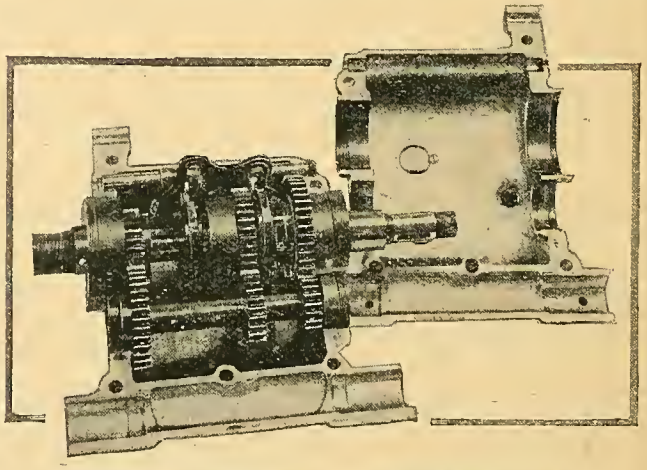
The box is of the constant mesh type, all three pairs of wheels remaining in engagement, and the variations of ratio being obtained by moving two sets of dog clutches. One set of dogs operates the high and middle gears, the latter being of the internal dog type, while the other dog locks the low gear wheel to the shaft. The forks which move the dogs pass through slots in the cam plate, and are free to slide on a plain bar at their butt ends. Thus the rocking of the cam plate causes them to move sideways and engage the gears in proper rotation. The cam plate itself, though particularly simple in form, is a clever piece of work, and it is hard to imagine a simpler actuation for a dog gear.

Sound Method of Housing Bearings.

All the various good features of the Sparkbrook two-speed gear have been retained, and the ball races are mounted in phosphor bronze housings cast with the outer shell, while the screw adjustment for the front chain, of course, remains. The same type of multiplate clutch is employed, the big plates being mounted inside the 8in. belt pulley. The clutch control has been considerably simplified, and now consists of a pedal mounted on a cast thread screw and carried in a cross bar bolted direct to the gear box. The kick starter is integral with the gear box, and to assist easy engagement every other tooth in the starting wheel is removed, a simple device which might come into more prominence. The dogs on the mainshaft slide on splines instead of squares, and the layshaft is solid with its gears.



The complete Sparkbrook gear box, showing kick-starter and gear-operating mechanism.



Showing the internal mechanism of the Sparkbrook three-speed gear box.

THE OLYMPIA SHOW ARRANGEMENTS.

SOME drastic alterations are already in progress in connection with the Olympia Show arrangements in November for business office space and the grouping of the light car exhibits.

Last year nearly the whole of the Annexe was given up to business offices. This year the organisers have decided to erect above all stands which back on to the walls of the building on the ground floor an office which will be reached by a staircase and passage. The latter will extend all round the building, so that visitors to several offices can walk from one to the other without having to descend to the ground floor.

These stands will be uniformly decorated, and each stand will be equipped with the same type and shape of banner and lettering. It will be found that his scheme will add considerably to the general appearance of the Show, whilst providing the necessary extra space for the light car exhibits which is so urgently required.

The whole of the light cars will this year be grouped together in the Annexe, and a price definition has been decided on which will exclude all cars from the motor cycle and light car show which do not conform to it. The definition is as follows:

"Any two-seated automobile, the retail price of which equipped for the road, including hood, screen, lamps, and spare wheel, does not exceed £200."

This will not prevent the organisers, the Manufacturers' Union, from refusing any vehicle which in their opinion is not a light car, as they will have a clause in their agreements to that effect

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Oil Leakage from Engine.

I am in trouble with oil coming from the bearing on the pulley side of my machine. It covers me and the engine on a long run, although the engine is in splendid mechanical condition. There is a little side play, but no up and down play on the shaft on the pulley side. What can I do to stop this nuisance?—E.W.

See that the crank case release is in proper working order, and that there is not any compression set up in the crank case, which would tend to force the oil out of the bearings. This is a very common happening, and can be very easily cured by making sure the release valve is working.

Lining up a Sidecar.

Will you please give me directions for correctly affixing a sidecar to a motor cycle to obtain perfect alignment?—A.S.

First of all place the machine on a level floor, then line up roughly without securing the joints too tightly; get a spirit level, first testing if the motor cycle is vertical, and then the sidecar. To get perfect alignment, get two pieces of wood of equal length, place two chairs back to back—one in front and one behind the machine—lay the pieces of wood on the seats against the back of the chairs and join these up with string, each end of the string being exactly the same distance apart on the pieces of wood. If you stand at the end of the line and look down you will see whether or not the bicycle and sidecar are parallel.

Overheating and Knocking.

My motor cycle engine gets very hot. I have examined the exhaust valve, and find it opens at the bottom of the firing stroke; this, I think, is right. And the spark occurs when the piston is at the top and lever retarded. I hear also a certain amount of knocking when on top gear or when I put on a little extra air, but this does not occur on bottom gear. Can you suggest a cause?—J.R.C.

If the exhaust valve, as you say, opens at the bottom of the firing stroke, it is certainly not correct, and is probably the cause of the overheating. This valve should be timed to open about forty-five degrees or one-seventh of the stroke before bottom dead centre, and close at top dead centre. The ignition timing is quite correct. Most engines are prone to knocking on top gear when labouring—that is, when going slowly on a hill, or when picking up on top gear.

A Trapping Query.

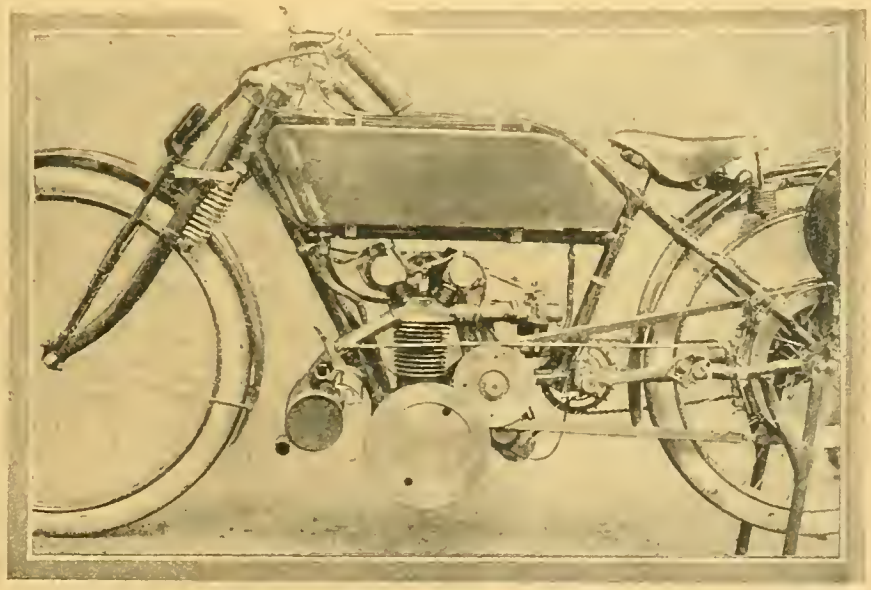
In proceeding through Godalming recently with my motor cycle and sidecar at a pace of about 8 m.p.h. I was stopped by a plain clothes man and told rather brusquely that I should be summoned for racing through the town at 20 m.p.h. I was travelling up hill at the time, and had to turn a most dangerous corner with a nervous lady passenger, which speaks for itself as to my pace. Can the plain clothes constable legally act as he did?—L.C.

There was no necessity for you to stop on the request of a plain clothes policeman. According to the Act of 1905, you need only pull up on the request of a policemen in uniform or the driver of a horse-drawn vehicle. If the man in question was really a policeman and your summons comes through we do not know what you can do, as if the police say they timed you and prove you were doing a speed in excess of 10 m.p.h. you will be convicted. If you are a member of the Auto Cycle Union (83, Pall Mall, S.W.) or the Automobile Association and Motor Union (Fanum House, Whitcombe Street, W.), we should recommend you to get their solicitor to defend you if the case comes into court.

Overhead or Side-by-side Valves.

What are the disadvantages of an overhead valve engine compared with one fitted with side-by-side valves, and would starting be difficult with the overhead type and a fixed gear? Also, is it possible to obtain slow running with a 4 to 1 gear?—T.R.M.

The disadvantage of overhead valves is that their adjustment is liable to become deranged more quickly than that of side-by-side valves; also, in the case of breakages considerable damage may be done to the engine by the head dropping into the cylinder. On the other hand, with an overhead valve engine the valve can be made much larger, and consequently the efficiency of the engine is increased somewhat. Provided the carburetter is in proper adjustment, you should have no difficulty in starting with the overhead type with a fixed engine, and as regards slow running this also depends upon the carburation, and, to some extent, the valve timing. If the engine is timed for fast running you would very probably not be able to throttle down on a 4 to 1 gear to a really slow pace. Generally speaking, overhead valves are right for racing and speed work, and side-by-side valves preferable for touring.



A FRENCH RACER OF WHICH MORE WILL BE HEARD.

Belt side of the four-valve 500 c.c. Peugeot engine on which Pean recently broke the kilometre record in France, his speed being 76.09 m.p.h. As will be seen, the machine is fitted with four overhead valves, two exhaust and two inlet pipes, outside flywheel and combined drive.

Loss of Power on Hills.

My 1912 machine took a good 1,000 miles to get well run in, and the running continued to improve until a slack big end bearing needed attention at 9,000 miles. At this mileage I had the connecting rod rebushed and fitted a new piston and crank pin, and I have now run the machine some 500-600 miles since the rebushing, and the running is not satisfactory. The machine pulls splendidly on the level or on a mild gradient, but on a hill like Titsey (Surrey) the engine will not carry me more than half-way up, and gets very hot. If I allow it to cool thoroughly it will start on the clutch on the gradient and finish well. I use a gear of about 4¾, and some months ago climbed the steeper side of Dartmeet (Devon) on this gear easily. I use benzole, and the plug and magneto contacts and carbon brushes are quite clean, there is no carbon deposit, the timing is correct, and the compression good. The only unfamiliar noise in the engine is when picking up from a slow speed on a stiff gradient; there is then a slight clank, which I am inclined to think comes from the crank pin not being an absolutely tight fit in the big end bush. In short, I am disappointed with the machine on hills, and should be very glad of your advice. In conclusion, which do you consider the least atrocious road from St. Paul's Cathedral to Lewisham, and from Lewisham to Letchworth, Herts.?—B.T.V.

Probably new valve springs would improve the running of the engine enormously. You might also try advancing the ignition. You are pretty sure to get more power from benzole than you are from petrol. Probably the best route from St. Paul's to Lewisham would be to come down to Ludgate Circus, New Bridge Street, Blackfriars Bridge, St. George's Circus, New Kent Road, Old Kent Road, New Cross, Lewisham High Street. To get to Letchworth from Lewisham, we should advise you to take the Woolwich ferry, and then follow the road marked in blue on the R.A.C. Official Map of Recommended Routes Round London (obtainable from these offices, price 1s. 8d. post free). This brings you to Enfield, and after Enfield G.N.R. Station take the first turning on the right, which takes you to Potters Bar. You are then on the Great North Road, which follow through Hatfield, Welwyn, and Hitchin to Letchworth.

Swindon to the Highlands.

Will you kindly give me advice regarding a projected tour from Swindon? I think of having a fortnight away, but do not wish to be riding more than half the time. Never having visited the North at all I thought of Scotland. Is this a good idea for a summer holiday, or would North Wales and the Lake District be preferable? If Scotland, would the main London to Edinburgh give the best scenery and pass the nicest towns *en route?* Also, what parts in Scotland ought I to visit, taking Edinburgh as the centre?—A.L.M.

It is a good idea to go to Scotland for a summer holiday. What we should recommend you to do is to take the Great North Road right away from London, to a point two miles south of Wetherby, and then turn left and go through Harewood, Otley, Ilkley, Skipton, Settle, Ingleton, Kirkby Lonsdale to Kendal. If your machine is a good hill-climber go on to Windermere and Ambleside, go over Kirkstone Pass along Ullswater, and then to Penrith. Continue to Carlisle and then proceed through Langholm, Teviothead, Hawick, Selkirk, Galashiels, Stow, to Edinburgh, which, however, is a bad town for motor cycling. It is all cobbles and tramlines, and the traffic is badly regulated. It is a fine city, and well worth visiting. Once at Edinburgh you can take the ferry from Granton to Burntisland, and make your way up to the Highlands. After this you have magnificent country at your disposal.

Removing Carbon without Taking off Cylinder.

I wish to clean internal combustion engines without dismantling them, so can you kindly tell me the best process to use?—R.C.P.

Many engines can be cleaned out with the aid of scrapers. Set the piston at the top of the stroke, so that both valves are closed, and use the scrapers sold by the big accessory firms, or make some of your own. We are using a pair which we made of round iron, flat at the end and bent over and ground to chisel face. They can then be bent to suit the necessary angle. One takes the piston and the other takes the combustion head. With their aid an engine can be cleaned out comfortably without dismantling. The carbon dust is blown out afterwards with the aid of a tyre pump fitted with a special narrow connection of flexible tubing with a pointed brass nozzle. If you use oxygen, it is only necessary to buy a cylinder, a reducing valve, and a small nozzle. The best way to start the carbon burning is, after having turned off the petrol and emptied the float chamber of the carburetter, to insert a lighted taper into the combustion head and then turn on your oxygen. The carbon will then catch fire and burn in a shower of sparks until it has all disappeared. The nozzle should be kept moving about, so that the carbon from all parts may be consumed, when the flame will immediately cease.

"Ixion" will reply to "H.W." (Beds.) if he complies with our rules by sending a stamped addressed envelope."

EXPERIENCES WANTED

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"A.L.G." (Wimbledon).—Stelastic tyres for rear wheels.

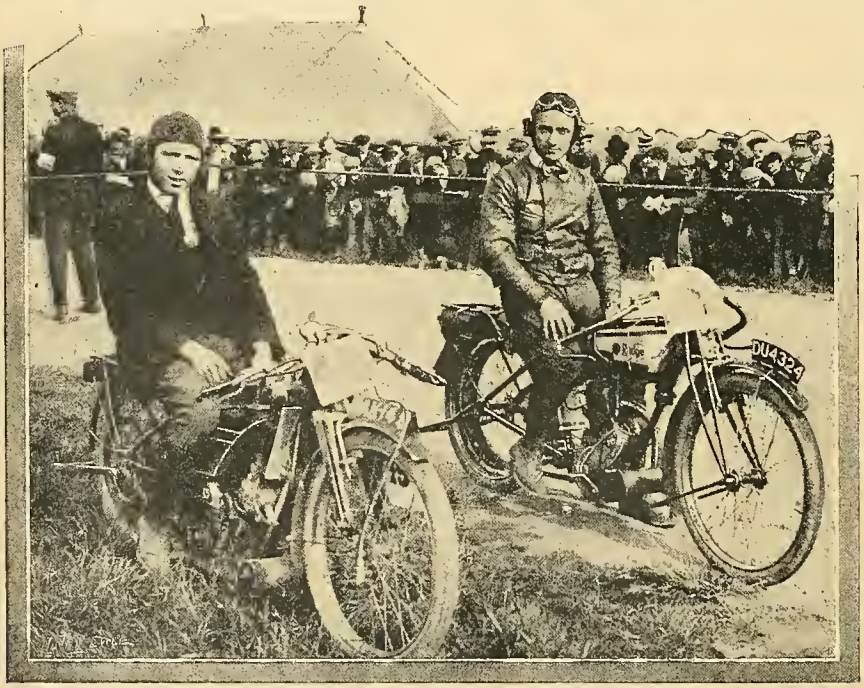
"W.Z." (Loughton).—Henderson with sidecar. Reliability, hill-climbing, easy starting, brake power, carburetter, clutch, two-speed gear, etc.

"E.C.W." (Sutton-in-Ashfield).—Whittle belt on 5-6 Rudge-Multi.

"J.D." (Tidworth).—New Imperial-Jap "Light Tourist"—2½ h.p., 293 c.c. Reliability, fuel consumption, hill-climbing, etc.

"B.E.S." (Berks.).—Douglas, Connaught, or other machine suitable for ladies' use. Kick-starter preferred.

"D.T." (Rugby). Experiences with Triumph and Clyno two-strokes. Maximum speeds, petrol consumption, and if small road wheels cause vibration.



THE T.T. WINNERS OF 1913 AND 1914 SNAPPED TOGETHER AT THE DONCASTER TRIALS.

H. O. Wood (3¾ h.p. Scott), 1913. C. G. Pullin (3½ h.p. Rudge), 1914.

MILITARY MOTOR CYCLING NOTES.

Recent Military Operations in which Motor Cyclists were Concerned.

EARLY this month a "Staff Exercise" was held in which a number of Special Reserve motor cyclists and civilian motor cyclists took part. The general "idea" was: At the end of May an oversea power (Blue) seized Southampton and commenced disembarking troops. All the available British troops were concentrating at Godalming (cheerful for military motorists).

On June 3rd information was sent to 1st Army headquarters at Thursley to the effect that the 3rd Division had been intercepted and was heavily engaged in the neighbourhood of Stockbridge. Consequently, relief had to be sent as soon as possible. Further information to the effect that the enemy had only landed three divisions, but had advanced to the neighbourhood of Winchester, was received.

The first Army was composed of a cavalry brigade and a division with a portion of a second division. The Army was completely mobilised and was billeted on the Elstead-Shottermill road.

Further military details would not interest the lay reader. On these operations the signal units with their attendant motor cyclist despatch riders were well represented. Of other troops there were comparatively few. This at first may seem curious. A division, however, was represented by several motor cars carrying various officers and their A.D.C.'s. The writer first had a *rendezvous* on the famous Hog's Back, where several civilian motor cyclists had assembled. The machines were Blackburnes, Triumphs, and P. and M., the latter the writer's mount. The motor cyclists then moved to Kingsley, where Army headquarters were situated. Upon arrival at Kingsley a large number of motor cyclist Special Reservists were found. These men were doing their annual fifteen days' training with their signal units. The machines found here were Bradburys and Ariels.

THE MOTOR CYCLE AND THE ARMY.

(1) Members of the Cambridge University O.T.C. (motor cycle section) passing the saluting base during the recent inspection by Major-General Davies, C.B.

(2) The motor cycle section of the East Lancs. Divisional Signal Service, in camp at Carnarvon

(3) Scouts attached to the Royal Gloucestershire Hussars in training at Brighton.

The first orders received were for some motor cyclists to be despatched to the various signal (telegraph) offices attached to the divisions and cavalry. The writer then received orders to join the cavalry at Froxfield and take charge of the motor cyclists at that spot. Upon arrival at Froxfield it was found that the cavalry had moved and left no sign. After having covered some twenty miles, stopping to enquire at almost every village if a military motor car had passed that way, eventually the cavalry signal office was found at a cross roads, the cavalry headquarters being some nine miles distant. As cavalry are extremely mobile, it is next to impossible to lay telegraph wires at sufficient speed to keep up with them. Thanks to Mr. Marconi, a cavalry signal station consists of a wireless troop. Upon the writer's arrival a Blackburne rider (C. Q. Roberts) had just returned from Portsmouth, having averaged 42 m.p.h. both journeys. The cause of his journey is interesting. There are in the Army many wireless telegraph motor sets. These "offices," as they are called, have for motive power 5 h.p. Douglas engines. Owing to a rush of work it had been necessary to run one set at an extremely high number of revolutions for well over half an hour. It must be remembered

Military Motor Cycling Notes.—

that there is no cooling rush of air as on a motor cycle, the only method of cooling being vanes on the flywheel. Excellent as these little engines are, even a Douglas cannot stand such continued hard treatment. A small but important detail broke, hence the motor cyclist's journey.

Had no motor cyclist been available an entire wireless telegraph would have been rendered useless. While on the subject of wireless telegraphs, it is interesting to note that all sets have for motive power motor cycle type engines. The smaller sets are run by Douglas engines and the 8 h.p. sets by the 8 h.p. J.A.P. (water-cooled). As has been mentioned, cavalry headquarters were situated some nine miles from the signal office, the whole distance being almost entirely a gradual climb. Motor cyclists covered the distance with ease in an extremely short space of time and were a great relief to the tired soldiers riding pedal cycles.

Later in the day the writer returned to headquarters, two other motor cyclists being sent out to the cavalry for the night. About 11 p.m. "operation orders" were sent out. For this purpose motor cyclists were used. These orders have always to be sent by wire and also by despatch riders. Thanks to good lamps and the perfection of the motor cycle, a few motor cyclists performed duties in a very short space of time that in former years had taken many hours.

Fighting re-commenced at daybreak and continued until noon, when the umpires stopped further operations.

A Good Time and Hard Work.

The writer, when discussing matters afterwards, discovered many interesting details. A Blackburne rider had covered over 250 miles—the average mileage seems to have been about 180 to 200 miles. The above-mentioned machines seem to have unlimited power, and their silent running was much commented upon. The writer's P. and M. ran faultlessly and climbed the many long gradients abounding in the district with ease with plenty of power in hand. The rate of pay was 12s. for twenty-four hours and an allowance of 1s. per hour for further time, with the usual travelling allowance (civilian rates). All motor cyclists engaged agreed that they had thoroughly enjoyed themselves, and wanted to know the next occasion on which they could turn out.

There is no doubt whatever that if only more motor cyclists would take the trouble to enquire into the conditions obtaining in the life and work of a despatch rider to the Army, there would be a great rush of riders anxious to take part in this most interesting and novel work.

R.E.S.R.

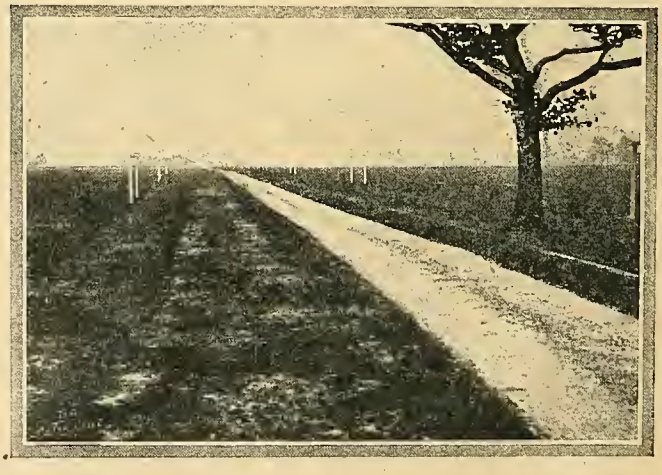
A Wet Afternoon in My Garage.

By ROAD RIDER.

I HAD planned a long trip on the newest motor bicycle for my last leisure afternoon, but a terrible deluge and the lack of a riding companion made me play the coward, and I spent the time in my cycle shed, called by courtesy a "garage," as it makes a better headline. By teatime I was very glad it had rained. I sauntered in, looking for some odd job on which to while away an hour or two, and my eye fell on an ancient T.T. Douglas in the corner. I remembered that last time out it had been afflicted with a misfire, apparently due to the ignition, which I had failed to cure. Having my doubts of the spare plug, I inserted a brand new E.I.C. and a cure followed. Idle fingers then proceeded to tie the "dud" plug on to the inlet pipe, couple it up to the magneto, and start the engine on one cylinder to see how the peccant plug behaved. Its spark was certainly not "bushy"—to quote a delicious term from a recent circular, and at intervals the spark occurred high up inside the plug body instead of across the business end. The little Douglas started so readily on one cylinder, the merest flip of one hand on the back wheel sufficing, when the plug was removed from the idle cylinder, that I bethought me of a large box containing about twenty assorted sparking plugs, the relics of four or five seasons.

One after another I tested them all as described on the Douglas, and so sorted out the invalids from those which deserve a fresh lease of life. I never learnt so much about plugs in my life. The spark varied from the minus quantity to a wee flicker across the points, and from internal illuminations of the cup-shaped hollow in the plug-end to a huge "treesome" conflagration resembling a small explosion across the electrodes: "treesome" is better than "bushy," don't you think? In future I shall make periodic tests of all my plugs on the Douglas. It is worth its oats purely and simply as a plug tester, for there is no engine on the road which starts so readily with a cylinder idle as the small capacity horizontal twin. What Mr. Douglas would say if he could have heard me running that engine free on the stand at intervals throughout a long wet afternoon, I daren't think!

["Treesome" is certainly good. It reminds us of a certain artless bandar, which danced upon a pine, and was described by Mr. Rudyard Kipling as "a gleesome, fleasome thou."—ED.]



The road through the Castle Bromwich playing fields, over which the Birmingham M.C.C. held their Speed Trials on Saturday last.

DUNLOP

SCOTTISH SIX DAYS' TRIAL.

June 15th to 20th, 1914.

The annual demonstration over the border of the overwhelmingness of

DUNLOP

TYRES AND BELTS.

24 GOLD MEDALS.
9 SILVER MEDALS.
2 BRONZE MEDALS.

Scotland's contribution to the tale of Dunlop successes is always a generous one. Year after year these awards, growing steadily in number, illustrate the well-established fact that for such strenuous struggles nothing approaches Dunlop manufactures. It is the innate merit that tells

THE DUNLOP RUBBER CO., LTD., FOUNDERS OF THE PNEUMATIC TYRE INDUSTRY. The largest users of plantation rubber in the British Empire.
Aston Cross, Birmingham; Alma St., Coventry. Branches—London, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

In answering this advertisement it is desirable to mention "The Motor Cycle." B7

"In all cases B.S.A. Motor Bicycles were fitted with Standard Frames and Engines."

THE RELIABLE SIDECAR MACHINE

WONDERFUL ACHIEVEMENTS

OF

B.S.A MOTOR BICYCLES

Fitted with B.S.A. Countershaft Three-Speed Gear.

SCOTTISH SIX DAYS' TRIALS:
Three B.S.A's Entered - - TWO AWARDS.

LONDON TO EDINBURGH TRIAL:
SIX B.S.A's Started (Four with Sidecars)
SIX B.S.A's Finished - Awarded SIX GOLD MEDALS

BROOKLANDS SPECIAL CLASS (open): **B.S.A. FIRST.**

SENIOR T.T. RACE: **B.S.A. AWARDED GOLD MEDAL.**
103 Started—52 Finished, of which SIX were B.S.A's.

MAGILLIGAN SPEED TRIALS:
10 Miles—B.S.A. FIRST. 100 Miles—B.S.A. FIRST.

PARIS—ROUEN—PARIS:
14 B.S.A's. STARTED. 13 B.S.A's. Finished.

YORK & DIST. M.C. HILL CLIMB: **B.S.A. & Sidecar FIRST.**

SURREY M.C.C. TRIAL: **B.S.A. AWARDED GOLD MEDAL.**

RETFORD & DIST. M.C.C. HILL CLIMB: **B.S.A. FIRST.**

STROUD M.C.C. HILL CLIMB: **B.S.A. FIRST** Winning "Triumph" Cup.

HAMILTON & DIST. M.C.C. SPEED TRIAL, 650 c.c. Class:
B.S.A. FIRST.

TYLDESLEY & DIST. M.C.C. HILL CLIMB:
Solo Class - **B.S.A. FIRST.** Sidecar Class - **B.S.A. FIRST.**

DEAL & DISTRICT M.C.C. CONSUMPTION TRIAL:
B.S.A's and Sidecars - - FIRST and SECOND.

Press comments on the B.S.A. performance in the Senior T.T. Race:

"MOTOR CYCLING"

"The regularity of the B.S.A. was quite a feature of the Senior T.T."

"DAILY NEWS & LEADER"

"The B.S A. set up a remarkable record of dependable regularity, combined with high speed, when no less than six of them finished the course without trouble. This was one of the outstanding features of a great race."

The outstanding feat in the many open competitions in which B.S.A. machines have been so extraordinarily successful, is that they have often beaten machines of considerably higher power. The constant successes of B.S.A. sidecar combinations afford striking evidence of the great power and reliability of B.S.A. Motor Bicycles.

Write for Catalogue.

THE BIRMINGHAM SMALL ARMS Co. Ltd.
SMALL HEATH, BIRMINGHAM.

Use B.S.A. Cylinder Oil—good for all Motor Cycle Engines.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Four-speed Morgans.

Sir,—In your description of the Morgans entered for the Scottish trial, you doubt if the four-speed gear will ever be standardised. As a matter of fact, it has been standardised for two years and appears in all our catalogues. It has met with a fair sale—the cars running in the Scottish were, with one exception, entered by purchasers and not by the firm. They have been used frequently in other competitions.

MORGAN MOTOR CO., LTD.

Miniature Motor Cycles.

Sir,—Does it not seem a mistake that all miniature motor cycle trials held or contemplated up to date have their limit at 200 c.c.?

I have just glanced through a few advertisements and *The Motor Cycle* list of 1914 machines (published last November), and I have found that there are about thirteen machines with their capacity from 200-250 c.c., and ten machines with their capacity under 200 c.c. (not counting auxiliary motors).

I must apologise if I have left out any machines in my calculations, as I daresay I have. Anyhow, could not this be remedied by making the limit 250 c.c.?

C.

Adjusting the Carburetter to the Seasons.

Sir,—The point raised by "Ixion" in a recent issue regarding the adjustment of the carburetter to the seasons is one of exceptional interest, and one that has not hitherto received anything approaching the consideration it deserves. The amount of adjustment and how frequent it is necessary depends largely upon the manner in which the carburetter is fitted, and by proper fitting it is possible to reduce the necessity of adjustment to a minimum. Adjustment is, however, a necessity on account of the varying grades of fuel encountered when on tour (especially abroad), in addition to climatic changes, but a modern carburetter should be designed to permit of instant and simple adjustment throughout a wide range without it being necessary to change the jets or choke tubes, which operation not only involves a certain amount of experimenting to obtain the best combination, but also the carrying of a number of somewhat delicate spare parts, while if the carburetter is designed to permit of easily varying the strength of the mixture, adjustment can be effected whilst running, and the correct setting more readily ascertained. In *The Motor Cycle* report of the London-Edinburgh run mention was made of carburetters freezing up, and this in June. What would happen to the same machine if entered in the Grenoble trials may be imagined; it would certainly be unable to climb even the lesser passes of the Alps without constant stops for thawing. The manner in which carburetters are fitted (attached would be more correct) to some twin-cylinder machines is simply asking for trouble in anything but summer weather. Care in the fitting not only results in far greater pleasure in driving and less adjustment, but also great economy, which, with petrol at its present price, is a big consideration. I mention that a certain well-known 6 h.p. machine with coachbuilt sidecar with hood and screen, and 9 st. 6 lb. passenger, luggage, etc., did eighty-six miles per gallon on a recent club reliability trial across North Wales, the same machine incidentally obtaining the first prize for regularity. The obtaining of the above consumption was not by the sacrifice of power, for, geared 4⅜ to 1, the machine could easily account for all main road hills on top. I hope that the foregoing will assist in stimulating additional interest in what is undoubtedly a most important subject.

ERNEST P. EVEREST.

A Lightweight Tourist Trophy Race.

Sir,—Referring to correspondence *re* Lightweight T.T. proposed by you. I do not find it possible to agree with Jack Spratt. It surely cannot be contended that the miniature four-stroke is eminently unsuitable for the tourist, its reliability having been conclusively proved by the recent performances of such small four-strokes as the O.K.-Junior and Calthorpe-Junior.

The effect of the exclusion of such machines would be to deprive the public of an opportunity of seeing the machine put to a strenuous test, and also to rob the makers of the benefit gained by their experience in the race.

If Jack Spratt maintains that a T.T. race in which four-strokes were admitted would produce freak engines, would not a race for two-strokes only equally produce freak engines?

UNCLE.

Sir,—I must say, in fairness to both riders and makers of the four-stroke lightweight of 200 c.c. and under, that I think it is very unfair of Jack Spratt to suggest a T.T. race for two-stroke machines only, and also of "L.E.L." to want the limit raised to 250 c.c.

I agree with the Calthorpe Motor Cycle Co. in every respect; an efficient engine of 200 c.c. with a two or three-speed gear is quite capable of performing everything the average lightweight user requires. Personally, I find my single-speed 2 h.p. Humber all that could be desired from an engine of its size.

B. BATE.

Sir,—I was delighted to read your suggestion in offering a trophy for a lightweight T.T race.

Like many other prospective riders, my hopes were raised considerably, and I shall look forward to the result with pleasurable anticipation, for such a test as you propose will result in a great demand for a lightweight which has proved its efficiency against all comers.

I had been waiting for a cheap mount, and that appears to have made its advent, but its capability was the doubtful factor.

I quite agree with two of your correspondents on two important points. One is that the machines should be of

THE LIGHTWEIGHT TRIAL FOR THE CALTHORPE TROPHY.
E. Gutzemann (Velocette) and C. Aslen (Grandex) passing the observer—Mr. E. Lycett—on the steepest portion of Sunrising.

the two-stroke type; the other, that the capacity should not exceed 200 c.c.

It is true this may exclude some types of machines already of the lightweight order but over 200 c.c., but surely it will give these manufacturers an opportunity for further experiment, and the notice is quite sufficient for them to make the necessary change before the event.

I think, too, the question of price is an important one; in fact, in my humble opinion, the race would be more interesting if a limit could be placed on the cost, as no doubt cheap and, I hope, efficient lightweight motor cycles have come to stay, and to attract many whose purses cannot extend to expensive mounts. R. J. P. CAMPBELL.

Sir,—There is no doubt that there is a market for a light, cheap, small-powered motor cycle which is also cheap to run, and a Tourist Trophy race should be a great help in developing such a machine. In my opinion, then, there should be a limit placed upon each of the four points mentioned, and, for the sake of example, I would suggest the following:

1. Weight, 120 lb.
2. Price, £35.
3. Capacity, 250 c.c.
4. One gallon of petrol to be allowed for a race over four laps of the T.T. course (150 miles).

I do not agree that the race should be confined, as Jack Spratt suggests, to two-stroke engines only, for I would encourage every type, provided it can conform to the four points which I consider desirable; nor do I think that the limit capacity should, at present, be placed so low as 200 c.c., but in this connection I would point out that the suggested petrol allowance will restrict the size to some extent, and it may be found that two-stroke engines cannot exceed 210 c.c. or thereabouts, though a four-stroke should have no difficulty in accomplishing the required m.p.g.

JOHN BONYTHON.

Sir,—As I am a regular reader of your valued paper and follow the correspondence columns with interest, could you spare me a few lines?

Firstly, I cannot agree with the suggestion of your correspondent, Mr. Jack Spratt, to limit the new lightweight T.T. race to two-strokes, as it would provide a very valuable comparison between the two types.

I must say I heartily endorse the suggestion made by the Veloce Company to limit weight only, as those manufacturers who dared to enter a big engine in a very light frame would find that nuts have a habit of loosening and mudguards coming adrift in a prolonged race over such a course as that in the Isle of Man. In my opinion price should not enter into consideration at all. J. HAYNES.

Sir,—In regard to letters appearing in your paper on this subject, we should like to express our opinion as possible entrants. We think that the size of engines should be limited to anything under 250 c.c., as this will allow practically all makes to enter, but we think there should be a limit to the price of machines, and that £35 retail would be fair. We contend that if there is no price limit, machines only costing £28 will have to compete with machines costing as much as £42, which seems most unfair.

Also, we think all two-stroke machines should be run and classed together, and that four-stroke types should be classed separately, for the simple reason that it is admitted that a four-stroke engine can be *faked*, whereas a two-stroke cannot. By faked we mean that the four-stroke engine, "just for the race," might be fitted with overhead valves, special cams, drilled pistons, etc., whereas when once two-stroke ports have been cut there can be no alterations made; so that, supposing a four-stroke engine won, it would probably be quite a different type of engine from standard, and thereby prove nothing to the general public, and at the same time give the public the impression that a four-stroke engine was superior to the two-stroke.

We also suggest that not more than three machines may be entered by one manufacturer, thereby giving the small firms an equal chance with larger firms.

PORTWAY-COOPER MFG. CO.
F. K. PORTWAY.

100,000 Passengers.

Sir,—The accompanying photograph may be of interest as showing yet another use for the ubiquitous sidecar.

I run an out-apiary situated five miles from my residence, and it is occasionally necessary to move some of the bees. Formerly, this operation used to give me considerable trouble, as the frames of comb had to be secured against breakage by jolting when the hives were transported by cart. Last

Carrying bees by motor cycle.

year, however, I bought a spring frame Montgomery sidecar, and by taking off the body and C springs I can substitute a light wooden platform, as shown. With such an arrangement no special precautions are necessary, and the combs, etc., can be moved at the legal limit with perfect safety.

Surely this is a record in passenger carrying—100,000 up.

JOHN WARNOCK.

Where does the Lightweight Score?

Sir,—Referring again to the question of weight and cylinder capacity, I give below particulars of three machines which competed in the Senior and the two fastest in the Junior T.T.:

	No. of cyls.	Bore and stroke.	Weight. lb.	Speed. m.p.h.
SENIORS—				
3½ h.p. Motosacoche	2	64×77	207	45.6
3½ h.p. Motosacoche	2	64×77	202	44.7
3½ h.p. Triumph	1	85×88	204	44.6
JUNIORS—				
2¾ h.p. A.J.S.	1	74×81	201	45.6
2¾ h.p. A.J.S.	1	74×81	212	44.7

The heavyweights finished 10th, 15th, and 16th in the Senior T.T. The lightweights took first and second places in the Junior T.T., and may therefore be taken as the type which is produced by such a race.

But in what way does the "lightweight" score for ordinary use? It will be seen that the three "heavyweights" are actually lighter than the second "lightweight," and only 1 lb. to 6 lb. heavier than the other. The speeds are practically identical, but in the case of the heavyweight were taken over a longer course. According to the published accounts, the lightweights used more petrol, while the engines would no doubt "rev." faster. In fact, for a given power the revolutions of an engine vary approximately inversely as the cylinder capacity. That is to say, the "revs." of the heavyweight could be about threequarters those of the lightweight. As the pressures on the bearings are principally due to the inertia stresses, which go up as the square of the "revs.," this means that the bearing

pressures on the lightweight would be about one and a half times those of the heavyweight, which either means a heavier crankshaft, etc., or much greater wear. The same applies to the effect of vibration on the frame.

Taking these machines as typical examples, where does the lightweight score? F. STRICKLAND.

Scottish Trials.

Sir,—Permit me to point out two mistakes in your otherwise excellent account of the Scottish trials as contained in your issue of June 25th. First, your representative states that No. 74 is down in the official programme as H. Berwick. This is inaccurate. A. Newell is the name opposite 74. Your reporter got a private hill-climbing list, the names in which were taken from a proof, and he has apparently confused a private list with an official programme.

Second, the watch at Applecross was not five minutes fast, but was accurate to within half a minute of the official starters' time, and in this respect was similar to all the other checkers' watches. I mention these two facts, as they seem to have been overlooked by your apparently otherwise lynx-eyed reporter.

I should also be glad to take this opportunity of thanking those numerous assistants, whom I was unable to thank personally, who were good enough to come forward in large numbers, and whose assistance enabled the trial to be brought to a successful issue. CAMPBELL McGREGOR.

Secretary, Edinburgh and District M.C.C.

Obstructing the Highway.

Sir,—In the hope that this letter may be read by the driver of the motor cycle and sidecar who nearly caused a nasty spill on Sunday week near Kirkham, may I ask the favour of a little of your space?

Position, 1½ or 2 miles on the Preston side of Kirkham; time, 6.30 p.m.; motor cycle and sidecar with front towards Kirkham; condition of road good, but rather wet, as there had been heavy rain for several hours earlier in the day; roadway on curve, and gradient rising towards Kirkham.

The sidecar was pulled up whilst some adjustment was being made in the *middle* of the road. Owing to the curvature of the road travellers in either direction could not see the obstruction until close upon it. I was travelling from Kirkham to Preston and came upon the sidecar at the same moment that two cars, one behind the other, were passing the stationary sidecar. The least error on the part of one of the three drivers would have caused a serious accident.

Surely if a motor cyclist, sidecarist, or motor car driver wishes to pull up it is incumbent on him to pull well into the side of the road and leave as much room as possible for both lines of traffic. To avoid a spill I had to go so much to the left, almost into the bank and on to soft ground, as to endanger my own safety. Perhaps the motor cyclist will know better in future. E.N.

An Overseas Specification.

Sir,—I take advantage of the invitation in your paper to submit specifications of machines suitable for local conditions. The machines naturally fall into two classes—heavy solo and sidecar machines and light solo ones.

My ideas of a heavy machine for this country are as follow: Four-stroke, twin-cylinder, air-cooled, overhead inlet engine, long stroke (say 80×100 mm., with cubic capacity 1,000 c.c. or so). Cylinders to be both vertical, one behind the other, outside flywheel, clutch and shaft drive, with two or three (sliding gear) speeds, ball bearings, and forced lubrication to bearings. (Practically as in the 1914 design F.N. 7 h.p. engines, but with only two cylinders.) Frame to be sprung back and front with leaf springs, and lined. Large tank capacity, band brakes, 28in. wheels, 3in. tyres, light car rims, automatic carburetter, handle starting, waterproof magneto, twist grip control, long folding footboards, dropped seat, front and rear stands, toolkit on tanks, and with a road clearance of at least 6in.

For a lightweight machine, the new A.B.C. machine recently described in your paper seems to fill the bill, if same proves sturdy and reliable. The Douglas lightweight two-speed also is an excellent machine for local use.

Speaking generally as one who has driven motor cars and cycles and buggies in this country, it astonishes me that the use of the shaft drive as a means of transmission for motor cycles is not more common, since with care such a drive hardly ever gives trouble during the whole period of usefulness of a motor, and in this country (where repair shops are perhaps more than a hundred miles apart) the reliability of the shaft drive, together with the even running of a machine built on the lines suggested above, would amply repay a little extra cost.

Another point required in colonial machines is that the forks (both front and rear) require extra width, and should allow a clearance between the inflated tyre and the mudguard of from 2in. to 3in., with 1½in. between the inflated tyre and the fork on either side. With the narrow clearance given by imported machines, I have often been compelled to abandon my machine, when caught in a shower of rain on an unmade road where the soil is sticky, on account of the wheels gluing up, and in such cases nothing short of a spring cart will shift the machine. I look forward keenly every week to the arrival of your paper, and wish the same every success. E. GUINNESS.

Wycheproof, Victoria, Australia

The Overseas Lightweight.

Sir,—I feel I must take exception to "Ixion's" remarks under the above heading in last week's issue. I succeeded in taking a genuine lightweight over fifteen miles of trackless Dartmoor. The machine weighed somewhere in the neighbourhood of 130 lb., and was 198 c.c. I fancy the course was as rough as bush tracks, veldt, etc., and the machine was perfect at the end of it. I am prepared to do it again, and "Ixion" can watch if he likes. JED MOYSEY.

The Necessity for Universal Rear Lights.

Sir,—Perhaps you will have noticed a report in the daily press of the death of a Derby motor cyclist owing to overtaking and colliding with a brewer's dray.

It was shown at the inquest that the lamp on the dray showing a front light was constructed so as to show a red light at the rear, but in this instance the light was invisible from behind owing to the manner in which the casks had been loaded on the dray. It was also mentioned at the inquest that this class of vehicle was under no obligation by law to show a rear red light. The jury, in giving their verdict, added a rider to the effect that all classes of vehicles on the road at night should be compelled to show a rear red light.

On the top of this, the local centre of the National Cyclists' Union passed at their last meeting a resolution that the time had arrived when all vehicles, including cyclists, should show a rear red light.

Now, this is very important, and is really getting on some, as in all the agitations over the rear light question the N.C.U. and the C.T.C. have been the most active opponents against the rear light being made compulsory for all classes of vehicles. Now is the time for the R.A.C. or A.A. to make amends for their inactivity in the past, and bring the matter forcibly before the Home Office authorities at a time when their attention must necessarily have already been drawn to it by the above mentioned verdict.

I might add that a similar accident occurred a few nights ago with an unlighted-at-the-rear-furniture van, the poor victim being at the time of writing still unconscious, whilst it does not seem long ago since Bailey, of Leicester, met his death in the same manner.

The recasting of the whole Motor Act is recognised as being really necessary, but, somehow, urgent necessity never seems to strike the present day Parliamentary philanderer.

A. B. BENNETT.

SUMMARY OF CORRESPONDENCE.

We have received from two of our readers appreciations of the work done by the Calne Automobile Co. during the night. This information may be useful to others passing through Calne.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

An Open Hill-climb in the West.

Sporting Event on Weston Lane, held by the Bristol B. & M.C.

WESTON Lane, near Bath, was the venue for the Bristol Bicycle and Motor Club's annual hill-climb on Saturday last, and a perfect day favoured the event.

The hill starts with a gentle slope, which gets gradually steeper till about halfway, when it eases slightly, then steepens again, and after an easy S bend reaches its maximum gradient of 1 in 4¾ for a short hump, the length of the timed section being almost seven-eighths of a mile.

The field at the bottom of the hill, which was used for parking the machines and for weighing-in, presented a busy spectacle before the start, for the club officials took their duties seriously, and it appeared that nothing was to be left to chance. Professor Archibald Sharp represented the A.C.U., and Mr. Alec Ross officiated as starter. The timing was done by synchronised watches. The formula $\frac{C \times T_2}{W}$ (as recommended by *The Motor Cycle*) was employed.

At 2.30, the first class, for miniature motor cycles, was started. Unfortunately, there was but a poor entry, and only two actually started. This was the more surprising as machines up to 275 c.c. were accepted, thus letting in a very large number of makes. Of the two, though F. White (2½ Premier) passed our position much faster, E. W. K. Proctor (2¼ Levis) was credited with the best ascent by quite a considerable margain. Results :

	Time. m. s.	Fig. of merit.	Form. pos.
E. W. K. Proctor (2¼ Levis)..	1 11⅗	3877	1
F. White (2½ Premier)	2 6⅘	1438	2

The machines were sent up at short intervals, and in the first few classes there was no delay between the events, so that spectators were kept fully interested. As usual, the excellent plan originated by the Bristol B. and M.C. of sending a marshal up the hill between each class, bearing a notice to the effect that the class was over, was again adopted. Before each fresh class the same marshal descended the hill with a placard on his back stating which class was to be run off next.

Class III., for motor cycles between 275 c.c. and 350 c.c. (expert and general), produced six starters, of whom F. G. Ball, W. W. Douglas, and F. G. Hinton, on 2¾ Douglas machines, and S. Brickinshaw (3 Enfield) all came up very fast and left much room for speculation as to results. G. B. Fry (2¾ A.J.S.) came up well, but K. C. Wright (2¾ Connaught), though very steady, was hardly fast enough. Results :

W. W. Douglas (2¾ Douglas).. 1 7	4594	
F. G. Ball (2¾ Douglas).. ... 1 7⅘	5338	
S. Brickinshaw (3 Enfield).... 1 13⅘		

The entry for Class IV. was the same as for Class III. with the exception of F. G. Ball, who could not ride as experts were barred. Douglas lost a few seconds, and Brickinshaw improved his previous time, with the result that the pair tied for fastest time. Results :

W. W. Douglas (2¾ Douglas).. 1 9⅘	4986	1
S. Brickinshaw (3 Enfield).... 1 9⅘	5198	2
F. G. Hinton (2¾ Douglas) ... 1 26⅘		

Class V.—Motor cycles between 350 c.c. and 500 c.c. (general and expert). In this class the times began to improve, and W. Thornhill on a T.T. overhead valve 3½ Douglas came up very fast, being the first to cover the course in less than a minute. P. H. A. Matthews, though he rode beautifully, was not fast enough, probably owing to the fact that his machine had a new piston fitted. This was a disappointment, as he can generally be relied on to put up a fine performance. F. W. Carryer's Royal Ruby appeared overgeared for the hill, but F. P. Davies, G. H. Fry, G. H. Tucker, and H. Rhodes, all mounted on Rudges, came up fast. Results :

W. Thornhill (3½ Douglas)	57⅗ s.	5189	1
G. H. Fry (3½ Rudge)	64⅕ s.		
F. P. Davies (3½ Rudge)	65⅗ s.	5592	2

Class VI. was the same as Class V., but expert barred, and produced much the same results, though Carryer improved his time and came into third place. Results :

W. Thornhill (3½ Douglas)	59	5445	2
F. P. Davies (3½ Rudge)	64⅘	5389	1
F. W. Carryer (3½ New Imperial)	68⅘		

As will be seen from the figures of merit, Davies succeeded in beating Thornhill on formula.

There were but three starters in Class VII. for machines between 500 c.c. and 750 c.c., of whom A. B. Wade (6 Zenith) was perceptibly the fastest, though he was somewhat baulked at the finish by some cattle. H. A. Pritchard (4 B.S.A.) came up very well, but cut out too much and was rather unsteady near the top. G. E. Powell (4 Triumph) made a good, steady ascent, but his pace was not enough. Results :

A. B. Wade (6 Zenith)	57½	6085	2
H. A. Pritchard (4 B.S.A.)	64	5864	1
G. E. Powell (4 Triumph)	78		

Class IX. (unlimited, expert and general) was noticeable for the fact that none of the fastest men were placed on formula. Matthews rode Fry's Rudge and put up his best performance. Wade was again very fast, and Carryer, Thornhill, and Brickinshaw all came up well. G. H. Fry, on an 8 Zenith painted white, came very fast, but was stopped by a marshal's red flag and returned to make another good ascent. Thornhill was rather badly baulked by a competitor whom he overtook. Results :

A. B. Wade (6 Zenith)	55⅘
W. Thornhill (3½ Douglas)	57⅘
G. H. Fry (8 Zenith)	61⅘
On Formula.	
P. H. A. Matthews (3½ Rudge)	4671
S. Brickinshaw (3 Enfield)	4704

Class X. (same as Class IX., but expert barred). Carryer, F. B. Davies, Thornhill, Rhodes, and Brickinshaw all came up very well. G. B. Fry's (2¾ A.J.S.) had improved, and Proctor's Levis made a wonderful ascent for its size. F. C. Wasley (8 Zenith) was a non-starter, as his engine seized just beforehand.

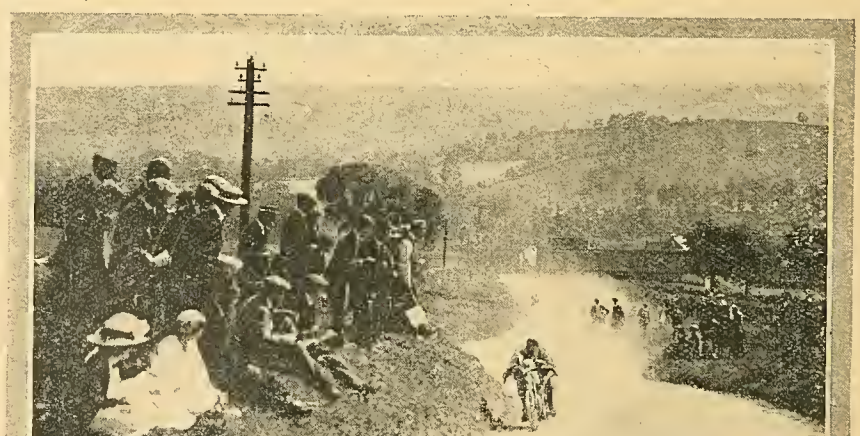
There was a long wait before each of the last mentioned two events which rather spoiled the interest, but the trouble came abont over the starting numbers of a late entry, as the top time-keeper had not been informed of his presence. Results :

S. Brickinshaw (3 Enfield)	56½
W. Thornhill (3½ Douglas)	59½
F. P. Davies (3½ Rudge)	65
On Formula.	
S. Brickinshaw (3 Enfield)	3370
G. B. Fry (2¾ A.J.S.)	5293

Brickinshaw's performance was most meritorious, and his pace most deceptive.

Class XI. was for sidecar machines up to 600 c.c., general and expert, and H. A. Pritchard (4 B.S.A. sc.) and W. W. Douglas (2¾ Douglas sc.) stood out above the rest as the fastest pair. The performance of the little Douglas was well worth seeing, for the driver did not change down till after the S bend. Results :

H. A. Pritchard (4 B.S.A. sc.)	1 21⅗	5849	1
W. W. Douglas (2¾ Douglas sc.)	1 37⅗	6091	2
F. P. Davies (3½ Rudge sc.) ..	1 43⅗		



P. H. A. Matthews (3½ h.p. Rudge) at full speed at the second bend on Weston Lane, near Bath.

The week's results on Palmer Cord Tyres.

The successes we have to chronicle this week, while not so lengthy as in our last advertisement are more than made up by the severity of the course over which they were gained.

SCOTTISH SIX DAYS' TRIALS

Mr. Norman Lea, 3¼ h.p. Lea-Francis **GOLD MEDAL.**
Mr. W. A. Davenport ,, **SILVER MEDAL.**
Mr. H. Taylor, Junr., 3½ h.p. B.S.A. **SILVER MEDAL.**

and at the conclusion of the trials the riders were unanimous in their praise of the behaviour of

CORD TYRES

Send for the Palmer Tyre Booklet.

THE PALMER TYRE, LIMITED.
119, 121, 123, SHAFTESBURY AVENUE, LONDON, W.C.
Cycle and Motor Cycle Tyre and Repair Department:
103, ST. JOHN STREET CLERKENWELL, LONDON, E.C.
'Phone: City 1485 and 1486 Telegrams: 'Inwheeling, Smith, London.'

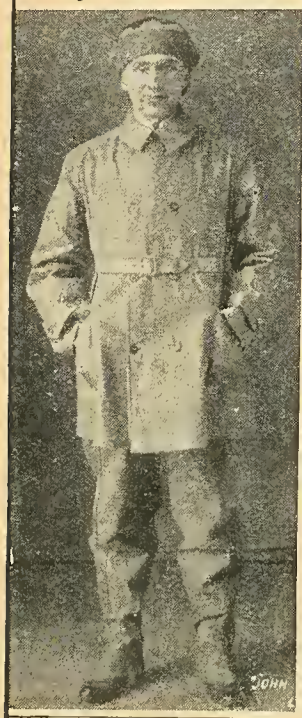
BRANCH DEPOTS:	Telegrams:	Telephone Nos
GLASGOW: 6, Royal Exchange Sq.	'Tyricord"	8577 Central
BIRMINGHAM: Belmont Row	"Records'	534 Central
COVENTRY St. Mary's Street	'Records"	170
NOTTINGHAM: Greyfriars' Gate	"Records'	1295
LEEDS: 54, New Briggate	"Tyricord'	3202 Centra.
MANCHESTER: 263 Deansgate	'Tyricord'	3646 Central

JOHN PIGGOTT LTD.

SUMMER SALE

OVERALLS FOR WIND, DUST, OR RAIN.

"J.P." TOURIST SUIT.



RJ71. **OUR FAMOUS "J.P." TOURIST OVERALL MOTOR SUIT.**

Strong and Waterproof, made of extra stout untearable Fawn Twill, double texture. This material is specially recommended to stand the hard wear that Overalls usually get.

THE JACKET is made double-breasted, 36ins. long, with Prussian collar, throat tab, inside wind cuffs adjustable, tabs on sleeves, square pockets stitched right through, cut roomy, with loops for belt.

THE TROUSERS are made in the Seatless Overall style, with spat and gaiter front, storm gusset, clip fastening, leather waist and boot strap, and shaped to fit well up in fork of leg.

This Outfit complete, is offered during the Sale only at **29/9**
Usually sold 40/-
Seatless Trouser Overalls, **12/9** per pair.
Jackets only 19/- Usual price 21/6.

RJ72. **OUR WELL-KNOWN "IDEAL" WATERPROOF MOTOR CYCLE OVERALL SUIT.**

Double Texture Fawn Paramatta Jacket, made double-breasted with Prussian collar, throat tab, wind cuffs, and tabs on sleeves, square pockets stitched through, 36in. long, cut full in skirt with loops for waist belt. **Leggings**, single legs, shaped to the thigh, gaiter form, storm gusset and strong leather boot strap. This suit complete is offered during the Sale only at **23/9**

RJ73. **THE "BEAVERLINE" OVERALL SUIT.**

Made in best quality Fawn Cashmere Paramatta, lined with a light plush lining. A smart suit and a pliable cloth. Waterproof and well made. Double-breasted Jacket, and Seatless Trouser Overalls, best make and finish. Complete Suit, Sale Price, **45/6**
Jackets only 28/3. Usual Price, 33/6.
Seatless Trouser Overalls **18/3** per pair.

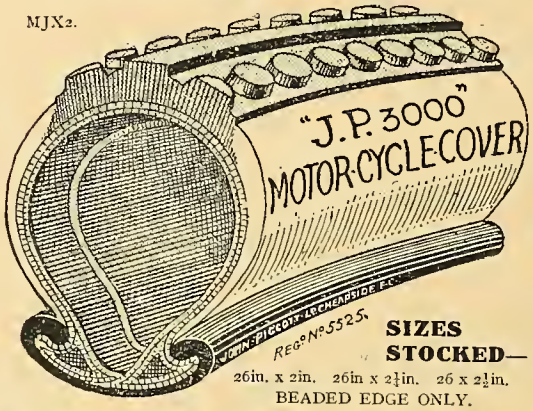
Leather Belts for above Suits, 1/-, 1/6, 1/11 each.

When ordering Motor Suits please state the chest measure taken over Jacket worn, and the inside leg measure; this is most essential.
PATTERNS SENT POST PAID.

THE "J.P." 3,000 MILE MOTOR CYCLE COVER.

"The Cover that HAS stood the Test."

MJX2.



SIZES STOCKED—
26in. x 2in. 26in x 2¼in. 26 x 2½in.
BEADED EDGE ONLY.

GUARANTEED 3,000 MILES. With or without sidecar. **27/6** **WRITE FOR FREE SAMPLE SECTION, SENT POST FREE.**

This Cover is made on the same principle as a heavy Motor Car Tyre, viz: under hydraulic pressure and not as the usual Motor Cycle Covers which are usually a glorified cycle tyre.

It is composed of the best Para Rubber, and fitted with a new Non-skid Tread which has been thoroughly tested and found to be an absolute preventive of skidding.

We are so confident of the wearing properties of this Tyre that we are guaranteeing it for 3,000 Miles.

SEATLESS OVERALL TROUSERS.

The only motor cycle trouser that sufficiently protects the stomach.

RJ74. **PIGGOTT'S SPECIAL OFFER.**

Seatless Trousers made in strong double texture Fawn Waterproof Twill, with storm gusset at leg, leather boot and waist strap, gaiter and spat front, well made, stitched throughout, all seams sewn and taped. **Sale Price** **9/9** per pair.
Postage 4d.

RJ75. **THE "J.P." TOURIST SEATLESS OVERALLS.** Made of extra stout untearable Fawn Twill, double texture. This material will stand hard wear. These are made exactly as those described above, as supplied with the "Tourist" Suit.
Trousers only, Sale Price **12/9** per pair.

RJ76. **THE "BEAVERLINE" SEATLESS OVERALLS.** Made in the best quality Fawn Cashmere Paramatta, with a soft plush lining, well made and best finish. These are exactly as supplied with the "Beaverline" Suit listed above.
Trousers only Sale Price **18/3** per pair.

MOTOR CYCLE LEGGINGS

For Knockabout Wear.

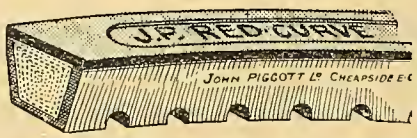
RJ77. Made in strong double texture Fawn Twill, with leather strap under boot. All seams sewn and taped. Just the Legging for knockabout wear. In three lengths of leg, 28, 30, 32in.
Sale Price **4/11**
Postage 4d.

RJ78. **Double Texture Black or Fawn Paramatta MOTOR LEGGINGS,** made in the plain pull-on style, no buttons or fasteners, very easy to pull on and off. **Special Sale Price** **6/6** per pair.
Postage 4d.

GOGGLES, The New "LA SVELTE."

Double Folding Shape with Patent Spring Centre and Plush Edges, well ventilated. Special offer.
Usual Price 3/9. **Sale Price** **1/5½** Postage 2d.

BARGAINS FOR MOTOR CYCLISTS, THE 'J.P.' RED CURVE MOTOR CYCLE BELT



MJX8.

Non-Stretching!
Non-Cracking!!
Non-Slipping!!!

The Belt is made of pure Para Rubber and Best Canvas, and is so constructed that it will at all times take a natural curve.

Write for section.

Size 1in. **1/7** ft., ¾in. **1/5** ft., ¾in. **1/3** ft., ⅝in **1/1** ft.

CHEAPSIDE LONDON.

WRITE US TO-DAY, OUR BARGAIN LIST CONTAINING 86 PAGES WILL BE SENT FREE. OF SURE INTEREST TO ALL MOTOR CYCLISTS.

An Open Hill-climb in the West.—

Class XII. (same as XI. but experts barred) left Douglas a winner by $\frac{4}{5}$s. from F. P. Davies, with E. A. Davies (3½ Premier) third. G. H. Tucker provided the only failure throughout the day. Results :

	Time. m. s.	Fig. of merit.	Form. pos.
W. W. Douglas (2¾ Douglas sc.)	1 40	6368	1
F. P. Davies (3½ Rudge sc.) ..	1 40⅘	8355	2
E. A. Davies (3½ Premier sc.) ..	2 5		

In Class XIII., for sidecar machines over 600 c.c., R. Clayton was the first to start on a 6 Matchless sc., but was overtaken by Wade (6 Zenith), who returned to the starting point, and after a long interval came up very fast. He was, however, beaten on time by G. H. Fry on an 8 Zenith. The 8 h.p. did not appear to be so fast, but this was probably because of its higher gear and quiet exhaust. Results :

G. H. Fry (8 Zenith sc.)	1 10	7594	2
A. B. Wade (6 Zenith sc.)	1 13	6384	1
R. Clayton (6 Matchless sc.) ..	2 16⅘		

Class XV., for cycle cars under 1,100 c.c. produced only three starters, as F. G. Cox (Morgan) had trouble and never reached the starter. G. H. Fry (Morgan) made the best ascent, but F. Stone (Morgan) and W. W. Douglas (Douglas c.c.) both came up very well, the even exhaust of the Douglas sounding like a high-geared four-cylinder. Results :

G. H. Fry (Morgan)	1 28⅖	8966	2
F. Stone (Morgan)	1 42⅗		
W. W Douglas (Douglas)	1 44⅘	8388	1

Stone was the only one to make an ascent in Class XVI. (same as XV., expert barred), but Douglas's time in the previous class was allowed to stand, which makes him win on formula. Results :

F. Stone	1 40	11175	2
W. W. Douglas	1 43⅘	8388	1

The above results are provisional, and are subject to confirmation of the club committee.

The A.C.U. Six Days Trials.

Summary of Conditions governing Next Week's Trial, with Sheffield as a Centre.

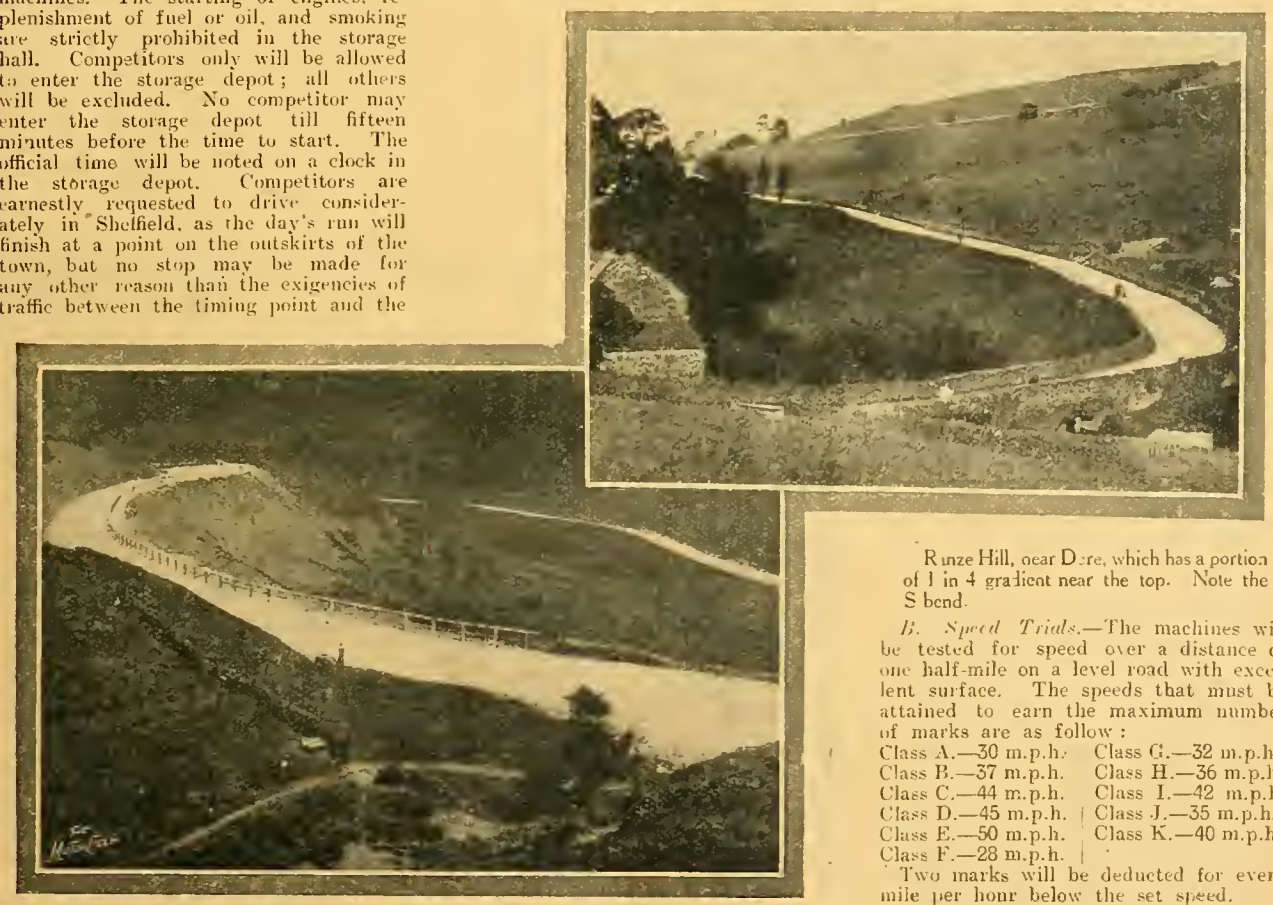
QUITE a good entry has been received for the A.C.U. Six Days Trials, the total number of riders being 132. The entry is also a representative one, comprising as it does all the best known makes.

The final regulations state that the competing machines must be at the official storage depot, the Olympia Skating Rink, Bramall Lane, Sheffield, not later than 10 a.m. on the 5th inst. Here the motor cycles will be examined to see that they comply with the regulations. Petrol and oil tanks must be filled prior to the presentation of the machines. The starting of engines, replenishment of fuel or oil, and smoking are strictly prohibited in the storage hall. Competitors only will be allowed to enter the storage depot; all others will be excluded. No competitor may enter the storage depot till fifteen minutes before the time to start. The official time will be noted on a clock in the storage depot. Competitors are earnestly requested to drive considerately in Sheffield, as the day's run will finish at a point on the outskirts of the town, but no stop may be made for any other reason than the exigencies of traffic between the timing point and the depot. Any competitor who may be prosecuted for excessive speed may, if the stewards are satisfied that excessive speed was indulged in, be disqualified by the stewards. Only those spare parts may be used which have been carried on the machine throughout the trial.

The Speed and Brake Tests.

The special tests are as follow :

A. Acceleration, tested by a combined fast and slow climb.—The first fifty yards of a hill are to be climbed slowly, and the following two hundred yards are to be climbed fast. Speeds below 5 m.p.h. on the slow portion or above 25 m.p.h. on the fast portion will be reckoned as 5 m.p.h. and 25 m.p.h. respectively, and such speeds will earn full marks. Zigzag driving on the slow portion is not permitted. If a competitor fails in the acceleration test, he may be allowed one more attempt; touching the ground with the feet will constitute a failure. To calculate the marks for acceleration, the rate of speed over the fast portion will be divided by the rate of speed over the slow portion and multiplied by six. The maximum number of marks is thirty.



Another winding test hill—Mam Tor.

Rinze Hill, near Dore, which has a portion of 1 in 4 gradient near the top. Note the S bend.

B. Speed Trials.—The machines will be tested for speed over a distance of one half-mile on a level road with excellent surface. The speeds that must be attained to earn the maximum number of marks are as follow :

Class A.—30 m.p.h.	Class G.—32 m.p.h.
Class B.—37 m.p.h.	Class H.—36 m.p.h.
Class C.—44 m.p.h.	Class I.—42 m.p.h.
Class D.—45 m.p.h.	Class J.—35 m.p.h.
Class E.—50 m.p.h.	Class K.—40 m.p.h.
Class F.—28 m.p.h.	

Two marks will be deducted for every mile per hour below the set speed.

C. Brake or Deceleration Test.—The brake test will be carried out on level

The A.C.U. Six Days Trials.

road. Competitors should approach the starting flag at a speed of not less than 20 m.p.h. On passing this flag the brakes must be applied in such a manner as to stop the machine in the shortest possible distance. Every machine is to remain in the place at which it comes to rest until its position has been recorded. Both the time and distance occupied in pulling up will then have been noted and marks will be awarded according to the figure of merit given by the formula:

$$\frac{\text{Distance}}{\text{Time}^2}$$

Competitors should note that:

1. The formula automatically compensates for differences in the initial speed of the riders.

2. Nevertheless, any rider whose initial speed is found, on calculation, to be less than 18 m.p.h. may be disqualified.

3. There is nothing to be gained by the application of brakes before reaching the starting flag, but any competitor guilty of so doing may be disqualified.

4. Any competitor falling off in the brake test, or whose machine gets out of control, may be penalised ten marks.

D. Mudguards.—Machines may be inspected at any suitable time during the trial for efficiency and adequacy of mudguards.

E. Restarting.—Machines will be stopped on the ascent of a hill, and, after restarting, will be required to cover fifteen yards within twelve seconds, except in Classes B, C, D, and E, which must cover the fifteen yards in ten seconds. Engine must be firing and competitor seated before the completion of the distance. Two marks will be deducted for every second or part of a second in excess of the said twelve or ten seconds. No second attempt will be allowed.

F. Quick Starting.—After a luncheon interval machines will be tested for quickness of starting. The machine must not be touched until the word to start is given, when the engine must be started, and then, with engine firing and competitor seated before the distance is completed,

Motor bicycles must cover fifty yards within 40s.

Sidecars must cover fifty yards within 60s.

Cycle cars must cover fifty yards within 3m.

Passengers may be seated before the commencement of this test. One mark will be deducted for every second or part of a second in excess of the said 40s., 60s., or 3m.

S. Numbers.—Both front and rear numbers (supplied by the Union) must be displayed. The latter, except in the case of cycle cars, must be worn on the driver's back. Slots are provided in the number to allow of a belt being passed through.

9. Order of Starting.—The order of starting, which is determined by ballot, will remain the same throughout the week.

10. Team Prize.—The Union offers a prize for the best performance by a team of three machines of the same make, entered or nominated by a manufacturer or his duly accredited representative before the start of the trial, provided at least four teams are so nominated.

All official notices will be posted at the temporary local office of the Union, 193, London Road, Sheffield, where all enquiries should be made.

Scottish Six Days Trial.

JUDGES' REPORT.

IT is customary at the conclusion of a long-distance reliability trial for the judges to give an indication as to the general performance and conduct of the trial; and at the conclusion of the sixth Scottish Six Days Reliability Trial the judges are of opinion that they can state briefly the outstanding features of the trial as follow:

Dealing first with the entry, which came to 125, this included practically all the best known makes, and the entry can therefore be put down as thoroughly representative. The number of gold medals, fifty-five in all, is very satisfactory. The number of retirals, forty-four, is somewhat high, and can be accounted for in the following way:

First.—A somewhat unnecessary rashness displayed by some entrants in their riding.

Second.—A decided weakness in frame construction both of motor cycle and sidecar, especially noticeable with regard to certain makes.

Third — A somewhat unexpected amount of mechanical trouble.

Of the machines that finished, the great majority finished in very good condition, considering the strenuous nature of the trial.

Dealing with the hill-climbing performances, these were, taken all over, good, although a few riders appeared to have great difficulty on every one of the observed hills.

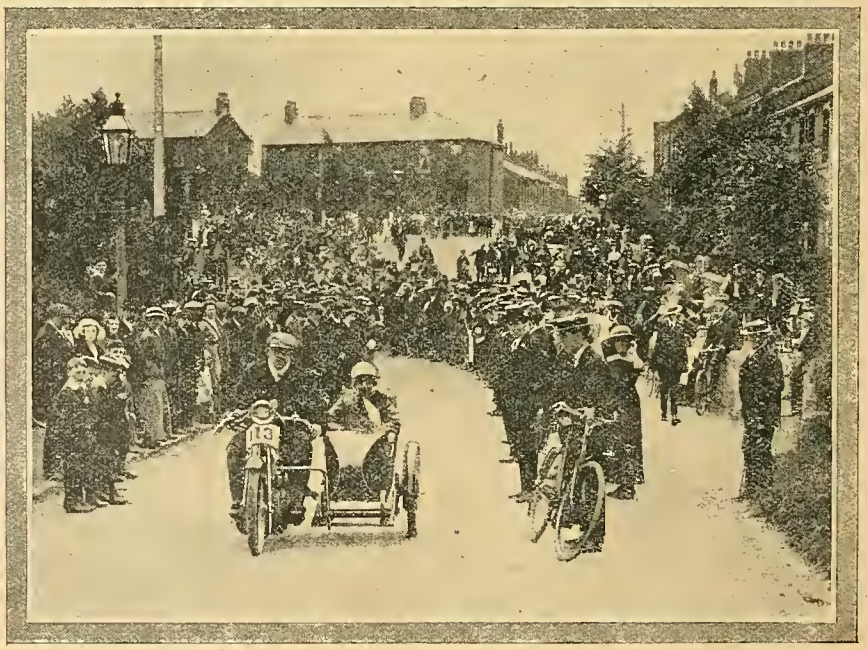
The performance of the cycle cars was good, and showed an improvement on former years.

The protests were few in number, and would have been still fewer had entrants perused the regulations more carefully.

The judges had little difficulty in awarding the Manufacturers' Team Prize to the Indian team, all three members of which gained full marks. The Club Team Prize was won by the Motor Cycling Club, represented by three Rover motor cycles, with comparative ease. All the other special awards the judges find impossible to allocate, as several riders in the respective classes put up equally good performances.

With reference to W. B. Gibb, No. 124, losing 10 marks under the condition of machine heading, the judges, although they take no account of accidents, feel that it is only just to state that all the damage was caused by fire.

On two occasions the route had to be altered at the last minute through the road being washed away, but the judges are pleased to state that these alterations were of little consequence, and were carried through with comparative ease. Finally, the judges have to comment very favourably on the conduct of the competitors during the trial.



An A.J.S. sidecar driver starting from Preston in the N.W.A.A. team trial. Observe the long line of competitors.

"THE MOTOR CYCLE" LIST OF WEEK-END CLUB EVENTS

July 4th.—York County M.C.C. Second quarterly trial.
" 4th.—Dublin and District M.C.C. Reliability trial to Glendalough, 3 p.m.
" 4th.—Coatbridge and District M.C.C. Club run to Troon, 2 p.m.
" 4th.—Motor Cycle Union of Ireland (Ulster Centre). Reliability trial for sidecars and cycle cars.
" 4th.—Middlesbrough and District M.C.C. Run to Castleton for Stockton hill-climb.
" 4th.—Finsbury Park C. and M.C. Run to Canvey Island, Southend-on-Sea.
July 8th.—Folkestone and District M.C.C. Run to Waldershare Galleries 2.30 p.m.
" 8th.—Plymouth and District M.C.C. Hill-climb at Moorshop, 6 p.m.
" 8th.—Kilmarnock and District M.C.C. Paperchase, 6.30 p.m.
" 8th.—Cardiff and District M.C.C. Speed-judging contest.
" 9th.—North-West London. Gymkhana at Finchley Horticultural Show, 5 p.m.

Crossgates and District M.C.C.

The quarterly speed trials were held on the 24th ult. on a straight half-mile; good sport was witnessed and fast times obtained. Results:

SOLO.—1, H. Braithwaite (3½ Triumph); 2, J. Tetley (4 Triumph).
SIDECAR.—1, R. Horsfall (4 Bradbury); 2, H. Braithwaite (3½ Triumph).

The course was over a private road, which is considered the fastest and best for such events in the North of England.

Middlesbrough M.C.C.

On June 24th the competition for the Gjers Cup was run off over a course of 206 miles from Middlesbrough to Penrith and back. The winner proved to be C. W. Smith (3 Enfield), who thus holds the cup for twelve months, and also wins a gold medal. The second man was J. H. Dale (4 Triumph) and the third F. Dixon (7 Indian sc.).

Dorset A.C.

Hill-climbing competitions are fixed to take place on July 8th, and a suitable gradient in the shape of Zigzag Hill, Shaftesbury, has been selected for the event. The start will be at 1 p.m., and late entries will be accepted up to July 4th at an extra fee of 2s. 6d., although in the ordinary way entry forms should have been sent in by July 1st. In all, there are four classes of events, which are as follow:

Class 1.—Cars (c.c. exceeding 1,100).
Class 2.—Cycle cars (c.c. not exceeding 1,100).
Class 3.—Motor cycles with sidecars.
Class 4.—Motor cycles solo.

The handicap for cycle cars and for motor cycles (solo or otherwise) will be determined from the following formula:

$$\frac{\text{Total weight in lb.}}{\text{Time in secs.} \times \text{c.c. of cylinders.}}$$

Further information can be obtained from the hon. sec., M. J. Raymond, The Croft, Wimborne.

North-West London M.C.C.

The members' hill-climb was held last Saturday on a fresh hill near Bovingdon, and produced good sport, with the following results:

ON FORMULA $\frac{W}{C \times T^2}$.

500 c.c.—1, J. F. Fitch (3½ B.S.A.)
1,000 c.c.—1, W. C. Knight (8 Bounds-Jap); 2, H. Marshall (7 Indian).
1,100 c.c. (PASSENGER MACHINES).—1, A. J. Dreydel (7 Matchless sc.); 2, C. H. Auty (4 James sc.); 3, Welby King (7 V.S.-Jap sc.)

ON TIME.

SOLO.—1, H. Marshall (Indian); 2, W. C. Knight (Bounds-Jap).
PASSENGER.—1, W. C. Knight; 2, A. J. Dreydel.

The speed trials on the previous Saturday took place over a deserted straight stretch of one mile on a by-road in Bucks. All classes were included in one sealed handicap, which disclosed the following winners:

1.	P. H. Goddard (2¾ Douglas)	47.7 m.p.h.
2.	H. J. Pooley (3½ Premier sc.)	37.9 m.p.h.
3.	W. E. McKay (5-6 Bat sc.)	51.5 m.p.h.

ON TIME ONLY.

1.	S. King Smith (5-6 Bat)	65.3 m.p.h.
2.	W. E. McKay (5-6 Bat)	64.2 m.p.h.
3.	W. C. Knight (8 Bounds-Jap)	51.5 m.p.h.

Cheltenham M.C.C.

A competition confined to amateur members took place on the 20th ult. over a difficult course. Result:

1, P. W. Ford (3½ B.S.A.), 500 marks; 2, R. F. D. Baker (7 Indian), 480; 3, P. O. Edmunds (3½ New Hudson), 470.

Carlyle (Chelsea) C. and M.C.C.

The recent hill-climb at Kop Hill resulted in a win for Sr. John E. Scheffler (3½ Premier), who made fastest time and was first on *The Motor Cycle* formula.

July fixtures include a sixty-mile non-stop jaunt, and a fault-finding competition in connection with the club picnic.

Coatbridge and District M.C.C.

The above club held a flying half-mile on the 24th ult. Results:

3½ h.p. T.T. CLASS.—1, J. C. Sword (Triumph), time 36⅘s.; 2, H. Lawson (Premier), time 36⅘s.
3½ h.p. TOURING CLASS.—J. Rennie (Triumph), time 42⅘s.
TOURING LIGHTWEIGHTS.—T. A. McCreadie (Sunbeam), time 52⅘s.
SIDECARS.—H. Clark (Triumph), time 54s.

Westmorland M.C.C.

A petrol consumption trial was held on the 18th ult. over a thirty-five mile circular course, including Shap Fell. The winner's average worked out at slightly over 190 m.p.g. Result:

		formula.			formula.
1.	L. S. Parker (3½ Scott)	47	3.	G. W. Braithwaite (3½ Rudge)	35
2.	N. Abbatt (3½ Rover)	38	4.	M. Oliverson (2¾ A.J.S. sc.)	24

Blackheath and District M.C.

A night trial took place on the 20th ult. The first competitor was started at 10 p.m. for Hythe. On the return journey the first competitor left Hythe at 3.30 a.m., arriving at Farningham in time for breakfast. Results:

		Total error at checks.
1.	W. L. Strong (3½ Rudge-Multi)	2m. 31⅘s.
2.	G. W. Poynton (7 Matchless sc.)	3m. 20⅘s.
3.	C. E. H. Pinkerton (7 Indian sc.)	6m. 5⅘s.

Cardiff and District M.C.C.

The annual speed trials were held near Cowbridge on the 20th ult. The event was a great success, there being sixty-four entries. Results:

CLASS I. (Touring Lightweights).—1, A. M. Jones (2¾ Douglas); 2, L. E. Sawyer (2¾ Enfield).
CLASS II. (T.T. Lightweights).—1, A. M. Jones (2¾ Douglas); 2, L. E. Sawyer (2¾ Enfield).
CLASS III. (Touring Machines, 560 c.c.)—1, Luther Davies (3½ Norton); 2, L. E. Sawyer (2¾ Enfield).
CLASS IV. (T.T. Machines, 560 c.c.)—1, Luther Davies (3½ Norton); 2, E. J. Dart (3½ Triumph).
CLASS V. (Touring Machines, 750 c.c.)—1, A. B. Wade (5-6 Zenith); 2, E. Chapman (4-5 Zenith).
CLASS VI. (any Machine 750 c.c.)—1, A. B. Wade (5-6 Zenith); 2, W. Pollard (3½ Stevens).
CLASS VII. (Unlimited Machines).—1, S. H. Williams (7-9 Indian); 2, E. Chapman (4-5 Zenith).
CLASS VIII. (Touring Sidecars, 560 c.c.)—1, H. Davies (3½ James).
CLASS IX. (any Sidecar 560 c.c.)—1, J. Barron (3½ Wright).
CLASS X. (any Sidecar 750 c.c.)—1, A. B. Wade (5-6 Zenith); 2, E. Chapman (4-5 Zenith).
CLASS XI. (Unlimited Sidecars).—1, A. B. Wade (5-6 Zenith); 2, E. Chapman (4-5 Zenith).
CLASS XII. (Unlimited Cycle Cars).—1, J. W. Foreman (8 Morgan)

CURRENT CHAT

TIMES TO LIGHT LAMPS.

—o—

July	2	... ...	9.18 p.m.
,,	4	... ...	9.17 p.m.
,,	6	... ...	9.16 p.m.
,,	8	... ...	9.15 p.m.

Calthorpe Trophy Awards.

The official awards of the Sutton Coldfield miniature trial are now announced. The gold medal winners are as given in our last issue, page 868, and the following win silver medals: N. Hall (2 O.K.), T. G. Meeten (2 O.K.), W. Hudson (2 O.K.), A. F. Plint (1½ Dayton), G. Strange (2 O.K.), L. N. Bennett (2 Calthorpe), H. Hoffman (2 N.S.U.), T. Peek (2 Calthorpe), and T. Pollock (2 Dunkley).

Wanted an S.P.C.E.

As we passed through Cheltenham during the past week-end we noticed an extraordinary vehicle being propelled along the road by an Auto Wheel. It consisted of a cycle and sidecar carrying three children besides two adults. We take it that the owner is content with strictly moderate speeds, but though the performance speaks volumes for the Auto Wheel, a society should certainly be formed for the prevention of cruelty to engines.

Motor Cycles on Cigarette Cards.

Advertisers are ever on the look out for some new idea to create public interest, and the motor cycle has now been brought into use in this way. Messrs. Golds, Ltd., of Birmingham, are now issuing cigarette cards with photographic reproductions of various motor cycles and a few words as to their special merits printed thereon.

F. W. Barnes Recovering.

We have received a letter from F. W. Barnes, so well-known in connection with Zenith motor cycles, saying he is going on well after his bad fall at Weybridge when piloting the car containing Queen Alexandra and Empress Marie of Russia on their journey to Brooklands on the occasion of the recent Red Cross demonstration. It seems that a policeman signalled to Barnes to slow down and then apparently waved him on, but again got in the way, with the result that the rider, to avoid running over the policeman, swerved violently and the machine turned a somersault, Barnes receiving several severe injuries to his head. This unfortunate accident explains his absence from last week's speed trials.

Hill-climbing in Switzerland.

An International hill-climb took place on the 21st ult. from Nyon to St. Cergues. The distance is 14·6 km., and the rise about 700 metres. Results: Motor cycles.—Class I. (250 c.c.), C. Perrottin (Motosacoche), 15m. 53⅕s. Class II. (350 c.c.), L. Progin (Motosacoche), 13m. 52⅘s. Class III. (500 c.c.), C. Lavanchy (Motosacoche), 12m. 54⅘s.—record. Class IV. (750 c.c.), Alfter (Moser St. Aubin), 15m. 18⅖s. Sidecars.—Class VII. (500 c.c.), J. Neher (Motosacoche), 21m. 50⅗s. Class VIII. (750 c.c.), E. Gex (Motosacoche), 17m. 47s. As will be noticed, the Motosacoche machines scored a great triumph.

The Motor Cycle Grand Prix.

Fifty-nine entries have been received up to the present for the Motor Cycle Grand Prix, or Motor Cycle International Cup race, which will be held at Le Mans on August 15th. There are two classes—up to 350 c.c., for which there are twenty-four entries, and up to 500 c.c., for which there are thirty-five entries. Altogether there are twenty-four English entries, and these are Bailey, Steel and Alexander (Douglas); Mason and Bownas (N.U.T.); Stewart and Trail (N.S.U.); Newman (Ivy-Precision); C. G. Pullin, T. E. Green, and S. A. Rowlandson (Rudge); A. Fenn and N. Holden (B.S.A.); W. F. Newsome, A. Clayton, and J. Cocker (Triumph); and another Douglas rider; L. Boston (N.U.T.); Emerson and Lees (A.B.C.); C. T. Newsome (Rover); C. R. Collier and H. V. Colver (Matchless); A. Riddell (Calthorpe); and P. Douglass (Blackburne). This is the largest English entry for any motor cycle race meeting yet held in France.

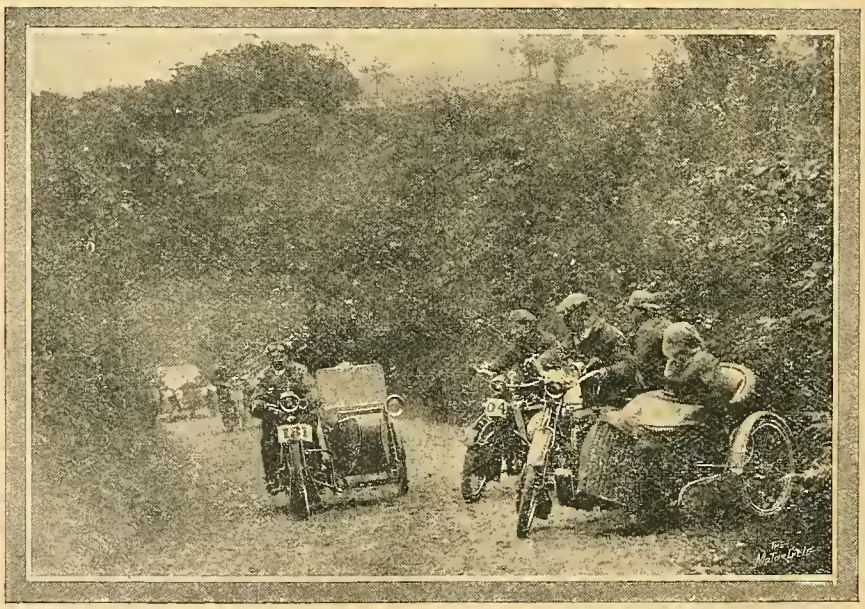
SPECIAL FEATURES.

—o—

A.C.U. SIX DAYS TRIALS NEWS.
A NEW TWIN-CYLINDER MACHINE.
THE WEEK'S COMPETITIONS.

The International Six Days.

At a special committee meeting of the Union Motocycliste de France it has been decided to reduce the average speed for sidecar machines while on the four days of the trial starting from Grenoble from 30 to 28 km. an hour. This concession will be appreciated by the drivers of sidecar machines.



THE N.W.A.A. TRIAL.

A driver of a Triumph sidecar passing less fortunate competitors on one of the test hills near Oakenclough. The N.W.A.A. can always be relied upon to find severe test hills

Colwyn Bay Speed Trials.

For the Colwyn Bay speed trials on Saturday next, organised by the Mersey (Liverpool) M.C., there are upwards of a hundred competitors in the different classes.

Large Two-stroke Engines.

Two large-sized two-stroke twin-cylinder engines are on the stocks and will, we anticipate, shortly be ready for review in these columns. The advent of the larger sizes of twins will be watched with interest in view of the fact that makers of this type of engine have, with one or two exceptions, confined their attentions to small engines suitable for lightweights.

A Trial for Enfield Riders.

A reliability trial, open to users of Enfield motor cycles and sidecar combinations, was held last week, in Leeds, under the auspices of Mr. A. J. Greenwood. Twenty-seven riders started, and twenty-three completed the course to time, the other four being late owing to tyre troubles. The winner proved to be W. Finnerty, who rode a 6 h.p. Enfield combination, on which he gained the twenty guinea cup offered by the Enfield Cycle Co., Ltd.

British Team in the International Trial.

England has already nominated her team for the International Six Days Trial to be held at Grenoble from August 3rd to the 9th, which will be constituted as follows :

350 c.c. Class.—T. C. de la Hay (2¾ Sunbeam).

500 c.c. Class.—W. F. Newsome (3½ Triumph).

C. R. Collier (7 Matchless sc.).

It will be remembered that the British team proved victorious in the Lake District last year.

H. V. Colver is to drive one of the Matchless machines entered for the trial.

There are a good many English entries from private owners and others, and we would again earnestly urge those who require accommodation on the steamers to communicate with the A.C.U.

FUTURE EVENTS.

July 4.—Glasgow M.C.C. Twelve Hours Trial.
July 6-11.—A.C.U. SIX DAYS TRIALS. Sheffield as a centre.
July 18.—Midland Light Car Club Open Trial, for Cycle Cars.
July 18.—Liverpool Amateur M.C.C. Open Trial.
July 18.—M.C.C. Members Meeting at Brooklands.
July 25.—B.M.C.R.C. Race Meeting. N.W.A.A. Gymkhana.
Aug 3-9.—F.I.C.M. INTERNATIONAL SIX DAYS TRIALS. Grenoble as a centre.
Aug 15.—Essex M.C. Race Meeting at Brooklands.
Sept 6-9.—ANGLO-DUTCH TRIAL IN HOLLAND

Leading Firms not in the A.C.U. Trial.

Notwithstanding the excellent entry of 132 for the A.C.U. Six Days Trials next week, we notice the absence of trade entries from such important firms as Rover, Rudge, B.S.A., Indian, Zenith, and F.N. There must surely be a reason for this abstention from the most important reliability trial in England, and one can only conjecture what the manufacturers' grievance with the A.C.U. really is.

Scottish Trials Results.

The M.C.C. team, represented by D. H. Noble, C. T. Newsome, and G. Featherstonhaugh, all mounted on 3½ h.p. Rovers, were awarded the club prize.

A silver medal has been awarded to T. Tennant (3½ h.p. Rudge Multi).

The reason H. Newey, who drove an Ariel with three-speed Ariel countershaft gear, gained no award, was that he unfortunately went off the course on the last day, and was disqualified.

Errors creep into even official programmes, and we learn that the description in the programme of the Scottish Trials of the gear used on T. Silver's 7-9 Quadrant sc. was incorrect, and that Silver used a three-speed Jardine gear box, which gave every satisfaction.

We also learn that the 3½ Edmund, ridden by R. G. MacGibbon, was fitted with an Enfield two-speed gear.

Two-strokes and Lightweights.

A special "two-stroke and lightweight number" of *The Motor Cycle* will be issued on July 23rd.

Debut of the Twin Rudge.

The first illustrated description of an entirely new machine—the 7 h.p. twin-cylinder Rudge—appears in this issue.

The Bristol B. and M.C. Hill-climb.

On going to press we learn that the results of the Bristol B. and M.C. hill-climb, as published on another page, have been confirmed by the Hill-climb Committee.

M.C.C. Meeting at Brooklands.

Thirteen events are on the programme of the M.C.C. sixth private race meeting at Brooklands on Saturday, July 18th. The first event—a three-lap handicap race for 350 c.c. machines—is timed to start at 1 p.m., and the final event at 6.20 p.m.

Timekeepers and Open Competitions.

The Auto Cycle Union desires to inform club secretaries and others interested in the promotion of open competitions that it is laid down in the open competition rules of the Auto Cycle Union that where results of any particular competition wholly or in part depend upon time, then official timekeepers of the Union must be employed

The Fontainebleau Circuit.

In broiling weather this race was run off over varying distances for the different classes on the 28th ult. Motor cycles and sidecars from 250 c.c. to 1,000 c.c. competed, and in the 500 c.c. class, run over 450 km., A. G. Fenn, riding a 3½ B.S.A., proved an easy winner in 6h. 6m. 42s. The other classes resulted as follow: 250 c.c. solo, 360 km., Klein (Terrot); 350 c.c. class, 450 km., Vulliamy (Alcyon); 500 c.c. class (sidecars), 360 km., Lombard (Gladiator); 750 c.c. class (sidecars), 360 km., Meuriot (Rene-Gillett); 1,000 c.c. class (sidecars), Allenay (Indian). There were many special prizes, the Grand Prix de France for sidecars being won by the Motosacoche team.

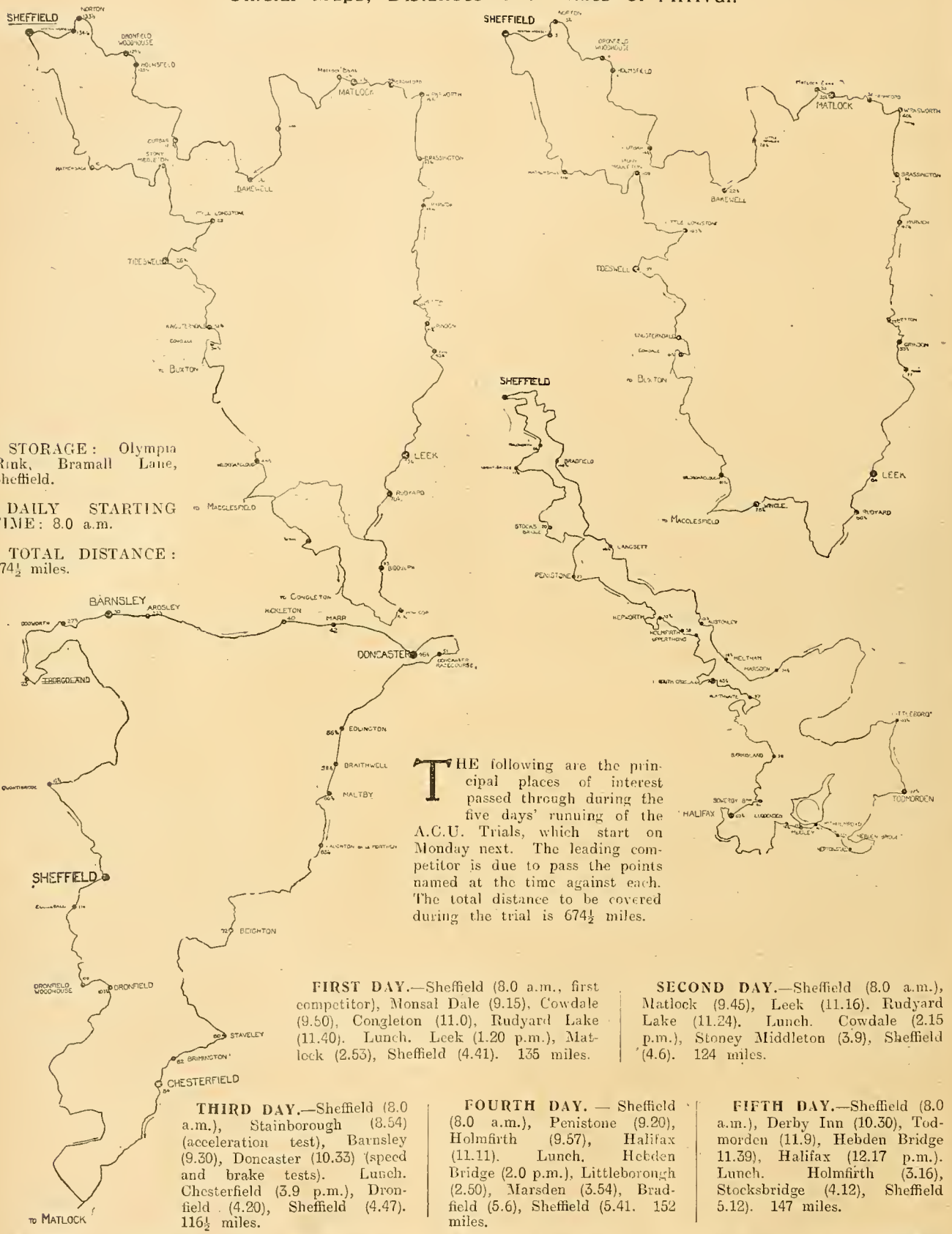
CIRCUIT DE FONTAINEBLEAU.

Scene at the start. As will be seen, numbered waistcoats, similar to those used in the Isle of Man, were worn by all the competitors.

A. G. Fenn, winner of the 500 c.c. class, on a 3½ h.p. B.S.A.

A.C.U. SIX DAYS TRIALS ROUTES.

Official Maps, Distances and Times of Arrival.



STORAGE: Olympia Rink, Bramall Lane, Sheffield.

DAILY STARTING TIME: 8.0 a.m.

TOTAL DISTANCE: 674½ miles.

THE following are the principal places of interest passed through during the five days' running of the A.C.U. Trials, which start on Monday next. The leading competitor is due to pass the points named at the time against each. The total distance to be covered during the trial is 674½ miles.

FIRST DAY.—Sheffield (8.0 a.m., first competitor), Monsal Dale (9.15), Cowdale (9.50), Congleton (11.0), Rudyard Lake (11.40). Lunch. Leek (1.20 p.m.), Matlock (2.53), Sheffield (4.41). 135 miles.

SECOND DAY.—Sheffield (8.0 a.m.), Matlock (9.45), Leek (11.16). Rudyard Lake (11.24). Lunch. Cowdale (2.15 p.m.), Stoney Middleton (3.9), Sheffield (4.6). 124 miles.

THIRD DAY.—Sheffield (8.0 a.m.), Stainborough (8.54) (acceleration test), Barnsley (9.30), Doncaster (10.33) (speed and brake tests). Lunch. Chesterfield (3.9 p.m.), Dronfield (4.20), Sheffield (4.47). 116½ miles.

FOURTH DAY. — Sheffield (8.0 a.m.), Penistone (9.20), Holmfirth (9.57), Halifax (11.11). Lunch. Hebden Bridge (2.0 p.m.), Littleborough (2.50), Marsden (3.54), Bradfield (5.6), Sheffield (5.41. 152 miles.

FIFTH DAY.—Sheffield (8.0 a.m.), Derby Inn (10.30), Todmorden (11.9), Hebden Bridge 11.39), Halifax (12.17 p.m.). Lunch. Holmfirth (3.16), Stocksbridge (4.12), Sheffield 5.12). 147 miles.

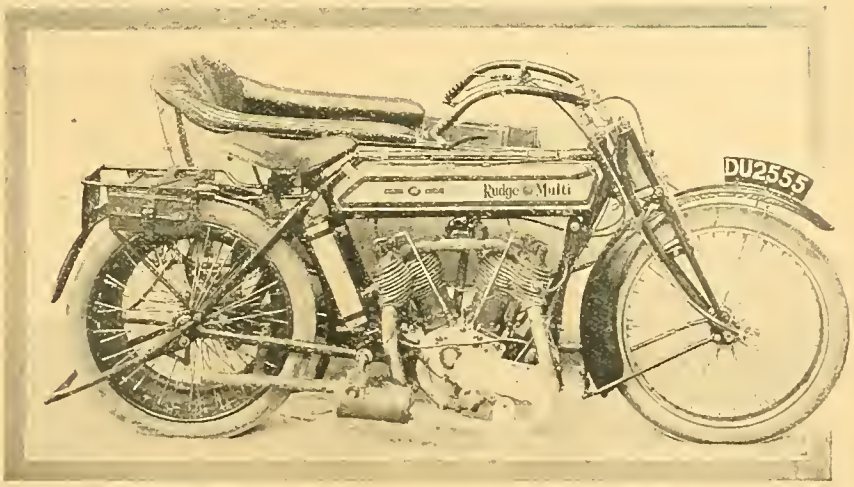
SIXTH DAY.—This is devoted to an examination of the competing machines by the judges in the Storage Hall, Sheffield.

A NEW RUDGE TWIN.

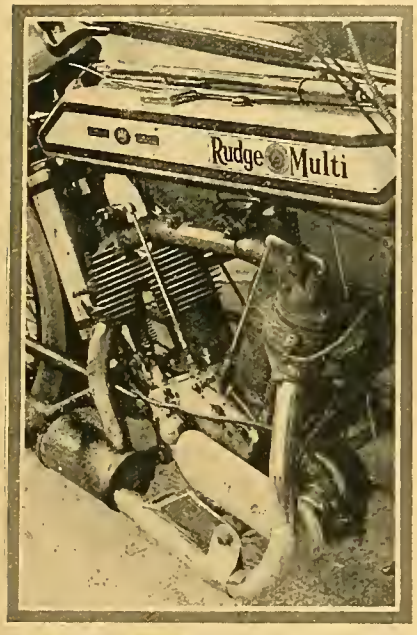
A 7 h.p. V Type Engine for Solo or Sidecar Use.

RUDGE-WHITWORTH, LTD., of Coventry, have decided to market a 7 h.p. twin-cylinder machine which is suitable for solo or sidecar use. It is well known that the Rudge Co. have been studying the twin-cylinder question for some time past, and have had many designs on paper, but the new production which forms the subject of the drawings and photographs accompanying this article will be found to follow very closely Rudge practice in engine design.

Despite the large capacity of the engine, viz., 998 c.c., the new Rudge twin gives no impression of clumsiness—indeed, the latest design is a very taking machine in appearance, its symmetry at once evoking favourable comment. As regards the bicycle portion of the machine, this follows Rudge practice in every particular, so that it is the engine only with which these notes deal. Single



Valve side of the new 7 h.p. Rudge, showing induction pipe, overhead inlet valves, and position of chain driven magneto.



Details of the Rudge twin-cylinder engine.

and twin Rudge engines are interchangeable in the standard design of frame, which is surely an attractive point. The multi-gear is of precisely the same design as on the 3½ h.p. model, and, of course, belt drive is used. What may seem curious on first thoughts is that belts last as long on the big twin as on the 3½ h.p. mount, but this is due to the more even pull of the twin as compared with the single.

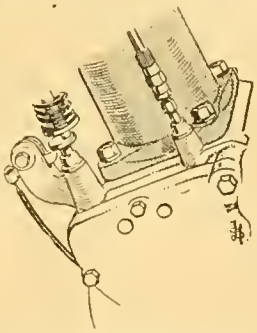
Features of Design.

The cylinders, which have a bore and stroke of 85 × 88 mm., are set at an angle of fifty degrees, and are *dèsaxé* or "offset" in relation to the crankshaft to the extent of half an inch. Forked big end bearings are used, fitted with rollers, and roller bearings are also used at the small ends. The offsetting of the cylinders is claimed to have a beneficial effect in equalising the lubrication. Despite the fact that there are no baffles to either cylinder, it is found in practice that the cylinders are quite evenly lubricated, and, in fact, during the tests the engine has undergone, the first trouble with a sooted plug has yet to be recorded.

Simplicity in the Timing Gear.

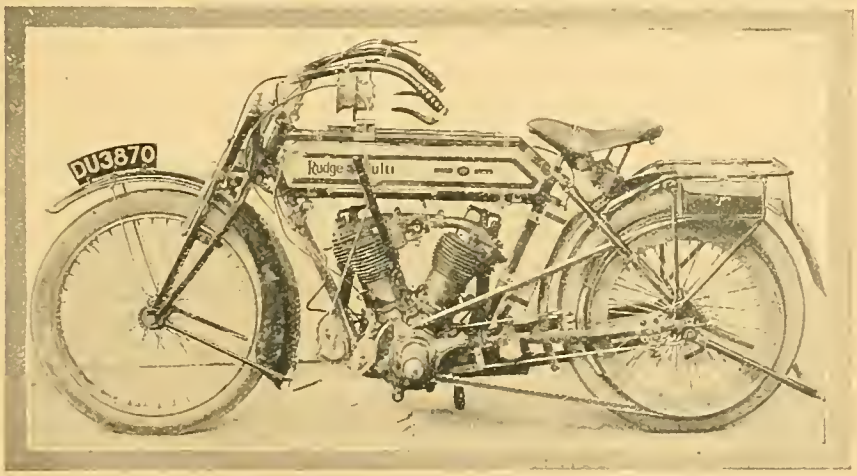
The timing gear is very neatly arranged, only three timing gear wheels being used. The two cams are, of course, similar in shape, and moreover the four rockers are interchangeable, which system is an advantage in assembling the engine, as obviously it is impossible to replace a rocker in its wrong position.

The valve lifters are very neatly arranged. Brackets are cast with the crank case to support the valve lifter wire, the wire casing for the rear cylinder being disposed underneath the projecting timing gear case. The inlet valve rockers are much bigger and sturdier than on the singl -cylinder machine. The pistons are of the standard



Arrangement of tappets and rear exhaust lifter on the 7 h.p. Rudge.

design, having flat tops and a piston ring top and bottom with diagonal slots, the walls of the pistons being recessed

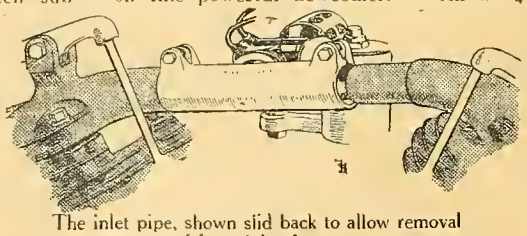


Belt side of the new 998 c.c. Rudge on which the standard Multi gear is employed.

A New Rudge Twin.—

at the sides. The valves are the same as those used on the 3½ h.p. machine.

The new Rudge—we named it the "Rudge Multwin" in the absence of something better—has great promise. Those who have been privileged to try it up to the present are quite enthusiastic in its praises. Right from the commencement the engine has given no trouble, despite the fact that it has been subjected to the most rigorous tests. For instance, in the first six days of its existence it had covered a thousand miles, mostly in connection with the "Rudge Mail Service," which consists of sidecar carriers running backwards and forwards between the Rudge Works at Coventry and Birmingham with several hundredweight of goods. A change of drivers was provided, and the twin was kept at work from early morning till late at night. In addition, the machine has been taken over several severe trials courses in the Midlands, and up all the test hills on the Cotswold Range. Birdlip is no match for the outfit, and it has proved its ability to start from a stand still on this steep hill. The Old Wyche at Malvern has been scaled with ease on this powerful newcomer. With a 3¾ to 1 top gear, the new twin with sidecar attached will keep up a steady fifty miles an hour, and users assure us of the remarkable absence of vibration in the engine.



The inlet pipe, shown slid back to allow removal of front inlet dome.

Economical Running.

As regards consumption, with a sidecar it has been found to be in the neighbourhood of fifty miles per gallon on difficult roads, but it is hoped to do better than this later. The Rudge tank design is eminently suitable for a sidecar, for it will be remembered that the large tank is used solely for petrol, and has a capacity of 2¼ gallons. The oil is carried in a special compartment at the rear of the seat tube, and the oil pump is operated by a pedal on the right footrest.

Shortly we shall be able to speak of the new Rudge "Multwin" from practical experience on the road.

List of Competitors in the Six Days Trials.

132 Entries Mainly Composed of Motor Cycles. (For Routes see page 22.)

Motor Bicycles.

Douglas Bros. (2¾ Douglas)
Douglas Bros. (2¾ Douglas)
Douglas Bros. (2¾ Douglas)
D. M. Brown (3½ Rover)
Norman Lea (3¼ Lea-Francis)
W. A. Davenport (3¼ Lea-Francis)
A. J. Sproston (3¼ Lea-Francis)
G. I. Francis (3¼ Lea-Francis)
Oswald Birse (3½ N.U.T.)
Ernest Keel (3½ N.U.T.)
James Robinson (3½ N.U.T.)
James Allday (3½ James)
C. O. Heafrey (3½ Ariel)
W. J. Montgomery (5 Montgomery)
F. W. Applebee (3½ Motosacoche)
J. Oliphant (3½ Premier)
J. S. Holroyd (3½ Blackburne)
F. W. Chapman (4 Triumph)
Graham Price (5 Bat)
L. A. Bees (4 L.M.C.)
R. C. Boxer (5 Bat)
W. A. Vickers-Edwards (5 Ariel)
C. W. Smith (4½ Bat)
W. E. Cook (5-6 A.S.L.)
Max Heinzel (2 N.S.U.)
J. H. Kerr (3½ N.S.U.)
A. Kirk (3½ Ariel)
Wm. Percy (3½ Wellington)
W. B. Little (3½ Premier)
G. A. Gregson (4½ Bat)
W. H. Eggington (6 Enfield)
H. J. Beal (4 L.M.C.)
P. W. Moffatt (2¾ Douglas)
Albert E. Catt (4 Triumph)
B. J. Sims (4½ Bat)
Frank May (2¾ A.J.S.)
F. C. De la Hay (3½ Sunbeam)
J. W. Moffatt (3½ Sunbeam)
C. E. Nokes (3½ Sunbeam)
Karl E. Doo (5 Zenith)
H. Green (4 Triumph)
W. Westwood (4 Triumph)
R. Fenn (4 Triumph)
W. G. Ayling (1½ Dayton)
Alec F. Flint (1½ Dayton)
J. D. Drysdale (2½ Connaught)
H. Graham Dixon (3½ James)
F. M. Davy (3½ Norton)
T. J. Ross (4 Triumph)
V. Underhill (3½ Overseas)
S. Sawer (3½ Premier)
K. H. Clark (3½ James)
L. Newey (3½ Ariel)
F. C. Norton (3½ Ariel)
W. P. Tippett (3½ Humber)
J. Drew (2½ New Imperial)
E. H. Littledale (3½ Ariel)
N. T. Downs (2½ New Imperial)
P. S. Taylor (2½ New Imperial)
E. V. Walters (3½ P. and M.)
P. Shaw (3½ P. and M.)
W. C. Drake (3½ P. and M.)
S. Tubb (3½ Humber)
F. G. Edmund (3½ Humber)
A. G. Cocks (2½ Clyno)
R. Pearson (2½ Clyno)
G. Gray Barnard (3½ Sunbeam)
Jesse Baker (3¾ Scott)
W. Fox (3 Enfield)
S. Parker (6 Enfield)
G. W. Wilkins (2½ Levis)
B. Haddock (2¾ A.J.S.)
W. Russell (3½ Quadrant)
J. Woodhouse (3½ Quadrant)
C. Q. Roberts (3½ Blackburne)
W. Leslie Guy (3¾ Scott)
R. Lovegrove (3¾ Scott)
E. B. Glisson (6 Rex)
J. Richards (5 Sun)
Hubert M. Parsons (4 Wolf)
H. Vivian White (4 Wolf)
H. F. Edwards (3½ Blackburne)
F. C. Wasley (4 Leader)
O. P. C. Collier (3½ Grandex)
Neville Hall (2 O.K. Junior)
B. J. China (4 Wolf)
Rex G. Mundy (2 O.K. Junior)
W. H. Longton (3½ Alldays)
F. Turvey (————)

Sidecars.

H. Finch (3½ Premier)
F. K. Langton (5 Ariel)
R. C. Davies (8 Chater-Lea)
A. Pilkington, jun. (8 Rex-Jap)
C. R. Collier (7 Matchless)
R. E. Guest (7 Matchless)
G. Hunt (8 Campion)
T. H. Edwards (6 Sparkbrook)
P. W. White (7·9 Premier)
Jas. L. Norton (4 Norton)
P. Platt (6 Bradbury)
Fred J. Watson (3½ Ariel)
T. H. Edwards (6 Sparkbrook)
Jack Haslam (3½ Premier)
Eli Clark (8 Leader)
G. D. Hardee (7 Matchless)
H. Gibson (5-6 Clyno)
F. Smith (5-6 Clyno)
E. Sidwell (5-6 Excelsior)
J. Stevens (6 A.J.S.)
B. Williams (6 A.J.S.)
T. Silver (8 Quadrant)
T. Stevens (4¼ James)
T. H. Edwards (6 Sparkbrook)
Sam Dewire (6 Rex)
A. H. Wright (6 A.J.S.)
Geo. Nott (5-6 Clyno)
Williamson Motor Co., Ltd. (8 Williamson)
Norman Longton (7 American Excelsior)

Cycle Cars.

H. F. S. Morgan (8 Morgan)
P. Newbold (9 Warren-Lambert)
W. D. Hawkes (10 Victor-Precision)
S. C. Westall (10 A.C.)
L. Scott (10 A.C.)
A. F. Miller (8 Humberette)
E. B. Slater (10 J.B.S.)
H. Greaves (8 Enfield)
M. D. Graham (10 Morris-Oxford)
G. W. Hands (10 Calthorpe)
W. James (8 Morgan)
Gordon Armstrong (10 Gordon)
R. Ellis (8 Morgan)
W. G. McMinnies (8 Morgan)

The ballot for starting numbers was to take place to-day (Thursday).

N.W.A.A. TEAM TRIAL.

Twenty-two Teams Compete Together over a Severe Course.

ON the 28th ult. the North-Western Automobile Association held another reliability trial over a course in the district between Lancaster and Preston, which was nearly as severe as the last one held in the Peak.

No fewer than twenty-two teams, comprising eighty-eight competitors (sidecar and solo mixed), were entered by the various clubs affiliated.

Abbeystead Fell, although rather short, proved an obstacle to many of the riders.

The second portion of the trial included the Trough of Bowland from the Yorkshire and much more difficult side, the easier side having been climbed in the morning. Many of the riders were baulked and had to run into the bank.

The results, as declared late in the evening, are as follow:

1. CHESTER CLUB.—Four non-stops. Full mileage, 294. Error of 14m. 3s. J. Morrey (6 A.J.S. sc.), H. Marston (3½ Rudge), E. J. Nevatt (3½ Rover), and R. Dutton (5 Matchless).

2. ROCHDALE "B" TEAM.—Four non-stops. Full mileage. Error of 32m. 47s.

3. PRESTON "B" TEAM.—Full mileage and four non-stops. Error of 68m. 2s.

Beautiful weather favoured the trial.

Caerphilly Open Hill-climb.

Keen Contests on the Welsh Mountains.

A Douglas rider at the bend on Caerphilly Hill in Class VI.

THE Caerphilly open hill-climb took place on Thursday last under ideal conditions, under the auspices of the South Wales Automobile Club and the Cardiff Motor Club. The climb has considerable importance attached to it in Welsh motoring circles, and is always certain to attract a large entry. The hill is 1,194 yards in length, and has a total rise of 387 feet. The gradient at the steepest part is 1 in 6.2. The promising weather outlook of Thursday morning induced thousands of people to visit the scene of the climb, and the mountain side was crowded with spectators at an early hour. It would, indeed, be a difficult matter to find a hill more suitable than Caerphilly for a climbing contest; it is a really severe hill, not only in gradient, but also as requiring great skill and judgment on the part of the riders. At the bottom there is a slight downward gradient for some yards which enables the machines to get going before commencing the ascent. There are three difficult bends, which were responsible for many thrills. At each of the corners the road is cut through the hillside, forming a bank several feet high on either side. It was on these banks that a few of the competitors came to grief. For those classes which were determined on formula $\frac{W}{C \times T^2}$ (*The Motor Cycle* formula) was used.

The first class to be run off was that for sidecar machines. A. B. Wade (5 Zenith) came up at a tremendous pace, but at the last bend dashed up the bank and almost overturned, but completed the climb in 1m. 16⅖s., the fastest time in the class.

It is to be regretted that the cycle car class attracted only three entries, while only two actually competed. J. B. Buckingham (12 Buckingham) made a good climb in 1m. 15⅖s. H. S. F. Morgan, driving an 8 h.p. Morgan, started well, but burst a tyre.

Record for the Hill Broken.

The 350 c.c. class was productive of some clever riding. W. D. Gills (2¾ Douglas) came up well, but wobbled alarmingly at the final bend and lost time. The fastest time was made by H. R. Davies (2¾ Sunbeam), who made the ascent in 1m. 9⅖s. A. W. Jones ran up the bank at the second bend, but remained in his saddle and continued the climb. At the final bend, however, he again went several yards up the bank, and turned a complete somersault. He was fortunate to escape injury, while his Douglas was but slightly damaged.

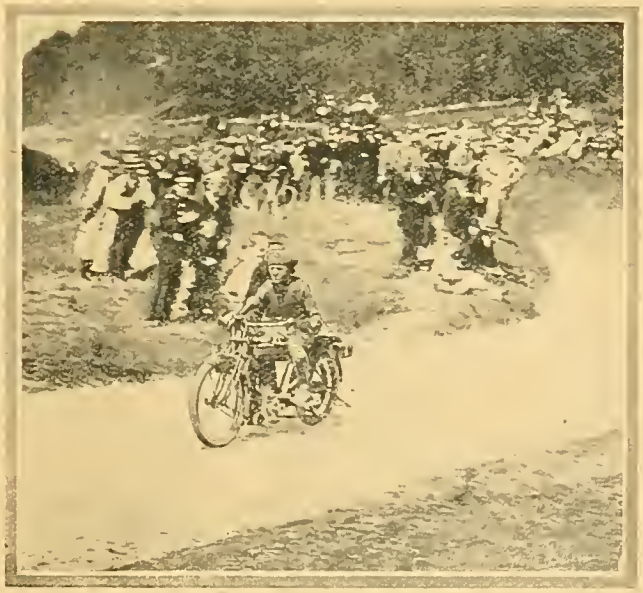
In the 500 c.c. class for touring machines there was only one competitor.

The 500 c.c. single cylinder racing machine class followed. Here the fastest time was made by C. T. Newsome on his Rover. Pollard's Stevens-Precision had a remarkably strident exhaust and climbed well, while the smooth, purring rush of Shirley's Singer gave an impression of high speed.

Only Two 500 c.c. Twins.

Only two machines—both N.U.T.'s—competed in the twin-cylinder 500 c.c. class. H. Ashton (N.U.T.) lost several seconds through rushing up the bank at the second bend.

C. T. Newsome (3½ Rover) made the fastest time of the day in the unlimited capacity class. He made a most



H. Davies (Norton) travelling well past the first corner

Caerphilly Open Hill-climb.—
excellent climb, taking the bends without wobbling. His time was 1m. 2⅖s. This knocks 2⅖s. off Newsome's previous fastest time for the Caerphilly Hill. Results :

CLASS I.—FOR MACHINES NOT EXCEEDING 350 C.C. (Determined on formula.)

		m. s.	Fig. of Merit.
1.	H. R. Davies (2¾ Sunbeam)	1 9⅘	.1811
2.	C. V. Wood (2¾ Douglas)	1 11⅘	.1475
3.	L. E. Sawyer (2¾ Royal Enfield)	1 21⅘	.1367

CLASS II.—FOR TOURING MACHINES EXCEEDING 350 C.C., BUT NOT EXCEEDING 500 C.C. (Determined on formula.)

1.	H. B. Davies (3½ Sunbeam)	1 17⅗	.1257

CLASS III.—FOR RACING SINGLE-CYLINDER MACHINES NOT EXCEEDING 500 C.C. (Decided on time.)

1.	C. T. Newsome (3½ Rover)	1 7⅖
2.	H. R. Davies (3½ Sunbeam)	1 9⅗
3.	J. Cocker (3½ Triumph)	1 10⅘

CLASS IV.—FOR RACING TWIN-CYLINDER MACHINES EXCEEDING 350 C.C., BUT NOT EXCEEDING 500 C.C. (Decided on time.)

1.	F. J. Tanner (3½ N.U.T.)	1 19⅖
2.	H. Aston (3½ N.U.T.)	1 35

CLASS V.—FOR TOURING TWIN-CYLINDER MACHINES EXCEEDING 500 C.C., BUT NOT EXCEEDING 1,000 C.C. (Determined on formula.)

1.	A. B. Wade (5 Zenith)	1 9⅖	.1185
2.	T. P. Geen (7-9 Indian)	1 16	.0792
3.	E. E. Chapman (5 Zenith)	1 28¼	.07601

CLASS VI.—UNLIMITED CAPACITY. (Decided on time.)

		m. s.	Fig. of Merit.
1.	C. T. Newsome (3½ Rover)	1 2⅗	
2.	V. Harrison (3½ Triumph)	1 10	
3.	J. Cocker (3½ Triumph)	1 11	

CLASS VII.—FOR MACHINES, CAPACITY UNLIMITED, WITH SIDECAR AND PASSENGER. (Determined on formula.)

1.	A. B. Wade (5 Zenith)	1 16⅖	.1378
2.	C. T. Newsome (3½ Rover)	1 39½	.1225
3.	L. Davies (4¼ James)	1 43⅖	.1116

CLASS VIII.—FOR CYCLE CARS NOT EXCEEDING 1,100 C.C. (Determined on formula.)

1.	J. F. Buckingham (12 Buckingham)	1 15⅖	.1755

CLASS IX.—FOR TOURING MACHINES NOT EXCEEDING 560 C.C. (Determined on formula.)

1.	H. Davies (3½ Norton)	1 21⅗	.1222
2.	W. Giles (2¾ Douglas)	1 27	.1121
3.	A. Sgonina (5 F.N.)	1 41⅗	.0770

CLASS X.—FOR T.T. MACHINES NOT EXCEEDING 500 C.C. (Decided on time.)

1.	C. V. Wood (2¾ Douglas)	1 12⅖
2.	W. Pollard (3¾ Stevens-Precision)	1 17½
3.	H. Davies (3½ Rover)	1 18

CLASS XI.—FOR TWIN-CYLINDER MACHINES EXCEEDING 480 C.C., BUT NOT EXCEEDING 1,000 C.C. (Determined on formula.)

1.	T. P. Geen (7-9 Indian)	1 16⅖	.0783
2.	E. E. Chapman (5 Zenith)	1 30	.0740

Porthcawl Open Speed Trials.

Keen Contest on the Sands.

ON Saturday last Rest Bay was the scene of the annual open speed trials organised by the South Wales Automobile Club and the Cardiff Motor Club jointly. Despite the fact that there were other competitions of various sorts taking place on the same day, the entries were well above the average, and with the hot, summer-like weather which prevailed, and the excellent organisation, the meeting must be regarded as one of the most successful in the history of Welsh motoring competitions. The start was delayed a couple of hours on account of the high tide and the wet state of the sands. As the tide receded, however, the course soon dried, and after the car events had been run off, was in splendid condition for the motor cycles. The usual crowd, numbering several thousands of spectators, assembled on the cliffs, which act as a natural grand stand, and from which a good view of the races can be obtained.

The various classes were run off with the utmost regularity and precision, enabling the programme to be concluded at a reasonable time.

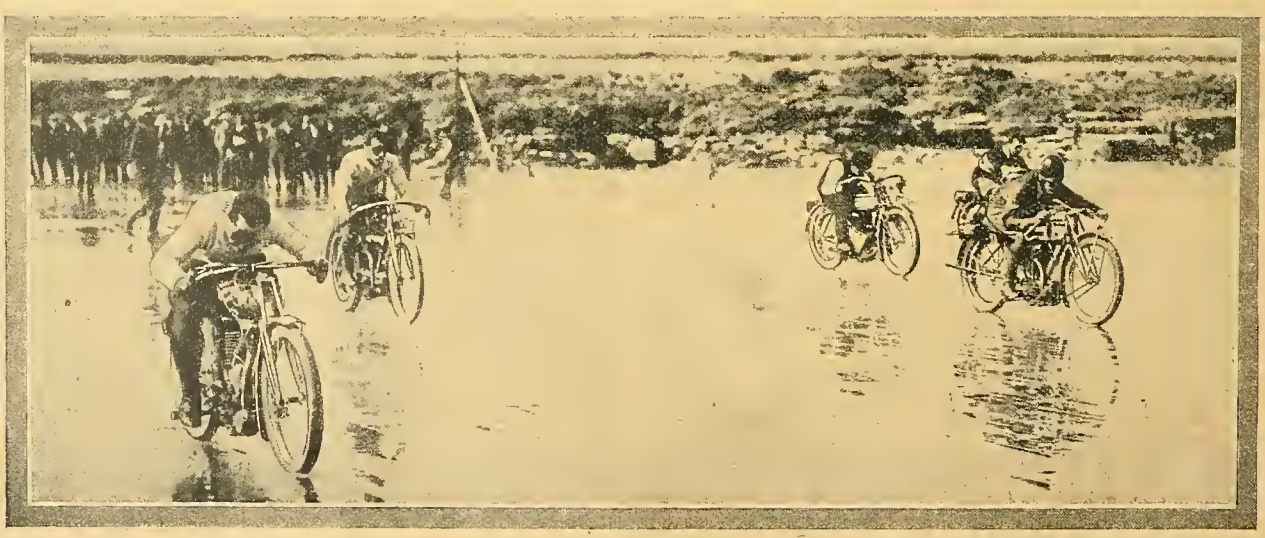
Class I., for lightweights up to 350 c.c., produced five starters, and resulted in an easy win for L. E. Sawyer on a 2¾ Enfield, his time for the straight mile course being 1m. 18⅕s. (46.04 m.p.h.) 22⅘s. separated A. W. Jones (Douglas) from H. Britton, also on a Douglas, the former gaining second place in 1m. 23⅕s.

In the 560 c.c. class, the violent acceleration and remarkable pulling powers of Turner's 3½ N.U.T. attracted a good deal of interest, and for the first couple of hundred yards his chances of winning appeared very rosy indeed. When half the distance had been covered, he wobbled and slackened speed. In a moment Cocker, on the Triumph, shot ahead, while Hill (Rudge) also passed the N.U.T. with ease. When near the finish, Britton, riding a B.S.A., spurted, and beat Turner for third place by 1s. only. The winner's time was 1m. 8⅘s., 1⅕s. ahead of the second machine.

Some good speeds were witnessed in Class III., for machines up to 1,000 c.c. S. B. Briggs, riding a powerful 8 Campion-Jap, won his heat in 1m. 2⅕s., and in the final improved ⅘s. on this time, his speed being 58.63 m.p.h. This was the fastest time of the day. H. W. Tamblyn (7-9 Indian) also rode well, and covered the course in 1m. 7⅖s. V. Harrison (Triumph) beat Turner, the N.U.T. rider, for third place by ⅘s.

The 600 c.c. sidecar class followed, and here J. C. Moore, on a 3½ Rudge, enjoyed an easy victory in 1m. 26s. A 3½ and 4¼ James were second and third respectively. The former, ridden by H. Davies, beat the 4¼ machine with the greatest possible ease.

The 1,000 c.c. sidecar class saw the Campion-Jap again victorious. Briggs did not start so well as expected, but



Just after the start of Class II., for 500 c.c. machines.

L. Davies (James sidecar) starting at the Porthcawl speed trials.

picked up wonderfully and accomplished the course in 1m. 11⅘s. (50.56 m.p.h.). J. C. Moore (Rudge) passed the finishing post 8⅘s. later, E. E. Chapman (5 Zenith) being third in 1m. 42⅖s.

The cycle car class was one of the most interesting contests of the day, although there were only three competitors. It was a close race between J. F. Buckingham's 12 h.p. Buckingham and H. E. Moon's 8 h.p. Morgan, the result being in the balance until the last 150 yards or so, when the twelve horse machine steadily forged ahead. As it was, the finish was a near thing, the Morgan being defeated by 2⅘s. only. The third competitor was W. D. Hawkes (8 Victor-Precision), whose time was 1m. 30s., 14⅗s. behind the Buckingham.

The complete results are as follow:

CLASS I.—FOR MACHINES NOT EXCEEDING 350 C.C. (Open).

	Bore & Stroke.	Time.	M.P.H.
Heat 1.			
L. E. Sawyer (2¾ Royal Enfield)	54 × 75	1m. 19⅕s.	45.45
Heat 2.			
H. Britton (2¾ Douglas)	60½ × 60	1m. 45⅖s.	34.03
Final.			
L. E. Sawyer (2¾ Royal Enfield)	54 × 75	1m. 18⅘s.	46.01
A. W. Jones (2¾ Douglas)	60½ × 60	1m. 23⅕s.	43.27
H. Britton (2¾ Douglas)	60½ × 60	1m. 46s.	33.96

CLASS II.—FOR MACHINES NOT EXCEEDING 500 C.C. (Open)

Heat 1.			
G. Clarke (3½ Rudge)	85 × 88	1m. 22⅘s.	49.86
Heat 2.			
L. Hill (3½ Rudge)	85 × 88	1m. 13⅖s.	49.05
Heat 3.			
F. J. Turner (3½ N.U.T.)	70 × 64½	1m. 10⅕s.	51.28
Final.			
J. Cocker (3½ Triumph)	85 × 88	1m. 8⅕s.	52.33
L. Hill (3½ Rudge)	85 × 88	1m. 10s.	51.13
H. Britton (3½ B.S.A.)	85 × 88	1m. 16⅖s.	47.12
F. J. Turner (3½ N.U.T.)	70 × 64½	1m. 16⅗s.	47.00

CLASS III.—FOR MACHINES NOT EXCEEDING 1,000 C.C. (Open).

Heat 1.			
T. P. Geen (7-9 Indian)	82½ × 93	1m. 7⅖s.	53.41
Heat 2.			
V. Harrison (3½ Triumph)	85 × 88	1m. 8⅗s.	52.63
Heat 3.			
S. B. Briggs (8 Campion-Jap)	90 × 77½	1m. 2⅕s.	57.88
Final.			
S. B. Briggs (8 Campion-Jap)	90 × 77½	1m. 1⅗s.	58.63
H. W. Tamblyn (7-9 Indian)	82½ × 93	1m. 7⅗s.	53.41
V. Harrison (3½ Triumph)	85 × 88	1m. 10s.	51.43
F. J. Turner (3½ N.U.T.)	70 × 64½	1m. 10⅘s.	50.85

CLASS IV.—FOR SIDECAR MACHINES NOT EXCEEDING 600 C.C. (Open).

J. C. Moore (3½ Rudge)	85 × 88	1m. 26s.	41.86
H. Davies (3½ James)	86 × 90	1m. 36⅗s.	37.31
L. Davies (4½ James)	86 × 103	1m. 51⅗s.	31.36

CLASS V.—FOR SIDECAR MACHINES NOT EXCEEDING 1,000 C.C. (Open).

S. B. Briggs (8 Campion-Jap)	90 × 77½	1m. 11⅘s.	50.56
J. C. Moore (3½ Rudge)	85 × 88	1m. 30s.	40.00
E. E. Chapman (5 Zenith)	70 × 85	1m. 42⅖s.	35.16

CLASS VI.—FOR CYCLE CARS NOT EXCEEDING 1,100 C.C. (Open).

J. F. Buckingham (12 Buckingham)	80 × 88	1m. 15⅗s.	47.75
H. E. Moon (8 Morgan)	80 × 77½	1m. 18⅘s.	46.04
W. D. Hawkes (8 Victor-Precision)	85 × 88	1m. 30s.	40.00

CLASS VII.—FOR MOTOR CYCLES NOT EXCEEDING 350 C.C. (Closed).

L. E. Sawyer (2¾ Royal Enfield)	54 × 75	1m. 17⅗s.	46.51
A. W. Jones (2¾ Douglas)	60½ × 60	1m. 40⅘s.	35.80
E. W. Sharman (2¾ Douglas)	60½ × 60	2m. 20s.	25.76

CLASS VIII.—FOR MACHINES NOT EXCEEDING 500 C.C. (Closed)

W. Pollard (3½ Stevens-Precision)	85 × 88	1m. 12s.	50.00
J. C. Moore (3½ Rudge)	85 × 88	1m. 13⅘s.	49.18
H. Davies (3½ Norton)	79 × 100	1m. 19⅗s.	45.34

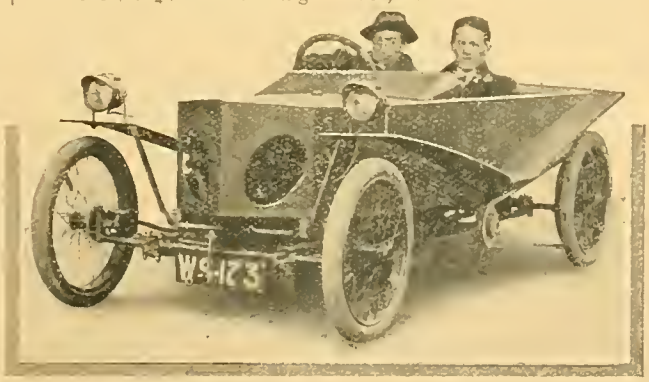
CLASS IX.—FOR MACHINES NOT EXCEEDING 1,000 C.C. (Closed)

J. P. Board (7-9 Indian)	82½ × 93	1m. 3⅘s.	56.43
T. P. Geen (7-9 Indian)	82½ × 93	1m. 8⅗s.	52.63
W. Pollard (3½ Stevens-Precision)	85 × 88	1m. 14s.	48.65

It will be seen from the above that, although good speeds were attained, no one succeeded in reaching the mile a minute gait during the meeting.

SCOTTISH A.C.U. MEET AT CALLANDER.

BEAUTIFUL weather conditions favoured the annual meet of motor cyclists at Callander, under the auspices of the Scottish Auto-Cycle Union. Over 150 were present, mounted on all manner of machines, from the miniature two-stroke to the more elaborate big powered sidecar combination, while many club members made the journey from headquarters by car. The trophy presented by the *Scottish Cyclist and Motor Cyclist* was won by the Glasgow M.C.C., whose members had an aggregate mileage of 1,995 miles to their credit. The winning club is arrived at very simply, the total mileage being obtained by multiplying the distance from headquarters to Callander by the number of members checking in at the meet, checking in time being limited to the hours between 4.30 p.m. and 6 p.m. Last year several of the competitors arrived a few minutes after the latter hour, and were in consequence unable to sign on for their club. One or two were in a similar predicament on Saturday. The Inverness Club, which won the trophy last year, traversed the longest distance, their headquarters being 149 miles from Callander, and as eleven of their members made the journey on Saturday they totalled the splendid mileage of 1,639, which gave them second place. Next to the Glasgow M.C.C., fifty-seven of whose members were present, the Dundee M.C.C., with twenty-one members, had the next largest turnout. The following are the various mileages: Glasgow M.C.C., 1,995; Inverness M.C.C., 1,639; Dundee M.C.C., 1,286½; Campbeltown M.C.C., 828¾; Perth M.C.C., 477; Edinburgh M.C.C. 309; Wishaw M.C.C., 178; West of Scotland M.C.C., 140; Cathcart M.C.C., 70; Falkirk M.C.C., 54½; and Stirling M.C.C., 16.



An Edinburgh participant arrives on a home-made cycle car

SPEED TRIALS IN THE MIDLANDS.

Successful Open Meeting under Pleasant Conditions at Castle Bromwich.

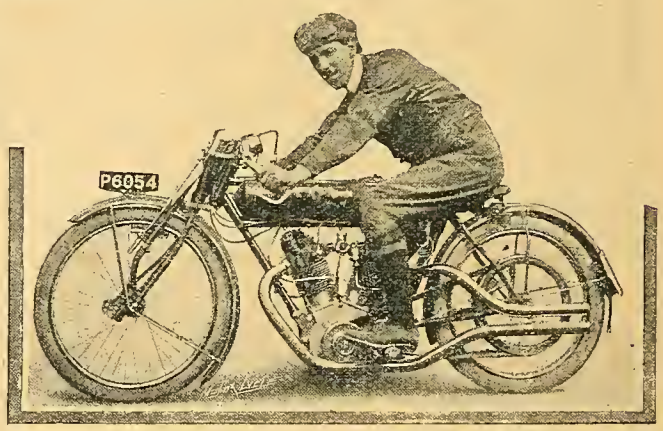
THE Birmingham M.C.C. have every reason to be satisfied with their speed trials on Saturday last. Perfectly ideal weather favoured the event, the sun's rays being tempered with a fresh breeze, which served the double purpose of slightly assisting the riders and blowing the dust away from the spectators in the enclosures. These were well arranged, and a word of praise is due to the excellent catering arrangements, tea being served in a reserved enclosure at small tables—a much pleasanter arrangement than the usual get-what-you-can-how-you-can sort of scramble so often met with. A band was also in attendance, and the large number of spectators followed the racing very keenly, as was evidenced by the applause which greeted any particularly good run.

The track selected was not in good condition, being rather rough, and towards the end of the afternoon it got very loose. It had the merit, however, of being perfectly flat and straight, but the pull up was none too long, and the fastest machines required careful handling to bring them to a rest, as a curve had to be negotiated. However, no one had any real difficulty, and not a single accident of any sort occurred during the afternoon.

The Birmingham Playing Fields at Castle Bromwich would make a perfectly ideal place for motor cycle racing, and we could not help feeling that if only the ground could be prepared it would be possible to run half a dozen machines abreast with perfect safety on such a vast space. Such a spectacle would certainly draw large crowds, and would be preferable in every way to the recently proposed Midland "saucer" track.

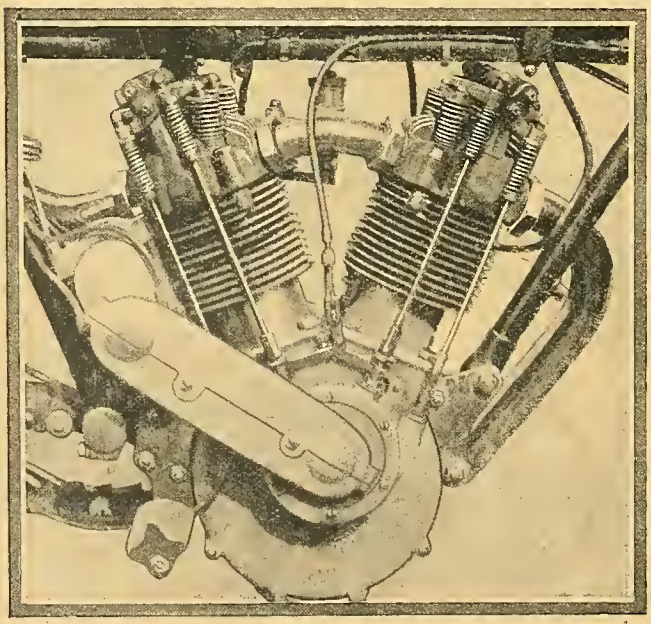
A New Eight Valve Racing Engine.

To turn to the speed trials, quite the most interesting machine present was C. R. Collier's 7 h.p. M.A.G.-engined Matchless. This engine, of 995 c.c., is fitted with four valves per cylinder, arranged on the overhead principle. The rocker arms are superimposed, and the whole engine bears the imprint of most careful design. The valve springs are unusually strong, and the general finish superb. It has the most beautiful "note," and Charlie Collier will probably attack short distance records with it shortly at Brooklands. How fast this machine really is we had no means of judging on Saturday, because the course of five hundred yards with only thirty-five yards for a flying start is not sufficient for a single-geared machine to get going all out, and, in addition, Collier obviously was taking no risks with the pull-up, and always cut out some time before crossing the finishing line. Therefore his best speed of 16⅕s., equal to 63.2 m.p.h., must be looked upon as remarkable. It was equalled by A. J. Brewin on a big Zenith of the same capacity as Collier's machine, but the Gradua gear proved invaluable for a quick start, and as a pure speed machine Collier's Matchless must be awarded the palm.



C. R. Collier and his latest racing machine—a twin-cylinder Matchless, which is fitted with an eight valve (overhead) engine, rated at 7 h.p. He will shortly attempt records on this machine.

C. R. Collier and H. V. Colver were also highly successful in the 500 c.c. classes with the T.T. Matchless machines they rode in the Isle of Man.



The valve mechanism of the new twin-cylinder engine fitted to C. R. Collier's racing Matchless.

Wonderful Speed by a Single Cylinder.

Quite one of the finest performances of the afternoon was achieved by J. W. Draper riding a 3½ Triumph with a 1909 engine, when riding in Class 9 for racing machines up to 500 c.c. He first of all tied with C. R. Collier (3½ Matchless-M.A.G.) and H. Riddell (3½ Precision), all three doing 18⅕ secs., but in the run off, whereas Draper could only equal his previous speed, Collier knocked off a fifth. But Draper got a reward in Class 16 for any solo machine, when he was first on formula. It was in this class that Collier and Brewin deadheated on their big machines, but Collier won the run off by ⅖ sec. in 16⅕ secs. From an old engine Draper got amazing results. He was using a very clever pulley of his own invention. He set it at a certain point for starting, but directly he got going he braked the outer flange with his foot, when the gear immediately went up to the highest point. This proved invaluable for getting a quick start, and the acceleration of this old Triumph was remarkable. It was also in beautiful "tune" and "revved" in the most amazing manner. The remainder of the racing was interesting, and during an interval Albert Milner gave a clever exhibition of trick riding on a Baby Levis. Some of the tumbles he underwent would have done credit to any star variety performer, and great amusement was caused by a certain photographer imploring Milner to come a cropper to oblige for a good snapshot, which he instantly did! The events were run off with great promptitude, and there were no irritating delays, with the result that the meeting was concluded soon after six-thirty. Events terminated with an "old crocks" race, open to machines built previous to the end of 1907. This was won by J. H. Priddey on a 3 h.p. Rex

Mr L. W. Spencer climbing a gradient of 1 in 2·7 to the summit of Dunkerry Beacon, 1707ft. above sea level.

DEVON HILLS BEATEN BY A LIGHTWEIGHT.

A Triumph for the "Precision Junior" Power Unit.—Famous Test Hills climbed.

FOR thoroughly testing the powers of a motor cycle there is nothing like a trip from London to Devon. There is a 200 mile journey down, and when you get there a splendid series of hills on which to try the hill-climbing powers of the machine. For this purpose indeed Devon is the finest county in the British Isles.

Mr. L. W. Spencer has put a "Little Giant" Motorcyclette fitted with the "Precision Junior" Unit through this strenuous test, and writes most enthusiastically of the result. The journey down through Gloucester and Bristol was performed, of course, with ease, and the first hill of any consequence—Porlock—was covered without a falter. Lynton Hill was next attacked, and the little machine made an unhesitating non-stop climb. Of the next ascents Mr. Spencer writes as follows:

"The next climb was Station Hill, Lynton, the precipitous road to Lynton Railway Station. Station Hill is really in a class by itself. Its commencement is covered from side to side with deep loose macadam, and the surface from top to bottom is abominably loose. To almost any ordinary motor cycle it is practically unridable, and I do not believe it has been climbed half-a-dozen times in its history. The lightness, however, of my machine made all the difference; for it seemed to just skim over the stones on its way to the top, which was quite easily reached without trouble or hesitation. I have never seen people so amazed at a hill-climbing feat as a number of onlookers were at the way the machine took this hill. They were astounded at the way the machine pulled.

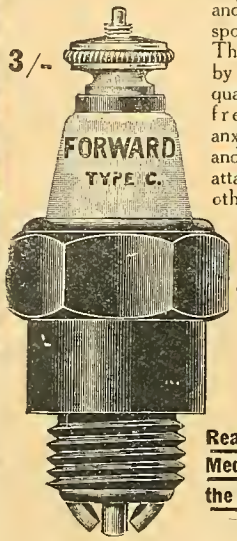
"We next made for Beggar's Roost, where so many motoring reputations have been lost. It is certainly one of the worst of the Devon test hills, and on more than one occasion have I had to retrace my steps from its precipitous gradient on various makes of motors. But not so to-day. The monotonous ease with which the hill was climbed seemed ridiculous. We found it was simply necessary to push the bike across the road for it to start anywhere on the hill—a truly wonderful performance.

"As I was particularly anxious to try the little machine on some really tough work more of a Colonial character, we made a trip to Dunkerry Beacon. The path leading to the summit is a mere boulder-strewn heather track. I had ridden it a few years ago on a 3½, but what had then been an ordeal became on the motorcyclette the simplest of rides. With the engine just ticking over and one's feet on the footboards it was possible to steer the machine in perfect comfort over the roughest parts of the track. The path concludes by surmounting the mount which forms the Beacon, at which the gradient is probably 1 in 2. It certainly seemed to tax the power of the machine more than any other hill, and I just succeeded in going straight up it to the foot of the cairn. The ease and handiness of the motorcyclette on this little excursion finally proved to me what the Snowdon climb had already demonstrated, that it is the ideal machine for really rough work, and its possibilities for Colonial work are tremendous."

It should be remembered that the "Little Giant" which came so splendidly through this exacting test was an ordinary machine with standard gears. The whole machine is so light that it can be lifted. Its appearance is extremely neat —"clean cut"—the frame is specially strong. Because of its lightness it skims through snow and slush and gets over rough roads with ease. There are four models—two for gentlemen and two for ladies. An ordinary belt-driven model at 25 guineas (a similar model for ladies at 26 guineas), and a special chain-driven model, with girder forks, 2in. tyres, and all necessary equipment at £30 (for gents) and 30 guineas (for ladies).

Enquiries, especially from agents, are invited. They should be addressed to The Little Giant Motorcyclette Co., 101, High Street, Uxbridge, Middlesex. (Telephone: 184 Uxbridge.)

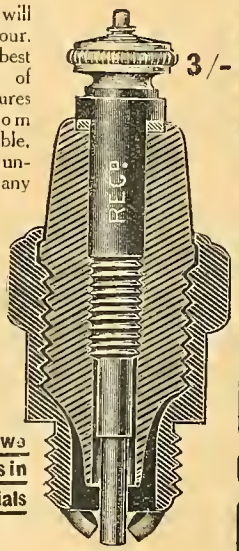
Let your Plugs be "Forwards"



TYPE C.

and no trouble will spoil your tour. They are the best by far, and of quality that ensures freedom from anxiety, trouble, and mileage unattainable with any other make.

Forward Type C the Gold Medal Plug.



SECTION.

Read what Two Medal Winners in the Scottish Trials write.

DEAR SIRS, CRICKLEWOOD.

I have much pleasure in informing you that I have gained a Gold Medal in the Scottish Six Days Trial, using your Fasteners and Plug, which both gave every satisfaction.

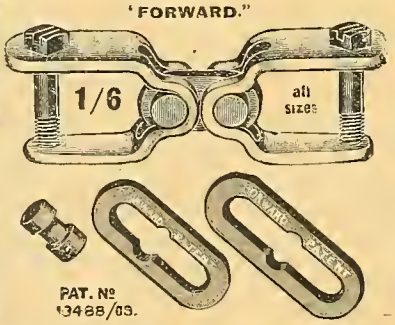
H. F. EDWARDS.

GENTS, SHEFFIELD.

You will be pleased to hear I got through the Scottish Six Days Trial without loss of any marks. I climbed all test hills and gained all bonus marks. The Fasteners never failed me once, and we had some very severe climbs indeed. The Plugs gave me every satisfaction, and I will do my best and recommend to all I meet. I also made a non-stop in the M.C.C. Trials the Saturday before, my total mileage for the 7 days being about 1,500 miles.

S. SAWER

"FORWARD."



And this is the Fastener used!

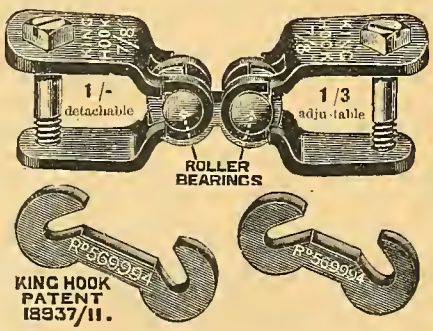
Its success has been phenomenal. From friend to friend, by word of mouth, its great reliability has been attested by thousands who appreciate

Quality.

"King Hook" the Original Hook Fastener with **FLANGED BEARINGS**

No other equals it, and who wants an imitation when the real thing is available? though it may cost a few pence more.

IT'S RELIABILITY YOU WANT.



FORWARD MOTOR CO.,
Summer Row, BIRMINGHAM.

4,000 MILES

INCLUDING the FOLLOWING FINE WINS—on ONE MIDLAND BELT

¶ **By Mr. T. Thompson, of Mile End, Portsmouth:**

June 13th—Brooklands 150 Mile T.T. Race, Special Class. **FIRST.**

Previous events on same belt:

September 3rd—Southampton and District Hill Climb at East Meon. **FIRST.**

September 10th—Broke Record for Stamshaw Track. **GOLD MEDAL.**

October 15th—Portsmouth and District M.C.C. Speed Trial. **TWO FIRST PRIZES.**

Hill Climb, last week, June 17th, Portsmouth. **FIRST** and **SECOND.**

This belt has done altogether 4,000 miles, including all the above events, and was still in use when our representative called upon Mr. Thompson on the 24th June.

SCOTTISH 6 DAYS TRIALS

Mr. A. Downie, on a 2¾ h.p. A.J.S., fitted with Midland Tyres, secured a

GOLD MEDAL

He writes: "I am pleased to report that your tyres stood the test splendidly, the back tyre only showing signs of wear. I had a no-trouble run throughout, not even a puncture; in fact, I had so much faith in your tyres that I did not carry a spare."

THE MIDLAND RUBBER Co., Ltd.,
HEAD OFFICE & WORKS: Ryland St., BIRMINGHAM.
LONDON DEPOT: 31-34, Eagle Street, Southampton Row, W.C. Coventry Depot: Priory Works, New Buildings. Glasgow Depot: 451, Eglinton Street. Cardiff Depot: Plymouth Street. Milan Depot: Via Sirtori 6. Amsterdam Depot: 50, Lange Leidsche Dwaars Straat.

Speed Trial in the Midlands.—

of 425 c.c., which "legged it" in fine style, and covered the five hundred yards in 27⅗ seconds.

Quite a number of machines call for favourable comment by reason of their capital displays. A 2¾ h.p. Diamond, ridden by H. S. Greatwich, ran exceedingly well, and annexed the class up to 350 c.c., being first on both time and formula. The design of this machine is most pleasing, and its powers of acceleration admirable. Braid's 3½ Norton also showed a fine turn of speed, and throughout the afternoon the various 3½ h.p. James machines ran wonderfully consistently.

In conclusion, a word of praise should be given to the various officials, who worked throughout most expeditiously, and to the timekeepers for the very prompt announcements of the formula results.

Results of the Racing.

CLASS I.—Single-cylinder Motor Cycles not exceeding 200 c.c. Experts barred. On time.—1, A. Milner (1¾ Levis), 27⅘s.; 2, B. Norris (2 O.K.), 28⅗s.; 3, G. Strange (2 O.K.), 28⅘s. On formula the results were the same.

CLASS II.—Solo Machines over 200 c.c. and up to 350 c.c. Experts barred.—1, H. S. Greatwich (2¾ Diamond), 20s.; 2, H. Hanks (3 Enfield), 21⅕s.; 3, H. Greaves (3 Enfield), 22s. The winner's speed was 51.2 m.p.h. On formula the results were the same.

CLASS III.—Solo Machines over 350 c.c. and up to 500 c.c.—Experts: 1, C. R. Collier (3½ Matchless), 18⅗s.; 2, H. V. Colver (3½ Matchless), 18⅘s.; 3, A. Pollock (2¾ Precision), 19⅗s. Speed 55.6 m.p.h. Collier was also first on formula. General: 1, R. J. P. Braid (3½ Norton), 19⅘s.; 2, E. Smith (3½ Regal), 20⅘s.; 3, A. Pollock (3½ Precision), 20⅗s. Speed 51.65 m.p.h. On formula L. Hadley (3 Enfield) was the winner.

CLASS V.—Solo Machines over 500 c.c. and up to 750 c.c.—1, E. Hopkins (5 Abingdon), 19⅘s.; 2, H. Jephson (6 Zenith), 20⅗s.; 3, L. Edkins (6 Ivy-Jap), 21⅘s. Speed 52.7 m.p.h. On formula Hopkins was also the winner.

CLASS VII.—Solo Machines over 775 c.c.—1, A. McKenzie Cott (8 Ivy-Jap), 18⅗s.; 2, G. T. Walker (7 Indian), 19⅘s. Speed 55.6 m.p.h. On formula McKenzie Cott was also the winner.

CLASS IX.—Racing Machines up to 500 c.c.—C. R. Collier (3½ Matchless), J. W. Draper (3½ Triumph), and H. Riddell (3½ Precision) all tied with 18½s. On the run-off Collier won in 18s., Draper being second in 18⅕s., and Riddell third in 18⅘s. Speed 56.9 m.p.h.

CLASS X.—Racing Machines over 500 c.c.—1, A. J. Brewin (8 Zenith), 16⅘s.; 2, C. R. Collier (7 Matchless-M.A.G.), 17⅕s.; 3, Harry Reed (8 Dot), 17⅗s. Speed 62.4 m.p.h.

CLASS XI.—Sidecars up to 350 c.c.—1, H. S. Greatwich (2¾ Diamond), 25⅕s.; 2, E. V. Pratt (2¾ Calthorpe), 28⅗s.; 3, J. J. Woodgate (2¾ V.T.S.), 31⅕s. On formula Greatwich was also the winner.

CLASS XII.—Sidecars over 350 c.c. and up to 500 c.c.—1, K. Holden (3½ B.S.A.), 24⅗s.; 2, J. L. Norton (3½ Norton), 25⅘s.; 3, F. R. Banks (3½ Regal-Green), 25⅕s. On formula Holden was also the winner.

CLASS XIII.—Sidecars over 500 c.c. and up to 750 c.c.—1, H. Jephson (6 Zenith), 25⅕s.; 2, E. Smith (4 Regal), 25⅗s.; 3, H. J. Cox (6 A.J.S.), 25⅗s. On formula the winner was T. Pollock (3½ James).

CLASS XIV.—Sidecars over 775 c.c.—1, H. Jephson (8 Zenith), 20s.; 2, A. J. Brewin (8 Zenith), 20⅕s.; 3, J. W. Woodhouse (7-9 Quadrant), 22⅕s. On formula Jephson was also the winner.

CLASS XVI.—Any Solo Machine.—1, C. R. Collier (7 Matchless-M.A.G.), 16⅕s.; 2, A. J. Brewin (8 Zenith), 16⅗s.; 3, Harry Reed (8 Dot), 17⅗s. Speed 63.2 m.p.h. On formula the winner was J. W. Draper (3½ Triumph).

CLASS XVII.—Any Solo Machine. Novices only.—1, G. F. Hasler (8 J.A.P.), 17⅗s.; 2, J. W. Draper (3½ Triumph), 18s.; 3, S. King-Smith (6 Bat), 19s. On formula the winner was J. W. Draper.

CLASS XVIII.—Old Crocks. For machines built previously to December 31st, 1907.—1, J. H. Priddey (3 Rex), 27⅗s.; 2, C. S. Madeley (3 Triumph), 30⅗s.; 3, T. Silver (2 Quadrant), 31⅕s. On formula Priddey was also the winner.

Open 24 Hours Trial in Ireland.

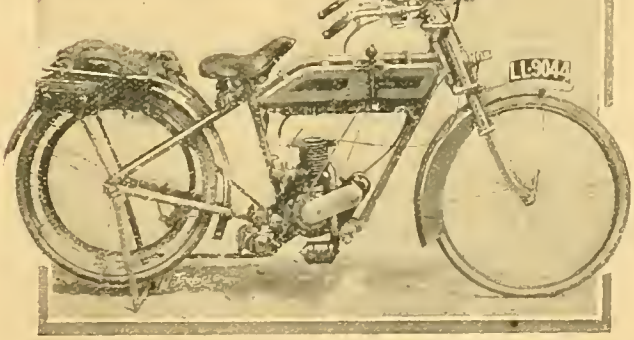
THIS important event took place on Friday and Saturday last, and, as usual, there were a number of English competitors in the field of forty-one riders who left Dublin at eight o'clock on Friday evening. Hugh Gibson was taking part for the third time, but on this occasion he was on a 2¼ Clyno. S. A. Rowlandson, of the Rudge Co., and R. B. Ewens, Coventry (3½ Rudge), were among the English riders, the former being one of those who successfully completed the trial, but Ewens failed on Glengesh Hill. Tassell and Guest, of London, on 7 Matchless sidecars, were also amongst those who made clean ascents of this hill and also had no-trouble runs.

The weather conditions were delightful at the start, and there was nothing but the dust to bother the men on the first section of 101 miles to Belfast. The official control was at Dunleer (37 miles), and practically all the field were on time there. Some distance further on—at Newry—A. W. Mooney, who won the event last year, broke the connecting rod of his 6 Bradbury sc. and had to retire. Belfast was reached in the early hours of the morning. The arrangements made by the police to pilot the riders in and out of the city were greatly appreciated.

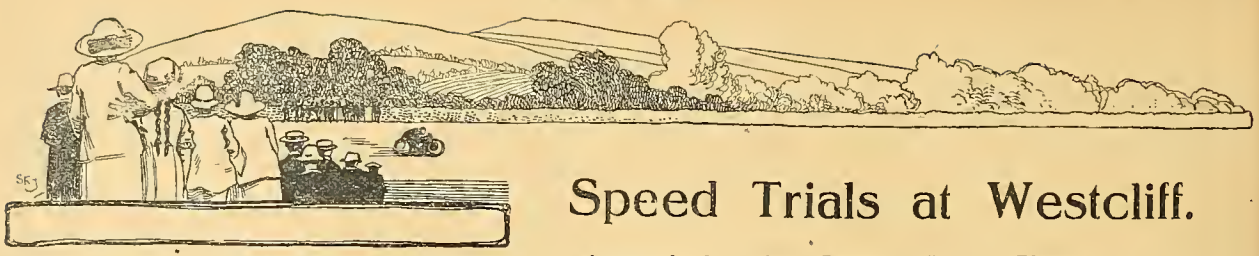
The early morning journey included the crossing of the Spern Mountains between Maghera and Dungiven, this being a non-stop section. There was a little rain encountered on this part of the journey, but it was nothing serious, and it had cleared away before Londonderry was reached for breakfast. Quite a number of men had already fallen by the way, and by the time Glengesh Hill was reached J. D. Weir (5-6 A.J.S. sc.) was in trouble, as also were J. Clarke (Rudge), R. Chambers (3½ Bradbury), P. A. Bell (3½ Triumph), who sustained a bad fall, L. Dobbin (7 Matchless sc.), and R. S. Russell (7 Matchless sc.).

The Severest Hill in the Trial.

Glengesh Hill was the chief point of interest, as it is generally regarded as the most severe hill to be found on any main road in Ireland. It lies between Ardara and Carrick, and its rise of 900ft. is spread over five miles, but as 600ft. of the rise comes into the last mile there are numerous hairpin bends to be negotiated. Failure to make a clean ascent of the hill practically put a competitor out of the trial. All but one of the English competitors got up; but, generally speaking, the climbing was not very good. Many notable riders, including T. E. Greene, failed to make clean ascents, and out of the forty-one competitors only fifteen secured full marks for the climb. Their names are as follow: J. Browne (3½ Rover), R. Walsh (3½ Rover), J. Doleman (3½ Rover), S. A. Rowlandson (3½ Rudge), R. E Guest (7 Matchless sc.), P. J. Cox (3½ Douglas), C. S. Hosford (3½ Rover), P. J. Brady (3½ Rudge), W. H. Freeman (7 Indian), W. J. Henderson (5-6 Rudge), R. B. Ewens (3½ Rudge), T. L. Dooly (3½ Zenith), J. Tassell (7 Matchless sc.), G. Haynes (2¾ Douglas), T. E. Greene (3½ Rudge), P. Grimes (3½ Rover), V. J. Farrell (4 Triumph), Hugh Gibson (2¼ Clyno), E. G. Jack (3½ Rover), G. Roche (3½ Rover), R. Armstrong (6 Enfield sc.), Jack Healy (6 Enfield sc.), S. Allen (7 N.S.U. sc.), W. J. O'Callaghan (8 Humberette), J. F. A. Day (2½ Sun-Villiers), J. Holland (8.5 Perry c.c.)



The two-stroke Dayton, which is fitted with two-speed counter-shaft gear, chain and belt drive, and 162 c.c. engine. This machine performed very creditably in the recent Sutton Coldfield and Mid-Warwickshire A.C. open trial for miniature motor cycles.



Speed Trials at Westcliff.

Enormous Programme run through by the Essex Motor Club.

BEAUTIFUL weather favoured the Essex Motor Club's open speed trials which were held on the promenade, Westcliff-on-Sea, on 25th June. The surface of the course was good, but not in the super-excellent condition which is to be found on the front at Brighton, and it had a slight bend in it at the beginning. The start was at the Westcliff end of the promenade, and as the events were run in a westerly direction, the gentle summer breeze was an aid to the riders. The motor cycles entered were 226 in number, the cars numbered 82, making a record entry of 308. A large crowd witnessed the events, but as, unfortunately, no provision was made for posting the times very few persons had any idea as to what was going on. A serious mistake was made in placing the paddock somewhere near the middle of the track, which caused some delay at the start, since the marshals would not let the men through the barrier, and in consequence several lost their turn. There was plenty of room behind the starting line for quite a number to have been drawn up in their numerical order, and eventually this was done, but not before a considerable time had elapsed. As the men were timed over various distances there were three finishing lines, and some confusion was caused by men stopping at the wrong line. This fault could have been easily overcome by marking the line in use by means of flags. The way back to the start was complicated, and was supposed to have been marked by arrows, but it was reported to us that some of the arrows were missing and that several of the men lost their way. We are sorry to have to make these criticisms, but we do so only to drive home the fact to the organisers of competitions for which a gigantic number of entries have been received that more than usual care must be taken to make such meetings a success. The members of the Essex Motor Club are full of keenness and enthusiasm, and they quickly saw their errors and hastened to set right those which could be corrected on the spot. By the superhuman efforts of Messrs. S. G. Cummings, D. S. Kapadia, W. Cooper, A. R. Abbott, and others, the confusion at the start was soon restored to something approaching order, while the secretary of the meeting, Mr. E. J. Bass, worked like a hero.

Few of the competing machines possessed any novel or interesting features, but we noticed that Stockdale's Triumph was fitted with a Binks carburetter to which he had added two hot air pipes, one of which led to a position behind the jet, and the other to the cylinder. Reed's Dot was fitted with auxiliary exhaust ports, which, however, were stopped up with waste, and a very well-designed heel-operated foot brake. Axford was riding one of the new Matchless M.A.G. engined machines, which proved exceedingly fast, while Busby's 2¾ h.p. Sunbeam was on several

Scene during the running of the solo machines not exceeding 1,000 c.c. (experts). V. Busby (3½ h.p. Sunbeam) is seen in the foreground. The ultimate winner was H. Reed (Dot), who is lying third.

Start for the flying kilometre in the 500 c.c. class. The promenade at Westcliff is so wide that four riders can easily race abreast

NEW MODEL

The Latest and Best in Motor Cycle Speed Indicators

Stewart

MOTOR CYCLE SPEEDOMETER

HERE is another Stewart triumph—a Speedometer for Motor Cycles infinitely superior to anything hitherto achieved for the purpose. It is a grand instrument — accurate, easy to read, and absolutely reliable. You couldn't wish for anything better. This new model is of the sturdiest construction, and, bar accidents, will give years of satisfactory service. It is Stewart quality through and through; made of the same costly materials and on the same costly principle as Stewart Car Speedometers.

And the price is £3-3-0. We can sell so low because we make so many. The Stewart Speedometer Output is over 2,000 instruments daily, with an ever-increasing demand.

Why not have this new Stewart Model on your Motor Cycle? It costs so little and gives so much that you'll be delighted with the purchase. Registers from Zero to 75 miles per hour; records up to 10,000 miles and repeats; has trip register which can be rapidly reset at any time.

Write for New Booklet.

THE COOPER-STEWART ENGINEERING CO., LTD.,
11, BROAD STREET, BLOOMSBURY, LONDON, W.C.

WRITE FOR OUR CATALOGUE

No. 2554. Gre-solvent. 6-oz. tin, 3d

No. 4589. Dunhill's Metal Polish. The best polish obtainable for cleaning the plated parts of the machine .. .. .. 3½d. No. 4589a larger .. .. 7d.

No. 2279. Mobiloil. Per gallon .. 4/6

No. 2797. Chemico Tyre Stopping. 1/-

No. 3361. Coverole, 1/-

No. 3831 Club Black Enamel for restoring the enamel parts of machine. Per bottle 6d.

No. 8513. Brass Oiler, neat and useful. Pressure feed. Latest pattern .. 3/9

No. 3970. Patchquick Wallet .. 6/-

No. 3053. Tinol Soldering Outfit in case .. 7/6

No. 3320. M. C. Watch, 10/-

No. 3740. Case for Battery, 3/- & 6/-

No. 3705. Tyre Liner, 1/3.

No. 3360. "Antarnish" 9d.

No. 5528. Dunhill's Belting, from 2/- per foot.

No. 3765a. Flash Battery, 6/6

No. 5395. Magneto Spanner, 4½d

No. 3770. Set of 3 Spanners, in case. 2/-

No. 1084. Petrol Injector, 1/-

No. 5498. Spiral Vaporizer .. 3d.

No. 1524. Oil Can, 1/-

No. 5496. Oil and Petrol Can Clip, 2/6 including cans

No. 2187. Syren Whistle, to fasten on wrist .. 3/3

No. 2716. "Service" Pump, 7/6

No. 5368. D'ALL Trouser Guard for Engine. Protects the clothes from grease and heat. 1/3

No. 3022. Kennard Valise, 22/6

No. 2740. Belt and Tube Case .. 9/6

No. 2516. Mirror to fix on handle-bar, 4/11

A VISIT TO OUR SHOWROOMS WILL REPAY YOU.

Sidecar Lamp Bracket .. 3/6

No. 2738. Tube Case, 5/-

No. 3446. "Portland" Drill . 1/6

No. 5242. "Aero" Mascot 5/6

No. 3159. Valve Grinder, 4/6

No. 5489. Belt Punch, 2/6

No. 2734. One-way Switch .. 3/-

No. 4064. Flash Battery Case .. 6/6

No. 1109. Tool Kit, 14/3

No. 4122. Oil Tray, 2/6

No. 2736. Switch, with two-way terminal .. 4/-

No. 2284. Wrench .. 1/6

No. 3483. A. K. Knee grip, per pair, 6/6

No. 4892 "Boy Scout" Mascot 2/-

No. 3641. "Mixa" Fan, 1/6

No. 4890. "Teddy Bear" Mascot .. 2/-

No. 2111. Valve Lifter, 2/6

No. 4995. Folding Spanner .. 1/-

No. 3096. Collapsible Funnel .. 9d.

No. 5334. Wasdell Back Rest and Belt, 6/6

No. 3943. Leather Waistbelt .. 2/6

No. 2807. Carbide Carrier .. 1/8

No. 2532. Pocket Petrol Filler .. 7/6

No. 4439. Stanley Link, 1/-

The "Pharos" Headlight, of exceptional power 20/-

No. 2727. Magneto Cut-out .. 1/6

No. 2713. Lodge Plug, 4/-

Tail Lamp, Acetylene 3/6

No. 3559. "Bright Eye" Electric Sidecar Lamp, 12/6

Tail Lamp, Acetylene, 6/6

Tail Lamp, Electric.. 6/6

Our Illustrated M.C. Catalogue is free on request.

Dunhills

359-361, EUSTON ROAD, LONDON, N.W.

City Branch: 42-43, Lombard Street, E.C.

MANCHESTER: 88, Cross Street. **GLASGOW: 72, St. Vincent Street.**

In answering this advertisement it is desirable to mention "The Motor Cycle"

Speed Trials at Westcliff-on-Sea.—

occasions more than a match for larger machines. It was interesting to note that he used his clutch for getting away, a method not often employed in racing, but used several times during this meeting. The first event was noticeable owing to the fact that there were two lady entrants—Mrs. Fletcher and Miss Ellis.

Results of the Racing.

EVENT 1 (General). CLASS I.—Standard Touring Machines not exceeding 350 c.c., 1 km. standing start.—This event resulted in an easy win for H.A. Rhodes (2¾ A.J.S.), time 47s.; while Mrs. Fletcher (2¾ Douglas) was second, time 52⅘s.

EVENT 2 (General). CLASS XX.—Any Passenger Machine not exceeding 1,100 c.c., 1 km. flying start.—J. Chater-Lea (8 Chater-Lea sc.); a walk-over; time 48⅖s.

EVENT 3 (Expert). CLASS II.—Standard Touring Machines not exceeding 500 c.c., 1 km. standing start.—The result was an easy win for V. Busby (2¾ Sunbeam), time 43s.; who beat L. G. Brown (3½ Zenith), time 45s. Busby got away in first-class style.

EVENT 4 (General). CLASS X.—Any Solo Machine not exceeding 375 c.c., 1 km. flying start.—1, B. Pattison (1¾ Zenith), time 43⅘s.; 2, J. Simpson (2½ Hobart), time 51s.

EVENT 5. CLASS IV.—Standard Touring Machines not exceeding 1,000 c.c., 1 km. standing start.—1, L. P. Openshaw (8 Zenith), time 41⅕s.

EVENT 6 (Expert). CLASS I.—Standard Touring Machines not exceeding 350 c.c., 1 km. standing start.—1, H. A. Rhodes (2¾ A.J.S.), time 43⅘s.

EVENT 8 (General). CLASS II.—Standard Touring Machines not exceeding 500 c.c., 1 km. standing start.—In one of the heats that plucky rider, F. W. Applebee, sen. (Motosacoche), accelerated in excellent form, and went off gaily with a cigarette behind his ear. Result: 1, H. Le Vack (3½ Motosacoche), time 41⅘s.; 2, A. H. Bird (3½ Rover), time 45⅖s.; 3, G. L. Fletcher (2¾ Douglas), time 46⅕s.

EVENT 9 (Expert).—Standard Touring Machines not exceeding 750 c.c., 1 km. standing start.—1, R. Charlesworth (5 Zenith), time 48⅘s.; 2, A. J. Dixon (3½ Singer), time 48⅘s. Dixon had unfortunately had trouble with the big-end bearing on the way to the start, but despite the condition of the engine he managed to be only one-fifth of a second behind his rival.

EVENT 11 (General). CLASS III.—Standard Touring Machines not exceeding 750 c.c., 1 km. standing start.—1, H. R. Whitmore (3½ Lea-Francis), time 46s.

EVENT 14 (General). Standard Touring Machines not exceeding 1,000 c.c.—1, L. Openshaw (8 Zenith).

EVENT 15 (General). CLASS I.—Standard Touring Machines not exceeding 350 c.c., 1 km. flying start.—1, H. A. Rhodes (2¾ A.J.S.), time 55⅖s.; 2, R. D. Bennett (2¾ Douglas), time 57s.; 3, Miss N. Ellis, time 58s.

EVENT 16 (Expert). CLASS II.—Standard Touring Machines not exceeding 500 c.c., 1 km. flying start.—1, V. Busby (3½ Sunbeam), time 36⅖s.; 2, C. G. Pullin (3½ Rudge), time 37s.

EVENT 17 (Expert). CLASS IV.—Standard Touring Machines not exceeding 1,000 c.c., 1 km. flying start.—1, L. P. Openshaw (8 Zenith), time 34⅘s.

EVENT 18 (Expert). CLASS I.—Standard Touring Machines not exceeding 350 c.c., 1 km. flying start.—1, V. Busby (2¾ Sunbeam), time 37s.; 2, H. A. Rhodes (2¾ A.J.S.), time 47⅖s.; 3, G. L. Fletcher (2¾ Douglas), time 47⅕s.

EVENT 19 (Expert). CLASS III.—Standard Touring Machines not exceeding 750 c.c., 1 km. flying start.—1, C. G. Pullin (3½ Rudge), time 35⅕s.; 2, A. J. Dixon (3½ Singer), time 35⅘s. It is interesting to note that Dixon, despite the defect in his engine, was only ⅖s. behind Pullin.

EVENT 20 (General). CLASS II.—Standard Touring Machines not exceeding 500 c.c.—1, P. L. Emery (3½ Norton), time 34s. (winner of prize offered by the Palmer Tyre Co., Ltd.); 2, L. G. Brown (3½ Zenith-Jap), time 35⅕s.; 3, J. A. Campbell (3½ J.A.C.-Precision), time 37⅖s.

EVENT 21 (General). CLASS IV.—Standard Touring Machines not exceeding 1,000 c.c., 1 km. flying start.—1, C. R. Taylor (8 Zenith), time 30s.

EVENT 22 (General). CLASS III.—Standard Touring Machines not exceeding 750 c.c., 1 km. flying start.—1, H. T. Wollen (3½ Triumph), time 41s.

EVENT 25 (Expert). CLASS VI.—Touring Sidecar Machines not exceeding 750 c.c., 1 km. standing start.—Owing to his recent accident while piloting H.M. Queen Alexandra from Walton to Weybridge, F. W. Barnes was not able to ride, and his place was taken by a rider named Jepson, who had a walk-over.

EVENT 27 (General and Expert). CLASS V.—Touring Sidecar Machines not exceeding 500 c.c., 1 km. flying start.—1, C. G. Pullin (expert, 3½ Rudge), time 41⅖s.

EVENT 28 (Expert). CLASS VI.—Touring Sidecar Machines not exceeding 750 c.c., 1 km. flying start.—1, J. Triniman (3½ Rudge), 41⅕s.

EVENT 30 (General). CLASS VII.—Touring Sidecar Machines not exceeding 1,000 c.c., 1 km. standing start.—1, A. J. Macdonald (6 New Hudson), time 61⅖s.

EVENT 31 (General). CLASS 6.—Touring Sidecar Machines not exceeding 750 c.c., 1 km. standing start.—1, J. H. Triniman (6 Bradbury), 60⅖s.

EVENT 33 (General and Expert). CLASS 10.—Any Solo Machine not exceeding 275 c.c., 1 km. standing start.—1, W. A. Jacobs (expert, 1½ Singer); 2, B. Pattison (1¾ Zenith).

EVENT 35 (Expert). CLASS 7.—Touring Sidecar Machines not exceeding 1,000 c.c., 1 km. standing start.—1, L. P. Openshaw (8 Zenith), time 45⅕s.

EVENT 36 (Expert). CLASS X.—Any Solo Machine not exceeding 275 c.c., 1 km. flying start.—1, W. A. Jacobs (1½ Singer, expert); 2, J. Simpson (2 Hobart, general), time 51⅖s.

EVENT 38 (General). CLASS VII.—Touring Sidecar Machines not exceeding 1,000 c.c., 1 km. flying start.—1, C. R. Taylor (8 Zenith,) time 39s.; 2, L. P. Openshaw (8 Zenith), time 40⅕s.; 3, T. A. Carter (8 Hazel-Jap), time 42⅖s.

EVENT 40 (General). Any Solo Machine not exceeding 350 c.c., 1 km. standing start.—1, H. A. Rhodes (3½ A.J.S.), time 48⅕s.; 2, M. G. W. Burton (2¾ Imperial-Jap), time 50⅕s.

EVENT 42 (Expert). CLASS XII.—Any Solo Machine not exceeding 500 c.c., 1 km. standing start.—1, S. R. Axford (3½ Matchless), time 39⅕s.; 2, A. J. Dixon (3½ Singer), time 43⅖s. Axford's acceleration at the start created much commeat.

EVENT 44 (Expert). Any Solo Machine not exceeding 350 c.c., 1 km. standing start.—1, V. Busby (2¾ Sunbeam), time 44⅕s.; 2, J. P. Le Grand (2½ Singer), time 47⅖s.

EVENT 45 (General). CLASS XII.—Any Solo Machine not exceeding 500 c.c., 1 km. standing start.—1, T. M. McKenna (3½ Norton), time 40⅖s.; 2, W. H. Herrtage (Rudge Multi), time 44s.; 3, J. A. Campbell (3½ J.A.C.-Precision), time 44⅕s.

EVENT 46 (General and Expert). Any Three-wheeler Cycle Car not exceeding 1,000 c.c., 1 km. standing start.—1, E. B. Ware (Jap-Morgan), walk-over.

EVENT 47 (General). CLASS XI.—Any Solo Machine not exceeding 350 c.c., 1 km. flying start.—1, H. A. Rhodes (2¾ A.J.S.), time 37⅖s. (winner of Peter Union Tyre Co.'s prize); 2, A. H. Firmin (2¾ N.U.T.), time 42⅕s.; 3, M. G. W. Burton (2¾ Imperial-Jap), time 43s.

EVENT 48 (Expert). CLASS XII.—Any Solo Machine not exceeding 500 c.c., 1 km. flying start.—1, S. R. Axford (3½ Matchless), time 29⅕s.; 2, T. M. McKenna (3½ Norton), time 32s.; 3, C. G. Pullin (3½ Rudge), time 32⅖s.

EVENT 50 (General). CLASS XII.—Any Solo Machine not exceeding 500 c.c., 1 km. flying start.—1, T. M. McKenna (3½ Norton), time 31⅕s.; 2, J. A. Campbell (3½ J.A.C.-Precision), time 32⅕s.; 3, L. G. Brown (3½ Zenith), time 35⅕s.

EVENT 51 (Expert). CLASS XI.—Any Solo Machine not exceeding 350 c.c., 1 km. flying start.—1, V. Busby (2¾ Sunbeam), time 24⅕s.; 2, J. P. Le Grand (2½ Singer), time 35⅕s.; 3, G. L. Fletcher (2¾ Douglas), time 46⅕s.

EVENT 52 (General and Expert). CLASS XIII.—Any Solo Machine not exceeding 750 c.c., 1 km. standing start.—1, S. R. Axford (expert, 3½ Matchless), time 38⅖s.; 2, T. M. McKenna (3½ Norton), time 41⅕s.

EVENT 54 (Expert). CLASS XIII.—Any Solo Machine not exceeding 750 c.c., 1 km. flying start.—1, S. R. Axford (3½ Matchless), time 30s.; 2, C. G. Pullin (3½ Rudge), time 33⅕s.; 3, A. J. Dixon (3½ Singer), time 38⅖s.

EVENT 55 (General). CLASS XIII.—Any Solo Machine not exceeding 750 c.c., 1 km. flying start.—1, C. F. A. Portal (5 Bat), time 37⅕s.; 2, W. H. Herrtage (3½ Rudge), time 37⅖s.

EVENT 56 (General). CLASS XIV.—Any Solo Machine not exceeding 1,000 c.c., 1 km. standing start.—1, S. J. Malcolm (Indian).

EVENT 57 (Expert). CLASS XIV.—Any Solo Machine not exceeding 1,000 c.c., 1 km. standing start.—1, H. Reed (8 Dot), time 37⅕s.; 2, S. R. Axford (3½ Matchless), time 38s.

EVENT 59 (General). CLASS XIV.—Any Solo Machine not exceeding 1,000 c.c., 1 km. flying start.—1, E. C. E. Baragwanath (8 Matchless), time 29⅕s. (cup presented by Dobson and Co.); 2, J. C. Brook (7 Indian), time 30s.; 3, S. J. Malcolm (7 Indian), time 32⅕s.

EVENT 60 (Expert). CLASS XIV.—Any Solo Machine not exceeding 1,000 c.c., 1 km. flying start.—1, H. Reed (8 Dot), time 29⅖s.; 2, L. P. Openshaw (8 Zenith), time 32⅕s.; 3, A. O. K. Gilbey (3½ Sunbeam), time 37⅖s.

EVENT 62 (Expert and General). CLASS XVI.—Any Sidecar Machine not exceeding 750 c.c., 1 km. standing start.—1, J. Jepson (6 Zenith), time 50⅕s.; 2, J. H. Triniman (6 Bradbury), time 67⅕s.

EVENT 63 (General). CLASS XVII.—Any Sidecar Machine not exceeding 1,000 c.c., 1 km. standing start.—1, L. P. Openshaw (8 Zenith); 2, J. Chater-Lea (8 Chater-Lea).

EVENT 65 (Expert). CLASS XVII.—Any Sidecar Machine not exceeding 1,000 c.c., 1 km. standing start.—1, J. Jepson (8 Zenith), time 60⅕s.

EVENT 67 (Expert). CLASS XVI.—Any Sidecar Machine not exceeding 750 c.c., 1 km flying start.—1, C. G. Pullin (3½ Rudge), time 33⅕s.

EVENT 68 (General). CLASS XVII.—Any Sidecar Machine not exceeding 1,000 c.c., 1 km. flying start.—1, J. Chater-Lea (8 Chater-Lea sc.)

EVENT 69 (Expert). CLASS XVII.—Any Sidecar Machine not exceeding 1,000 c.c., 1 km. flying start.—1, L. P. Openshaw (8 Zenith), time 36⅕s.

EVENT 70 (Expert). CLASS XIX.—Any Three-wheel Cycle Car not exceeding 1,000 c.c., 1 km. flying start.—1, E. B. Ware (Morgan), time 38⅕s.

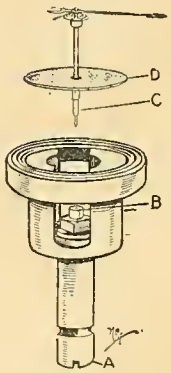
EVENT 72 (Expert).—Any Passenger Machine not exceeding 1,100 c.c., 1 km. flying start.—1, J. Jepson (8 Zenith), time 40⅕s.

The last event on the programme was a match between the fastest motor car and the fastest motor cycle over half a mile, flying start. This was won by H. Reed, who beat Easton's Schneider by two seconds at seventy-five miles an hour.

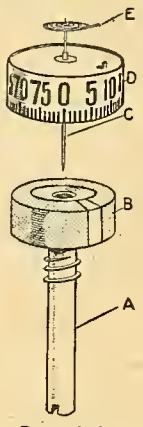
L. P. Openshaw (Zenith) winning the expert class for sidecar machines not exceeding 1,000 c.c.

Two New Speedometers.

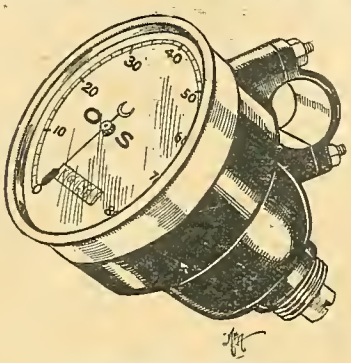
THE O.S. speedometer has been known for a long time in the motor car world, but it is only recently that the makers, whose London agents are at 18, King Street, St. James's, W., have introduced a motor cycle model. The accompanying sketch gives a diagrammatic view of the principle upon which the instrument works. The spindle A is connected to a flexible shaft driven by the usual spur gearing off the front wheel. The extension of this shaft is a magnet surrounded by a ring, and in the centre is a jewel bearing B, on which the spindle C carrying the indicator hand rests. On this spindle C is a copper disc D, which remains out of contact with the magnet. What are known as Foucault's currents bring about the working of the instrument. When the magnet B is rotated the lines of force crossing from pole to pole drag round the copper disc D in the direction of rotation of the magnet. The faster the magnet revolves the stronger the eddy currents become, and the farther is the needle carried up the scale. To prevent the copper plate tending to revolve with the magnet the spindle C is attached to one end of a hair spring, the other end of which is attached to a part of the body of the instrument so that the plate is only dragged round to a certain extent.



The O.S. speedometer operating mechanism.



Part of the internal mechanism of the Stewart speedometer.

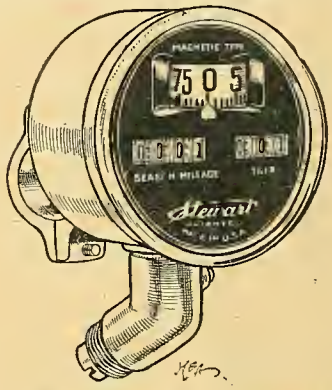


The complete O.S. speedometer.

The Stewart Speedometer.

A speedometer which works on the magneto principle and has met with much popularity among motor cyclists is the Stewart, which is sold in London by the Cooper-Stewart Engineering Co., Ltd., 11, Broad Street, Bloomsbury, W.C. It will be remembered that it previously showed the speed by means of an indicating hand. A much simpler method of showing the speed has, however, been discovered, and, referring to the drawing, which shows the working of the instrument, it will be seen that the speeds are inscribed upon the aluminium cup which covers the circular magnet. The principle of working is as follows: The spindle A is connected by means of a coupling to a flexible shaft driven by the usual type of gearing off the front wheel. At the top of the shaft is the circular magnet B, and on it is a bearing for the spindle C. When this spindle is placed in position the aluminium cup D covers the magnet. As the former is rotated the eddy currents set up tend to drag the aluminium cup round in the direction of rotation of the magnet against the tension of the hairspring E.

The Stewart speedometer is excellently made and has a very clear face, so that it can be read easily in the dusk; it is provided with a trip recorder and has a flexible shaft covered in leather.



The dial of the latest Stewart speedometer.

Tyres in Scottish Trials.

In the recent Scottish Six Days' Trials users of Dunlop tyres and belts were prominent in the prize list, capturing twenty-four gold, nine silver, and two bronze medals.

A Good Storm Coat.

On the occasion of a recent long distance trial we made use of an Oilsilkette coat, which was sent to us by the Rotary Jointing Company, Regent Street, Warrington. This coat proved to be most effective in keeping out the rain, and was found to be exceedingly light and altogether satisfactory.

An Interesting Booklet.

"About the Rudge Multi" is the title of an exceedingly interesting and well illustrated little book just produced by Messrs. Rudge-Whitworth, Ltd. It contains a large number of illustrations of the Rudge-Whitworth successes at home and abroad during the past year, both in trials and races, and a copy can be obtained on application to the firm.

British Successes in Holland.

In a recent motor cycle trial at Rotterdam we understand that Mr. Dyxhoorn, an amateur rider, was successful in winning a silver medal for the best performance on any model and a silver medal for the best sidecar performance on an 8 h.p. Rex-Jap and sidecar.

Reviews.

"Falmouth, Truro, and the River Fal." 6d. The Homeland Association, Ltd., Chandos Chambers, 15, Bedford Street, W.C. This is another addition to the popular Homeland Handbooks. Beautifully illustrated, well got up, and full of useful information, it is a wonderful sixpennyworth, which should be in the hands of all motor cyclists visiting this charming part of England.

"The Motor Routes of Germany." H. J. Hecht. A. and C. Blacks, Soho Square, W.C. Germany offers many attractions to the touring motor cyclist. The inhabitants are hospitable and kind for the most part, living is cheaper than in England, and there are many beautiful touring centres and quaint towns to be visited. Mr. Hecht's new book—which, by the way, is most artistically illustrated in colours—is practically indispensable to all who desire to visit the great German Empire on a motor vehicle. The author aims at no literary style, though the book is well written, but while he seeks to give only that information which the tourist cannot do without, he intersperses it with a sufficient number of historical details to render it interesting. All the principal touring centres—the Black Forest, the Taunus, the Thüringerwald, the Rhine, the Moselle, and Bavaria—are fully dealt with, while excellent route maps are given.

A New Grease Gun.

Messrs. A. R. Price, Vevo Works, Aston, Birmingham, are marketing an exceedingly neat nickel-plated grease gun. For motor cyclists whose machines are equipped with gear boxes fitted with a small filling orifice this gun should meet a long-felt want. It is absolutely simple, and consists of only two parts, so there is nothing whatever to go wrong.

Improved Method of Greasing.

An improvement on the prevailing style of oiling up has been effected by the Vacuum Oil Co. by means of their grease cartridge, recently introduced to the public. The cartridge, a cylindrical tin containing Mobilubricant for pressure cups or transmission grease for gear boxes, is fitted at the top with a screw, which regulates the delivery of the lubricant. The delivery may be fast or slow, according to the rate of winding, whilst the amount ejected is controlled by the size of the aperture, which is adjustable.

The tyre for speed.

The dome-like tread of a "Bates built" tyre offers the least possible resistance to the road with consequent maximum power efficiency. This means increased speed, and incidentally—longer tyre life.

Send for the Bates book, "Truth and Tyres," written by one who knows. It's full of useful "Do's and Don'ts" for motor cyclists.

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SUPER RUBBER.
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M.C.C. Team Trials. Walthamstow Team. THE ONLY MACHINE IN THE TEAM TO MAKE NON-STOP RUN.

Scottish 6 Days Trials.

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2 GOLD MEDALS, ONE BRONZE MEDAL.

Both Gold Medal winners were fitted with the L.M.C. patent Counter-shaft 2-speed Gear.

R. S Macrae who won Bronze Medal rode a 3½ h.p. T.T. Model.

3 ENTRIES—3 AWARDS.

USUAL RESULT—100% SUCCESS.

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THE FRENCH RECORD for the FLYING KILOMETRE in 750 c.c. class with sidecar and passenger.

Wansbeck M.C.C. Trial. 140 miles under vilest conditions and in driving sleet. L.M.C. FIRST and SECOND.

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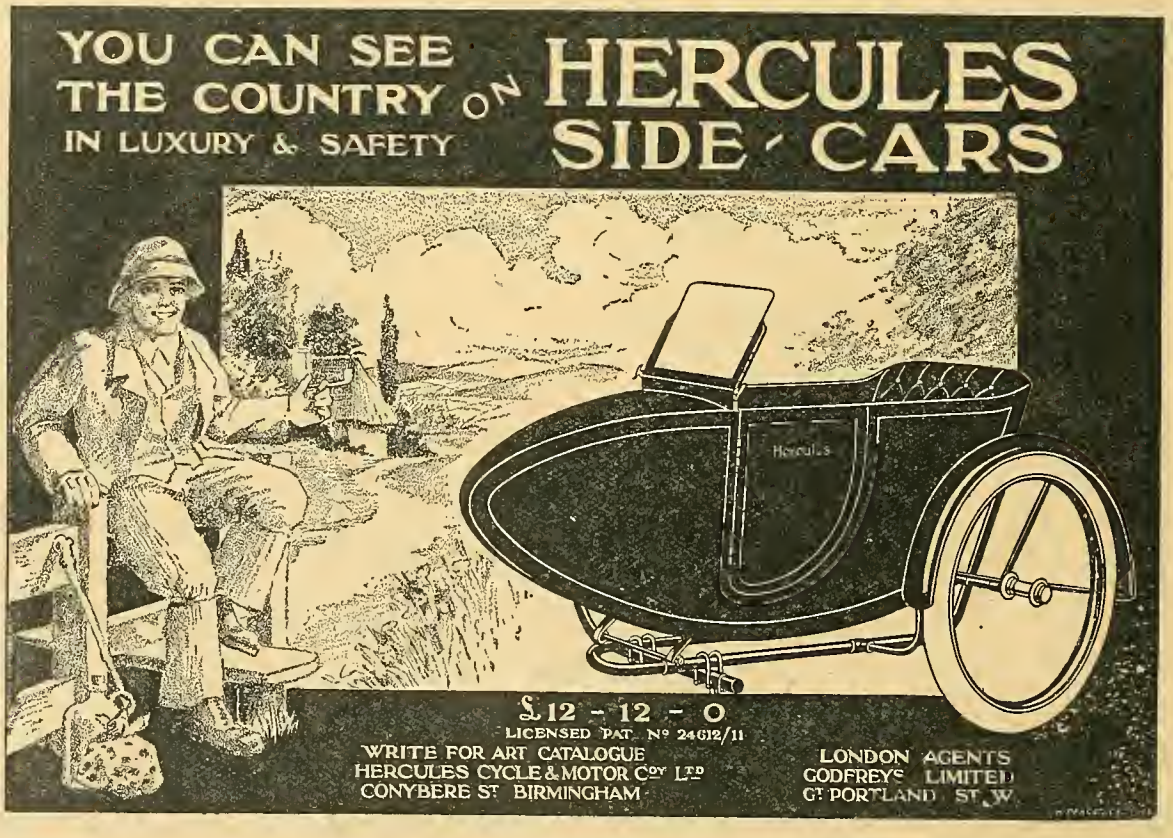

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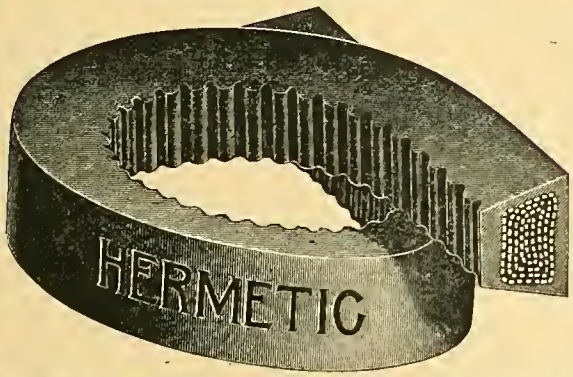

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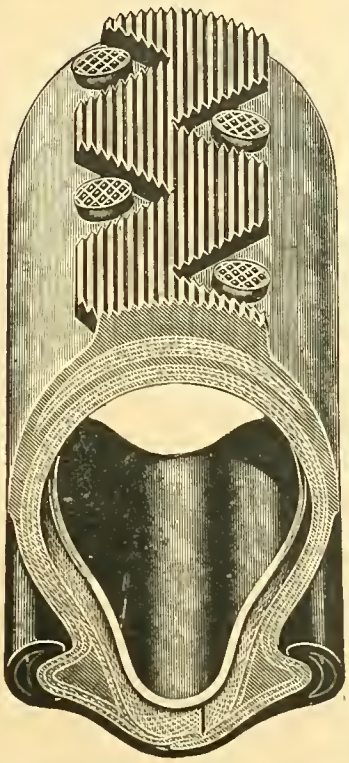

The "HERMETIC" manufactures are unequalled for QUALITY, STRENGTH, and GREAT DURABILITY.

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ON A *BELDAM* RETREAD.

You can easily get 4,000 more miles on a Beldam Retread, as many customers have proved. Read the following, from a correspondent to "The Motor Cycle":

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When I first thought of having an old tyre re-treaded I went about seeking advice from other motor cyclists who had had experience. I was strongly advised not to try retreads as they were waste of money.

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Now, I am not in the least interested in the Beldam Co., but only wish to point out to other motor cyclists who feel their tyre bill is a consideration that in this retread they have something good. VET.

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Send tyres of any make to us for Repairs or Retreading—Beldam quality of materials and workmanship—Prompt delivery and subsequent satisfaction guaranteed—Estimate of cost by return.

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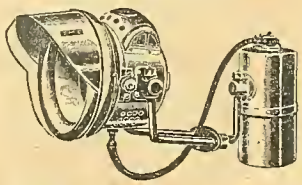

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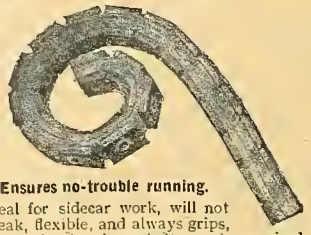

Ensures no-trouble running.

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PRICES:

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SERVICE SIDECAR BELT (Three-ply), extra strong for heavy passenger work.

1in., **3/3**; 1¼in., **3/6**; 1½in., **3/9** per foot.

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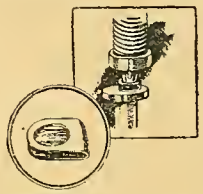

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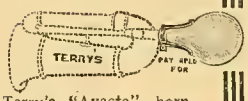

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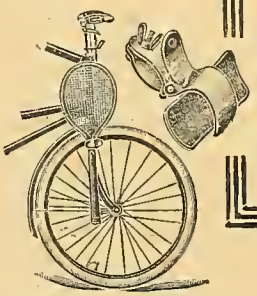

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No. 603. TERRY'S plated magneto spanner, **6d.** each.

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"The Life Force."

Mr. C. B. Franklin, on Indian motor cycle, set up new time for the 10 MILES RECORD (standing start, Class E) at speed average of 77.95 miles per hour. This grand performance on Pratt's Perfection Spirit, following on THE GREEN CAN'S achievements in the T.T. Senior and Junior Races and Light Car Trials, indisputably Prove PRATT'S SUPERIORITY.

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IF you are keen on owning a really reliable motor cycle, the Selfridge way is the easiest and best means of satisfying your desire. Just select your machine from the following list—they are all thoroughly dependable—you may have immediate possession on our Deferred Payment Plan. You pay a fifth of the price as deposit, the balance is payable in 12 monthly instalments. We charge 2½% on the balance only.

FIVE Second-hand BARGAINS

1913 3½ h.p., 3-speed Rover Combination	£47 0
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ZENITH, 6 h.p., 3-speed clutch model .. .. (Crimson enamel £2 2 0 extra.)	£75 12
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WOLF, 4 h.p., J.A.P. engine, 2-speed, chain drive	44 gns.
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HUTCHINSON TYRES at 25% Below List Price

We have made a special purchase of 1913 pattern, rubber studded Hutchinson Tyres that enables us to offer them at three-quarters of the list price.

Owing to the limited number, all orders will be taken in strict rotation. Letter orders will be promptly filled. Size 26 × 2½ beaded edge. List price 33/6. Our Price, 25/-

LEVIS, 2½ h.p., two-stroke ..	£38 10
OVERSEAS, 3½ h.p., Sturmey-Archer 3-speed	£49 0
B.S.A., 4 h.p., COMBINATION	£79 16
CHATER-LEA, 8 h.p., COMBINATION No. 7 coach-built sidecar, with hood, screen, and apron	£101 17 6
CALTHORPE JUNIOR, 2 h.p., 2-speed	25 gns.
SUNBEAM, 3½ h.p., 3-speed ..	£69 6
DOUGLAS, 3½ h.p., Model B	£62 0
EXCELSIOR, 5-6 h.p., COMBINATION, with coach-built sidecar	£84 9
ROYAL ENFIELD, 6 h.p., COMBINATION, with coach-built sidecar	£84 0
JAMES, 3½ h.p., twin, 3-speed, chain drive	£63 0
WOLF, 2½ h.p., lightweight ..	24 gns.
WOLF, 2½ h.p., J.A.P. engine..	26 gns.
WOLF, 2½ h.p., 2-speed	30 gns.
HARLEY-DAVIDSON, 8 h.p., 2-speed	£65 0
O.K. JUNIOR, 2 h.p., 2-speed	£30 0
INDIAN, TRIUMPH, and B.S.A. machines only supplied on makers' terms.	

If unable to call, write, 'phone, or wire for particulars. Letter orders will be promptly filled. We pay carriage throughout the British Isles.

Selfridge & Co., Ltd., Oxford Street, W.

Telephone: Gerrard, One. Telegrams: "Selfridge, London."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

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For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 0000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Son Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.B.C.

A B.C., Alf. Wray's 1914 T.T. machine, 3-speed; £60.—Alf. Wray, 97, Kensington Rd., Southport. [X3311

3½h.p. A.B.C.-P.V., 3-speed, competition model, Zenith carburetter, special cams, etc., will lap at 70 and 50 with sidecar; sacrifice for £50.—108, Sydenham Rd., London, S.E. [4608

A.J.S.

A J.S. Lightweight, 2-speeds; bargain, £30, or exchange jewellery.—3, Goldstone St., Hove. [4513

NEWSOME and Fletcher, Ealing Broadway, London, W.—Immediate delivery 6h.p. A.J.S. [4735

1914 2¾h.p. T.T. A.J.S., 3-speed clutch, fast, reliable £45.—Apply, Rycroft, Oudenarde Barracks, Aldershot. [X3132

3h.p. A.J.S. Combination, still in crate, unable accept delivery; accept 5% below cost.—4, St. Matthews Terrace, Stockport. [X3363

1913½ A.J.S., 2¾h.p., 2-speed, little used, perfect condition, best accessories; £35.—Whitehouse, 91, Regent St., Kingswood, Bristol. [X3158

2¾h.p. 1913 A.J.S., chain drive and 3-speed gear; £35; in capital condition and running order; cash or easy terms.—Wauchope's, 9, Shoe Lane, London. [X3209

1914 New 6h.p. A.J.S. Combination, immediate delivery from stock, machine and sidecar complete; 84 gns.; first cheque secures.—Wauchope's, 9, Shoe Lane, London. [X3222

YOU GET BEST SELECTION, MAKES, PRICE, EASY TERMS, EXCHANGES, AT

WAUCHOPE'S

Go there first. Save Time and Money. Secure instant delivery from largest and best stock in the kingdom, with absolutely the lowest prices, and every Machine, New or Second-hand, fully Guaranteed.

GET TO-DAY'S LIST,

IT INCLUDES:

8618.	2¾ h.p. 1913 2-speed **DOUGLAS,** Model R	£40	0
8619.	2¾ h.p. 1911 **DOUGLAS**	£20	0
8627.	2¾ h.p. twin 1912 **HUMBER**	£22	10
8630.	2 h.p. 1912 **HUMBER**	£18	10
8631.	3½ h.p. 1911 2-speed **HUMBER** ...	£28	0
8632.	3½ h.p. 1913 T.T. roadster F.E. **TRIUMPH**	£35	0
8633.	6 h.p. 1913 **ZENITH** and Sidecar	£47	10
8634.	3½ h.p. 1913 3-speed **TRIUMPH** and Sidecar	£47	10
8640.	3½ h.p. 1912 F.E. **RUDGE**	£27	10
8590.	2¾ h.p. 1913 2-speed **SUNBEAM** ..	£38	0
8592.	3½ h.p. 1908 **QUADRANT**	£17	10
8596.	3½ h.p. 1913 3-speed **SWIFT**	£37	10
8597.	3½ h.p. 1913 3-speed **SWIFT**	£37	10
8600.	3½ h.p. 1912 F.E. **TRIUMPH** & Sc.	£35	0
8601.	2¾ h.p. 1914 T.T. **DOUGLAS**	£40	0
8602.	2½ h.p. 1912 **SINGER**	£22	10
8603.	3½ h.p. 1913 2-speed **P. & M.**	£47	10
8604.	3½ h.p. 1913 F.E. **TRIUMPH**	£36	10
8608.	3½ h.p. 1912 **MATCHLESS**	£25	0
8582.	3½ h.p. 1912 **IVY-PRECISION,** with Brampton variable gear	£25	0
8571.	3½ h.p. 1909 2-sp. **P. & M.** and Sc.	£25	0
8568.	3½ h.p. 1910 **BRADBURY**	£20	0
8551.	2¾ h.p. Twin **FAIRY**	£12	10
8510.	5 h.p. 1910 2-sp. **V.S.** and Sidecar	£27	10
8504.	5-6 h.p. 1909 2-sp. **REX** and S'car	£28	10
8502.	3½ h.p. 1908 **TRIUMPH**	£20	0
8470.	4¼ h.p. 1914 3-speed **JAMES** and Canoelet	£57	10
8443.	6 h.p. 1913 3-speed **BAT**	£45	0
8434.	2¾ h.p. 1911 3-sp. **NEW HUDSON** .	£25	0
8432.	3½ h.p. 1912 2-speed **BRADBURY**	£33	10
8367.	8 h.p. 1912 3-sp. **CHATER-LEA** and Sidecar	£55	0
8361.	2¾ h.p. 1913 T.T. **DOUGLAS**	£35	0
8359.	6 h.p. Twin **BROWN** and Sidecar	£22	10
8336.	2¾ h.p. **F.N.**	£13	10
8335.	3½ h.p. 1909 **TRIUMPH**	£23	10
8323.	3½ h.p. 1912 **LINCOLN-ELK**	£22	10
8320.	3½ h.p. 1911 **ARIEL,** variable gear	£25	0
8306.	3½ h.p. 1907 **TRIUMPH**	£20	0
8292.	8 h.p. 1913 2-speed **MATCHLESS** and Sidecar	£65	0
8277.	6 h.p. 2-sp. **N.S.U.** and Sidecar ..	£27	10
8260.	3½ h.p. 1909 **TRIUMPH,** Mabon variable gear	£25	10
8258.	5-6 h.p. Twin **V.S.**	£18	10
8238.	8 h.p. 1913 2-sp. **BAT** and Sidecar	£52	10
8203.	6 h.p. 1912 2-speed **MATCHLESS** and Sidecar	£55	0
8197.	3½ h.p. 1911 **N.S.U.** and Sidecar ..	£25	0
8092.	3½ h.p. 1911 F.E. **KERRY**	£25	0
8079.	3½ h.p. 1912 Standard **TRIUMPH** .	£28	10
7992.	3½ h.p. 2-speed **FAFNIR** and coach-built Sidecar	£27	10
7792.	3½ h.p. 1913 Standard **TRIUMPH** .	£35	0
7620.	3½ h.p. 1913 **TORPEDO**	£35	0
7537.	7 h.p. 1912 2-speed **INDIAN**	£40	0

9, SHOE LANE, FLEET ST., LONDON, E.C.

Phone: Holborn 6777.
Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

Alldays.

ALLDAYS 1914 8h.p. Combination, hardly used; sacrifice £67.—Jeffries, Totley Rise, Sheffield. [X3236

ALLDAYS, 1912, 3½h.p., 2-speed, free engine, good order; £28.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0437

ALLDAYS Matchless, 2½h.p., 2-stroke models, delivery from stock, no waiting; 25 gns.—Eagles and Co., High St., Acton. [X3297

ALLDAYS Matchless, 2½h.p., 2-stroke models; delivery at once; extended payments; write for terms.—Wauchope's, 9, Shoe Lane, London. [X3195

Ariel.

ARIEL, 3½h.p., free engine, variable gear, splendid condition.—Spencer, Herschell St., Preston. [X3283

ARIEL, 2½h.p., B. and B. carburetter, perfect running order; what offers?—Utley, Birdwell, Barnsley. [X3038

5-6h.p. Ariel Sidecar Combination, brand new, unused; cost £86/10; owner will accept reduced price.—No. 6,308, *The Motor Cycle* Offices, Coventry. [X3231

ARIEL, 3½h.p., and sidecar, late 1913, clutch, decompressor, kick starter, Armstrong 3-speed, cyclometer, and spares, less than 2,000 miles, splendid condition; cost £80, sell for 55 gns.—Clark, North British Steel Works, Sheffield. [X2968

Arrow.

1914 4¼h.p. Arrow-Precision, with U. and I sidecar, Sturmey 3-speed, hood, new May, everything latest; must sell; unforeseen circumstances; photo; bargain, £60.—Halsted, Outfitter, Hitchin. [X3304

Auto-Wheels.

1914 Auto-Wheels from stock.—Purcells, 78, Charlotte St., Tottenham Court Rd., London. [2184

AUTO-WHEEL, 1913, perfect running order; £12/12.—Mrs. Salter, Dry Sandford, Abingdon. [4605

1914 Auto-Wheel, fitted Enfield cycle, unscratched; nearest 16 gns.—Dosser, Slingsby, Malton. [X3353

AUTO-WHEEL, 1913, excellent order and condition; £11.—Palmer, 21, Queen St., Abertillery, Mon. (D) [X3089

AUTO-WHEELS, £16/16 and £18/18; immediate delivery; trade supplied.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [4557

AUTO-WHEEL, used few times, in perfect order, £12; or with nearly new £6/6 cycle, £16.—49, High St., Saffron Waldeo, Essex. [X3378

AUTO-WHEELS.—Latest models; 16 gns. and 18 gns.; best deliveries. Trade supplied.—Maudes, 136, Gt. Portland St., London, W. [8368

AUTO-WHEELS.—Immediate delivery, in stock; no waiting; £16/16 cash, or easy payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6406

AUTO-WHEELS, £16/16 cash, or easy payments; immediate delivery, no waiting; in stock.—Wilkins, Simpson, and Co., 3, Ranelagh Gardens, Barnes, London. [6984

AUTO-WHEELS, Modele de Luxe, made by B.S.A. Co., £18/18, latest model; immediate delivery; easy monthly payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [4556

Bat.

BAT-J.A.P., 1913, 7-8h.p., chain drive, large tyres, Gloria coach sidecar, lamps, etc.—H., 105, Hurlingham Rd., S.W. [4723

1914 Bats for immediate delivery from stock; buy for cash, exchange, or easy terms.—Wauchope's, 9, Shoe Lane, London. [X3191

BAT-J.A.P.'s, 1913, 6h.p., spring frame, one chain, one belt drive, ideal sidecar machines; £40 and £45; instalments arranged.—Buntiug, Harrow. [X3302

BATS.—A few good sound 1913 models for disposal, fitted with 5-6h.p. twin engines, and 3-speed gear; send for list at Wauchope's, 9, Shoe Lane, London. [X3210

BAT-J.A.P., bought new 1914, 3 speeds, accessories, ridden 700 miles, faultless, very fast, £44; sidecar, £4.—Bleucathra, Highfield Rd., Walton-on-Thames. [X3329

BAT, model I., 1914, coachbuilt sidecar, 4-point attachment, lamp, grey, F.R.S., D.A. cylinder, electric rear, speedometer, horn, spares; £70.—Smyth, 9, Easton St., High Wycombe. [X3113

1914 Bat, 6h.p., 3-speed gear box, all chain drive, complete with Gloria coachbuilt car, new rear tyre, Lucas lamp set and horn; cost £92, bargain, £65; owner bought car.—Willways, Bristol. [X3122

Bradbury.

BRADBURY, 6h.p., 3 speeds, shop-soiled only; offers wanted.—Turpins, 22 and 29, Preston Rd., Brighton. [0510

BRADBURY, 1911, N.S.U. 2-speed, lamp, horn; £25.—137, Wakehurst Rd., Clapham Common. [4682

The Halifax Motor Exchange

Largest Rex Dealers,

16, WESTGATE, HALIFAX.

'Phone—766. Telegrams—"Perfection."

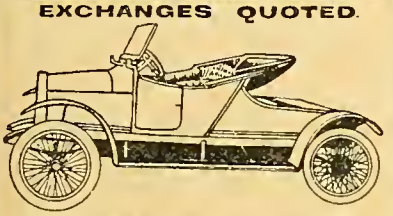
EXCHANGES WANTED.

1914 **BABY LEVIS** £33 10
1914 2-speed **CONNAUGHT** £41 0
1914 8 h.p. 2-speed **REX-J.A.P.** 71 Gns.
1914 **REX** Sidette, 2-speed £77 10
1914 **REX** Sidette, 3-speed £85 0
1914 **BRADBURY**, 4 b.p., 3-speed, countershaft 59½ Gns.
1914 **WILLIAMSON**, w.-c., combination £98 10

SOLO MACHINES.

1913 2½ h.p. 2-speed **LEVIS**, 2-stroke £31 10
1913 4 h.p. 2-speed **REX**, new, reduced to £48 10
1913 3½ h.p. 3 speed **ARIEL** £39 10
1913 4½ h.p. 2-speed **LINCOLN-ELK** £34 10
1913 3½ h.p. 2-speed **LINCOLN-ELK** £29 10
1913 5-6 b.p. **RUDGE** Multi £49 10
1912 3½ h.p. **BRADBURY** Tourist £25 0
1912 6 h.p. **REX** Twin, new £35 10
1912 3½ h.p. 2-speed **JAMES**, counter-shaft £34 10
1912 3½ h.p. 2-speed **HUMBER**, almost as new £35 10
1912 4 h.p. 2-speed **SINGER** counter-shaft £36 10
1912 2½ h.p. 2-speed **SINGER**, counter-shaft £29 10
1912 3½ h.p. **RUDGE** Multi £32 10
1911 3½ h.p. **TRIUMPH**, variable gear £29 10
1911 3½ h.p. Tourist **ARIEL** £22 10
1911 W.C. 2-speed **SCOTT** £29 10
1911 3½ h.p. 2-speed **REX**, N.S.U. gear £27 10
1911 3½ h.p. Tourist **REX** £23 10
1911 2½ h.p. 2-speed **A.J.S.**, counter-shaft £24 10
1911 3½ h.p. **BRADBURY**, new, 2-speed £34 10

EXCHANGES QUOTED.



G.W.K., complete, £150. The Medal Winner.

New 1914 **SIRRON** Light Car (British) £210
CALTHORPE Light Car £168
VICTOR Cycle Cars,
£95 and £115

SIDECAR COMBINATIONS.

1914 W.-C. **WILLIAMSON** Combination, with speedometer and accessories, nearly new £85 0
1914 8 h.p. **V.S.-J.A.P.**, 2-speed, and Mills-Fulford Sidecar £59 10
1913 New **REX** Sidette, reduced to £65 9
1913 5-6 h.p. Multi and Sidecar £55 10
1913 3½ h.p. 3-speed **ARIEL** and Sidecar £47 10
1913 4½ h.p. **LINCOLN-ELK** and Sidecar £39 10
1913 3½ h.p. **LINCOLN-ELK** and Sidecar £33 10
1912 6 h.p. **DOT-J.A.P.** and Sidecar £42 10
1912 3½ h.p. 2-speed **JAMES** and Sidecar £39 10
1912 6 h.p. **REX** Sidette £43 19
1912 6 h.p. 2-speed **REX**, chain drive and new Sidecar £45 10
1912 3½ h.p. 2-speed **HUMBER** and Sidecar £37 10
1912 3½ h.p. 2-speed **BRADBURY** and S'car £39 10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar £29 15
1911 8 h.p. 2-speed **BAT-J.A.P.** and S'car £43 10
1911 3½ h.p. 2-speed **REX** and Sidecar £29 10
1911 3½ **TRIUMPH**, speed gear and Sidecar £33 10
1910 3½ h.p. 2-speed **TRIUMPH** and Sidecar £28 10
PHANOMEN, 6 h.p., 2-speed, and Sidecar £26 10
EXCELSIOR, 3½ h.p., 3-speed, and Sidecar £28 0
NORTON, 4 h.p., 2-speed, and Sidecar £29 10
REX, 1910, 2-speed Twin and Sidecar £31 10
REX, 1909, 2-speed Twin, and Sidecar £27 10

BARGAINS IN BRAND NEW 1913 REXES.

Fully guaranteed by Makers.	Makers' Price.	Our Price.
6 h.p. 2-speed Twin	£62 10	£53 2 6
6 h.p. Coach Sidette	£77 0	£65 9 0
1912 New 6 h.p. 2-speed Twin	£62 10	£45 10 0

Liberal Exchanges. Cash Offers wanted.

TRADE SUPPLIED.

MOTOR CYCLES FOR SALE.

Clyno.

CLYNO (December, 1913), large underslung sidecar, accessories, perfect order; £65; T.T. model wanted.—Evans, St. John's Wood, N.W. [4494

CLYNO Combination (£91), and 2-stroke (£40) in stock; 1913 complete outfit, almost new, £65, or offers.—Turpins, 22 and 29, Prestoo Rd., Brighton. [0511

1914 Clyno Lightweight, 2-speed, free engine, Lucas lamp, Lucas horn, etc., used for two demonstration runs only; £36.—Parker and Son, St. Ives, Hunts. [0534

CLYNO, 1912, 6h.p., 2-speed, kick starter, with Millford cane sidecar, splendid condition; £39 cash; exchange considered.—A. Holland, Clarendon St., Coventry. [X3396

CLYNO, 2 speeds, kick starter, Montgomery coachbuilt sidecar, trip speedometer, lamps, spares, just overhauled, excellent condition throughout; £36 cash. Lee, 18, Grosvenor Sq., W. [4705

CLYNO Combination, 1912, speedometer, 3 lamps, many extras, just spent £12 completely overhauled and enamelled, new tyres; £50; seen any time.—30, Earlsfield Rd., Wandsworth Common. [4745

1914 5-6h.p. Clyno Combination, No. 6 sidecar, spare wheel and tyre, ready for the road, slightly shop-soiled, otherwise new; list £96, clear £85.—Cordingley, Haslingden. Tel.: 102. [X3404

SMART Combination, enamelled grey, lined blue, 5-6 h.p. Clyno, 1911, 2 speeds, kick starter, coachbuilt sidecar; £40; every part in splendid condition; trial willingly.—Dance, 26, Wood St., Northampton. [X3160

CLYNO, 1912½, 5-6h.p., 2-speed, kick starter, speedometer, drip feed, just overhauled, new coachbuilt sidecar, lamps, horn, tools, etc.; £49, or exchange lower power and cash.—Hughes, 5, Exeter Rd., Ellesmere Port. [4583

CLYNO, 5-6h.p., No. 6 sidecar, just arrived, complete with spare wheel and tyre, a beautiful combination, complete, ready for the road; £96; exchanges. Special cash terms.—Cordingley, Haslingden. Tel.: 102. [X3420

CLYNO, 1914, screen, hood, Ajax stand, spare wheel, one Pedley and Hutchinson, side and back lamps, luggage and petrol grid, perfect, not done 1,000 miles, one tyre punctured once only; £85.—Box L5,315, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4189

1912 6h.p. Clyno and £17/17 Turner Sidecar, just overhauled by makers and guaranteed equal to new; new 1914 coachbuilt body also fitted, magnificent order; would make excellent touring mount; any trial and examination; £50.—Parker and Son, St. Ives, Hunts. [0514

6h.p. Clyno, April, 1914, No. 6 sidecar and screen, P. and H. head light and generator, Lucas horn and tail lamp, Brooks saddle, luggage grid, spare wheel complete (never used), spare chain, and sundry other spares, not done 1,000 miles; bargain, £85.—No. 6,299 *The Motor Cycle* Offices, Coventry. [X3045

Connaught.

1914 Connaught, 2 months old, good as new, what offers?—J. R. Calditott, 4, Spencer Rd., Coventry. [4089

CONNAUGHT, 1914, T.T., 3-speed, kick starter, footboards, 9 gn. light sidecar, sporty outfit; £42.—Banks, jun., Uttoxeter New Rd., Derby [X3076

CONNAUGHT, 1914, T.T. model, single speed, purchased new June 8th last for owner's holiday in England; £30; trial on deposit of cash.—49, Wellmeadow Rd., Catford [X3141

De Dion.

2¾h.p. De Dion, Douglas frame, accumulator, trembler coil; £5/10.—Briggs, 29, St. Augustine St., Taunton. [X3358

2¾h.p. De Dion, Chater frame, good throughout, running well, battery ignition; bargain, £6/10.—Carter, 86, Leverson St., Streatham [X3368

GENUINE 2¾h.p. De Dion, latest Sensprav, double Bosch mag., good tyres, belt, low, capital condition; £10; exchange.—Peachey Edwardstone School, Colchester [4506

Douglas.

WHEN I Say Motor Cycle, I mean a Douglas.

WHEN I Say Passenger Machine, I mean a Williamson.

WHEN I Do Say Car, I shall mean a Douglas.—Gourlay, the great Douglas agent, Fallowfield, Manchester. [1691

DOUGLAS, 1914, 3½h.p., model B, in stock; £62.—Ginger, Motors, Banbury. [X3163

DOUGLAS, late 1912, fixed gear; offers.—Chapmun, 138, Kingston Rd., Oxford [X3107

3½h.p. Douglas, 1914, model B, in stock; £62.—Moffat, Town Hall Garage, Yeovil [X4226

1914 T.T. Douglas, first-class condition; any trial; £40.—71, Bradshawgate, Bolton. [X3381

DOUGLAS, 3½h.p., Model B; £62; in stock.—Robinson's, Green St., Cambridge. [8628

DOUGLAS, 3½h.p., Model A; £58; in stock.—Robinson's, Green St., Cambridge. [8629

DOUGLAS, models T, U, V, and W, from stock.—Cordingley, Haslingden. Tel.: 102. [X3421

REYS SPECIAL BARGAINS

ALL MACHINES READY FOR THE ROAD.

SECOND-HAND MACHINES.

1914 **DOUGLAS** Model "T" £35
1913 3-speed **TRIUMPH** £48
1913 8 h.p. chain drive 2-sp. **MATCHLESS** and Canoelet Sidecar £62
1914 T.T. **DOUGLAS**, lamp and horn £42
1913 6-sp. **MATCHLESS**, lamp, horn, and speedometer £50
1912 2¾ h.p. 2-sp. **SUNBEAM**, lamp, generator, and horn £38
1912 T.T. **REX-J.A.P.** £25
2 h.p. **QUADRANT** £8
1912 2¾ h.p. 2-speed **ENFIELD** £28
1912 **TORPEDO** £20
1911 **DOUGLAS** £20
1911 T.T. **TRIUMPH** £25
1914 T.T. **RUDGE** £40
3½ h.p. **REX** £15
1912 T.T. **TRUMP-J.A.P.** £24
1913 3-speed **ROVER** Combination £50
1913 **ROVER** and cane Sidecar £45
1913 water-cooled **ZENITH-GREEN** and Sidecar £45
1913 2-sp. **MATCHLESS**, 8 h.p., twin belt drive £48
1913 2½ h.p. **LEVIS** £28
1912 3½ h.p. **ALLDAYS**, free engine £27
1914 **NEW IMPERIAL** £28
1914 **SUN-VILLIERS** £22
1913 **CONNAUGHT** £25
1912 2¾ h.p. twin **HUMBER** £23

SECOND-HAND CYCLE CARS.

1913 **HUMBERETTE** £75
SIZAIRE, 4-cylinder £60

SINGERS, SWIFTS, PERRYS, G.W.K.'S, A.-C.'S, MORRIS-OXFORDS can be seen and tried at our Euston Rd. depot.

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TRADE SUPPLIED WITH VARIOUS MAKES AT LIBERAL DISCOUNTS.

WE HAVE A HUGE STOCK OF MOTOR CYCLES.

We are Sole London Agents for Lincoln Elk New Imperial, and Matchless Motor Cycles, and Swan, Canoelet, and Middleton Sidecars.

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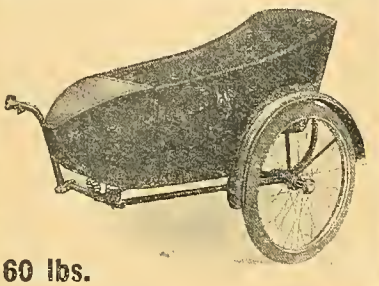
Tel. 4219 Regent.
AND AT
173, Gt. Portland St.
Tel. 1970 Regent.

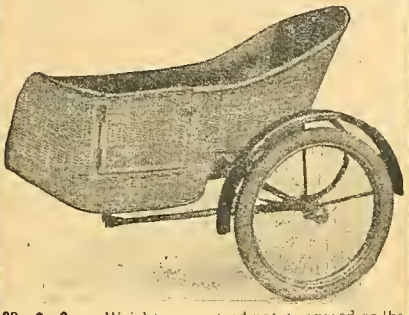
FARLOW SIDECARS

are admired everywhere, and their **safety** and **reliability** is fully assured. Your agent will supply.

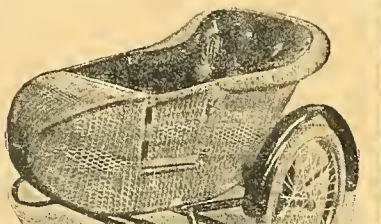


60 lbs.

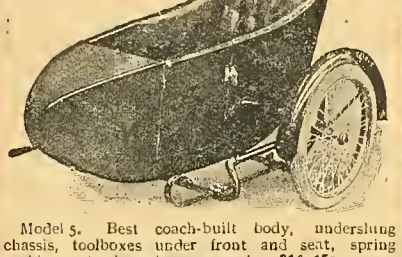
We have just introduced the above **coach-built "Farlow" sidecar** with a **guaranteed** weight of 60 lbs. complete with full sized body, strong chassis and Avon rubber-studded tyre. Price **9 guineas**, or with **Reed Cane Body:**



£8 0 0. Weight guaranteed not to exceed 90 lbs. The above models are for 2¾ h.p. and 3½ h.p. machines.



Model 6. Reed cane body, underslung chassis, toolbox under seat, extra large luggage carrier, **9 Gns.**



Model 5. Best coach-built body, underslung chassis, toolboxes under front and seat, spring cushion, extra large luggage carrier, **£10 15s.**

Farrar's Motors

(Telephone 919),

Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

Douglas.

DOUGLAS; all models supplied, cash or easy terms.—Turpine, 22 and 29, Preston Rd., Brighton. [0509

DOUGLAS, 1913, R, complete, splendid condition; £40 any trial.—Philpot, Douglas agent, Canterbury. [4525

DOUGLAS, 1913, T.T., 2 speeds, tools, accessories, exceptionally fast; £32/10.—Sinclair, East Molesey. [X3306

1914 2¾h.p. T.T. Douglas in stock; £48; exchanges entertained.—Julian and Sons, Basingstoke. [0495

DOUGLAS, 1910, 2¾h.p., perfect condition, fast, lamp, spares; £17/10.—Bates, St Loyes, Bedford. [4622

DOUGLAS Lightweight, 2¾h.p., perfect; £22.—Grocer, 53, Rye Rd., Newlands, Top Peckham Rye. [4673

DOUGLAS 1914 Model W; £52; in stock. Trade supplied.—Robinson's, Green St., Cambridge. [8627

DOUGLAS, 1914 Model U, lamp, horn, tools; seen by appointment; £40.—Rev Wheeler, Slough. [X3159

DOUGLAS, 1914 model W, brand new; 45 gns.—Peake, c/o Waddingtons, New Station St., Leeds. [X3235

1914 Douglas, model V, new April, lamp, horn, adjustable pulley; £40.—72, South Ealing Rd., W. [4704

DOUGLAS.—All 1914 models; cash or easy payments.—Maudes, 136, Gt. Portland St., London, W. [8365

DOUGLAS, 1914, models U, V, and W., in stock; trade supplied, special discount.—Ginger, Motors, Banbury. [X1532

DOUGLAS 1914 Models V and U; £48; in stock. Trade supplied.—Robiason's, Green St., Cambridge. [8626

NEWSOME and Fletcher, Ealing Broadway, London, W.—Immediate delivery Douglas models, cash or exchange. [4736

DOUGLAS, new, 2¾h.p., T.T., delivery 1st July; nearest offer to list accepted.—50, Manor Rd., Brockley. [4536

DOUGLAS, 1911, single gear, just overhauled, perfect condition, lamp and spares; £18.—Crothers, Speen, Newbury. [X3086

DOUGLAS, 1913, Model O, 2-speed, accessories, spares, overalls; £37; any trial.—Curtis, 81, Jewel Rd., Walthamstow. [4572

1914 Douglas Models U, V, W, and T for immediate delivery from stock.—Wauchope's, 9, Shoe Lane, London. [X3214

DOUGLAS, 1914 models, U, V, and W in stock for immediate delivery; trade supplied.—The Morris Garages, Oxford [0430

DOUGLAS, all models for immediate delivery; trade supplied.—Rex, 378-384, Euston Rd., and 173, Gt Portland St., W [2628

DOUGLAS, 1913, 2-speed model O, lamp generator, adjustable pulley little used; £38.—6, Westbank Av., New Brighton [X3125

DOUGLAS, 3½h.p., £62; combination, £75; and 2¾h.p. models; immediate delivery.—W. P. Edwards, Tauntoo. [4650

DOUGLAS, 2¾h.p. T.T., 1914, 2-speed, hardly used; can be seen any time; £40.—7, Melbourne Grove, East Dulwich Station. [4715

DOUGLAS, T.T., October, 1913, well equipped, fast, loks like new; offers wanted.—Full particulars, Stott, Sudden, Rochdale. [X3341

DOUGLAS Model K, 1912¾, new tyre, lamp, horn, cyclometer, just overhauled; £26.—Gibbs, 112b, Balmoral Rd., Gillingham [4560

DOUGLAS, 1914, any model, prompt delivery, cash or easy payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London [6409

DOUGLAS, 1913 model R, 2-speed, kick starter, free engine, condition as new, done 500 miles; bargain, £38.—A. Holland, Clarendon St., Coventry. [X3395

DOUGLAS, 2¾h.p., 1914, ridden 1,000 miles, as new, T.T. pattern, usual accessories; £42, no offers.—Schafer, Old Hall Farm, Gatley, Cheshire. [X3290

DOUGLAS, 1912½, 2-speed, free engine, kick start, footboards, F.R.S. lamp, speedometer, bought new; £32/10, offer.—176, Mitcham Rd., Tooting. [4585

1914 T.T. Douglas, 2¾h.p., 2-speed, lamp, generator, horn, speedometer, not done 400 miles; £45.—C. M. Le Clair, Pentewan, Greville Rd., Southampton. [4562

DOUGLAS Lady's, 1911, with 2-speed gear and clutch, handle starting, thoroughly overhauled, re-enamelled and plated; £28.—Colmore Depot, John Bright St., Birmingham. [X3232

Enfield.

ENFIELD, 2¾h.p. twin, good condition; £15.—408, Moseley Rd., Birmingham. [X3308

1914 Enfield Combinations from stock—Purcells, 78, Charlotte St., Tottenham Court Rd., London. [2185

1914 6h.p. Enfield Combination, coachbuilt sidecar, 2 lamps, spare inner tube, new condition; £75.—Atkin, 29, Station Rd., Woodhouse, near Sheffield. [X3042

Don't Miss This!

1914 6 h.p. 3-speed NEW HUDSON.

Been used for a few trial spins only. Usual price, £71 8s.

Sacrifice £51 nett.

ANOTHER SNIP.

1912 8 h.p. Cycle Car for £65.

CHATER LEA | **8 h.p. Engine**
3 Speed Gear Box
Worm Drive Back Axle

Jones speedometer, P. & H lamps, generator, shock absorbers, wind screen, 2 spare tyres, detachable dickey seat, tools, and spares. The lot for **£65.**

1914 MACHINES IN STOCK.

6 h.p. **A.J.S.,** combination, detachable wheels	
6 h.p. **A.J.S.,** solo mount, 3 speeds	**70 Gns.**
2¾ h.p. **A.J.S.,** 3-speed model	**50 Gns.**
3½ h.p. **ARIEL,** 3-speed countershaft	**£60 15**
1914 Sporting **MORGAN**	**£91 0**
1914 American **EXCELSIOR,** 7 h.p.	**£59 0**
1914 6 h.p. **NEW-HUDSON,** 3 speeds	**68 Gns**
1914 **ENFIELD,** 6 h.p., combination	**80 Gns**

THIS WEEK'S BARGAINS

1914 **P. & M.,** used trials only	**£55 0**
1910 3½ h.p. **N.S.U.,** 2-speed, Bosch	**£20 0**
1911 3½ **BRADBURY,** 2-speed	**£25 0**
1909 3½ h.p. 2-speed **REX** de Luxe	**£24 0**
1912 6 h.p. **REX** de Luxe, 2 sp., free engine	**£32 0**
1912 6 h.p. **CLYNO,** 2 speeds, kick starter	**£36 0**
1910 5-6 h.p. **VINDEC,** 2 speeds	**£27 0**
3½ h.p. 1907 **TRIUMPH,** mag., spring forks	**£23 0**
One ditto, very good	**£24 0**
3½ h.p. 1908 **REX** tourist, 1909 engine	**£19 0**
5-6 h.p **REX** de Luxe, 1908, 2-speed model	**£25 0**

The following are complete with Sidecars:

1911 **BRADBURY,** 2 speeds and sidecar	**£30 0**
3½ **N.S.U.,** 2 speeds and sidecar	**£25 0**
1912 3½ h.p. **NEW HUDSON,** 3 speeds & s'car	**£35 0**
1912 6 h.p. **REX,** 2 speeds and sidecar	**£35 0**
1909 3½ h.p. 2-speed **REX** and sidecar	**£29 0**
1912 6 h.p. **CLYNO** and sidecar	**£45 0**
1908 5 h.p. **REX** de Luxe and sidecar	**£28 0**
1910 5 h.p. 2-speed **VINDEC** and sidecar	**£30 0**

All have variable gears.
We will sell any machine without sidecar.

Any of the following can be had on Easy Terms—

3½ h.p. **REX,** Spring Forks **£8**	3½ h.p. **N.S.U.** 2-sp. **£20**
2 h.p. **MOTO-REVE,** magneto, Druids **£14**	5 h.p. 2-sp. **VINDEX £25**
	3½ **TRIUMPH,** mag. **£23**
	3½ h.p. **REX,** mag. **£19**

NEW MOTOR CYCLE FRAMES.
Fully Guaranteed.
25/- each.

ODD BARGAINS.

£11 Farlow Sidecar, shop-soiled	**£7 10 0**
9 guineas Farlow Sidecar, shop-soiled	**£6 10 0**
1913 Gloria Sidecar, spring wheel	**£7**
3½ h.p. Precision engine, (new)	**£8**
Red Rear Lights, separate generators	**9/6**
Rex Patteru Foot Brake (new)	**7/6**
Wicker Sidecar Body, upholstered	**5/-**
New Rubber-studded Covers	**12/6**
New Inner Tubes, all sizes	**6/6**
Cowey Speedometer, good order	**35/-**
New Twin Bosch Magnetos, D.A.V. models,	**£2 19 6**
New Bosch Magneto suit single-cylinder engine	**£3**
Bosch Magneto, suit twin Rex	**39/6**

FARRAR'S MOTORS

(Telephone 919),

Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

Humber.

HUMBER, late 1911, 3½h.p., 2-speed gear, fitted with coachbuilt sidecar; turnout, £30.—Brown's, 2, Bull Ring, Birmingham [X3259

HUMBER, 1913, Dunlop tyres, Dunlop belt, B170 saddle, 3-speed Sturmey-Archer gear, lamp and horn, plate and enamel very good; £36.—Robinson's, Green St., Cambridge. [8623

1911½ 2-speed F.E Humber, 3½h.p., and sidecar, thoroughly overhauled, new tyres and piston, etc., powerful machine; bargain, £30, lowest.—Webber, Eastleigh, Honiton, Devon [X3364

HUMBER, 3½h.p., 2-speed, free engine, coachbuilt sidecar, splendid condition, not done 2,000 miles, like two anywhere; bargain, £40.—Quinn, 63, Cartland Rd., Stirchley, Birmingham [X3091

1912 3½h.p. Humber, 2-speed, free engine, variable pulley Jones speedometer, lamp, tools, Canoelet sidecar, hood, wind screen, new tyres, engine just overhauled £37/10, or near offer.—Edwards, 26, Mytbor Av., Lytham. [4530

HUMBER, 3½h.p., 2-speed, sidecar, tyres J.B and Palmer, nearly new; Whittle belt, lamp, horn, Power's speedometer, spare gear, tubes, etc., done 4,000 miles; wants seeing; bargain, £34.—G J., 41, High St., Hitton, Surrey [4568

1914 Humber, 3½h.p., air-cooled, 3-speed Sturmey-Archer gears and free engine clutch, fitted with lamp, horn, all tools, Lucas rear light set, etc., and gramble 1913 sidecar, the complete combination has absolutely not run 800 miles, is in practically brand new condition and is only for sale because the owner has just purchased a light car; first nearest cheque to £57/10 secures.—S G., 117, Broad St., Hanley, Staffs [X3078

Imperial.

NEW Imperial Light Tourist, brand new; £28/10, cost £32/11.—Stonebridge, London Rd., Norbury, SW [X2525

NEW 3½h.p. New Imperial Motor Cycle, J.A.P. engine, N.S.U. 2-speed, lamp, horn, all tools; 35 gns.—William Owen, Oakengates. [X2647

Indian

CLEVERLY'S, Ltd., Oxted, have a 1912 Indian and sidecar for quick sale; £25 [4511

INDIAN and Sidecar, as new, 7-9h.p., 2-speed; £44.—18 South Bruton Mews, Bond St., W [X3291

INDIAN, 1914 T.T., Lucas lamp and horn, nearly new; £50.—Campion, Loudon Rd., Derby [4695

7-9h.p. Indian and sidecar, 2-speed, splendid condition, £35, bargain.—Tom, Catherine St., Leicester [X3183

INDIANS.—Compare marvellous value; immediate delivery all models.—W. P. Edwards, Taunton [4651

T.T. Indian 1911, red, 5h.p., in good condition; £21/10.—W. S. Life, 10, Cumberland Rd., South Norwood [X3060

INDIAN Hendee Special model; £80, complete; in stock.—The Exeter Motor Cycle and Light Car Co., Ltd [0505

INDIAN 7-9h.p., free engine, 2-speed, sidecar, Jones speedometer, £35.—Sibley, Mountsorrel Rd., Chilwell Park, Loughborough [4505

7h.p. Red Indian, 1912 model, complete with really smart sidecar, £32/10.—Cordingley, Haslingden, Tel.: 102. [X3410

1914 Indian Combination, electric light, run 300 miles, must realise, take £69.—Dunkeld, Scarle Rd., Wembley [4472

INDIAN and Millford, late 1912, accessories, good as new, £48.—Particulars, Laywood, Victoria Rd., Sherwood, Nottingham. [X3237

INDIAN 1914 Road Racer, not done 100 miles, perfect; £52.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0480

INDIAN, 1911 model, 3½h.p., 2 speeds, free engine, complete with sidecar; £30.—Cordingley, Haslingden. Tel.: 102. [X3416

MOTOR CYCLES FOR SALE.

Levis.

1913 2¼h.p. Baby Levis, first-class condition; £20.—Hill, Builder, Craig-y-don, Llandudno. [X2661

1913 2½h.p. Levis, very good order, accessories; £22/10.—Jackson, Mattishall, Norfolk. [X3312

2¾h.p. Levis, 2-speed, counter-shaft gear, just arrived; £47/10.—Cordingley, Haslingden. Tel.: 102. [X3411

1914 Levis Models in stock, ready to ride away; best terms for cash, exchange, or easy payments.—Else and Co., 15, Bishopsgate Av., Camomile St., E.C. [0479

L.M.C.

3h.p. L.M.C., mag., B. and B., can be ridden away; £6.—138, Catherine St., Leicester. [X3184

L.M.C., 1911, 3½h.p., 2 speeds, handle starting, side-car and accessories; £25.—P. J. Evans, John Bright St., Birmingham. [X3146

Matchless.

MATCHLESS, 1912, 8h.p., and sidecar, in splendid condition; £35.—159, Canterbury Rd., Kilburn. [4623

3½h.p. Matchless, 1911, overhauled, plated, accessories, spares; £24.—Hirst, 24, St. Stephen's Rd., Leicester. [4618

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378, Euston Rd., and 173, Gt Portland St. [7287

MATCHLESS, 1913, 3½h.p. twin, 3 speeds, kick starter perfect condition; £42.—Turner, 27, Mattock Lane, Ealing. [4701

MATCHLESS, 1913, 8h.p., 2 speeds, belt drive, accessories, and sidecar; £48.—P. J. Evans, John Bright St., Birmingham. [X3150

MATCHLESS, 6h.p., 2 speeds, free engine, sidecar, splendid condition, all accessories; £45.—70, Evering Rd., Stoke Newington, N. [4767

3½h.p. Matchless, done 1,000 miles, £45; Triumph, 1909, £18; Minerva, 3½h.p., £15; all as new.—Clifford Cant, Braiswick, Colchester. [4228

8h.p. Matchless-Jap, chain drive, and coach sidecar, complete, speedometer, lamps; £60.—Reg. Samson, Ltd., Islington Row, Birmingham. [4569

MATCHLESS 5-6h.p. Twin, 2-speed, and coachbuilt sidecar, F.R.S. lamp, Lucas horn, like new; £47/10.—408, Moseley Rd., Birmingham. [X3307

MATCHLESS Combination, 8h.p. twin free engine, speedometer, recently overhauled, excellent condition; accept £40.—Sullivan, 4, Dagmar Rd., Camberwell. [4758

1913 6h.p. Matchless, J.A.P. engine, 2-speed, kick starter, complete with coachbuilt sidecar, splendid condition; £58.—C. B. Ford, Bondgate St., Alnwick. [4771

MATCHLESS, 1913, 3½h.p. twin, 3-speed gear, counter-shaft drive, Hutchinson tyres, lamp and horn, extra pair of handle-bars; £35.—Robinson's, Green St., Cambridge. [8630

LATE 1912 Matchless, 6h.p. J.A.P., 2 speeds, perfect condition, tyres, etc., every accessory, spare tube and belt, in crate, Millford sidecar, new; £50.—C. Waltham, 9, Waterloo Rd., London. [4621

1913¾ Matchless Combination, 2-speed, free engine, double belt drive, speedometer, lamps, all accessories, perfect condition throughout, little used; any trial; £65.—22, Otto St., Kennington. [4703

7h.p. Matchless, chain drive, 3 speeds, and free engine, also coachbuilt Matchless sidecar, the most silent motor cycle made; £92/17; ready to drive away.—Cordingley, Haslingden. Tel.: 102. [X3418

OCTOBER (1913) 8h.p. Matchless Combination, 2-speed, clutch chain drive, kick start, speedometer, lamp, and generators complete, splendid condition; sacrifice £65.—Castle, 18, George St., Oxford. [X8446

MATCHLESS, 3½h.p., 6 speeds, Gradua gear, absolutely new, grand solo or sidecar mount, £50, or complete with brand new coachbuilt sidecar for £60. genuine.—Colmore Depot, 31, Colmore Row, Birmingham. [X3063

8h.p. 1913¾ Chain Drive 2-speed Matchless, counter-shaft gear, kick start, fitted with Matchless sidecar, includes screen, luggage carrier, in condition like new, smart and mechanically sound.—Seen at Wauchope's, 9, Shoe Lane, London. [X3190

MATCHLESS 1913 Sidecar Combination, 6h.p., 2-speed, free engine, in perfect tune, tyres good, tubes unpunctured, Lucas lamp set and horn, 3 spare tubes, new belt, everything equal to new; £55; any trial.—Tattersall, Gain Lane, Lichfield. [X3177

MATCHLESS, late 1913, 8h.p., 2-speed and kick starter, chain drive, with de luxe canoelet sidecar, fitted with wind screen, all lamps, speedometer, etc., combination in practically new condition, having been driven only about 800 miles; £73.—Colmore Depot, 49, John Bright St., Birmingham. [X3233

Minerva.

3½h.p. Minerva, coil, B. and B., h.b.c., m.o.v.; photo; good running order; £6.—Wimshurst, College, Wye. [4720

3½h.p. Minerva, Bosch, B. and B., Druids, sloped back frame good order, requires assembling; £8, or offer.—Howard, 38, St. Asa's Rd., Tottenham. [X3108

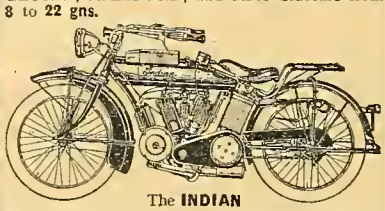
"EVANS"

If you wish to inspect the FINEST selection of Motor Cycles and Light Cars in the country, then I'm your man. I stock all the best makes — and when you buy from me you may rest assured that you are getting VALUE FOR MONEY, more — you're getting BEST VALUE FOR MONEY! Touring time is sure to tempt you, and when you have decided to purchase, then — WRITE, OR CALL AND SEE ME.

In Motor Cycles I can show you — INDIAN, ROVER, ENFIELD, A.J.S., CLYNO, BAT, JAMES, HUMBER, NEW-HUDSON, ZENITH, CALTHORPE JUNIOR, NEW IMPERIAL, WOLF, etc. — all models in stock ready for immediate delivery.

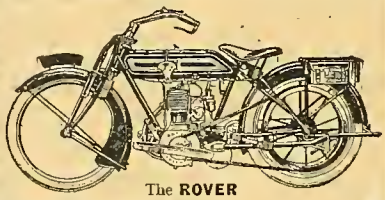
SPECIAL CLEARANCE LINE OF HUMBERS — Brand new latest TWIN 2¾ h.p. 3-speed. List price, **50 gns.** CLEARANCE Price, **40 gns.**

SIDECARS: — MONTGOMERY, CANOELET, GLORIA, MILLFORD, and other Sidecars from **8** to **22 gns.**



The **INDIAN**

Standard Model, 7 h.p., 2-speed, with Electric Head and Tail Lights, Electric Horn, and Corbin-Brown Speedometer, Price **£70**



The **ROVER**

3½ h.p., 3-sp., and F.E. Clutch..... **£58**
ROVER 3½ h.p. T.T. Model **£48**

and now LIGHT CARS

I can show you, here again, all the best makes, including — Calthorpe, Standard, Perry, Alldays, G.W.K., Ford, Singer, Swift, Calcott, Humberette, etc., all complete and ready for the road.

The **"CALTHORPE MINOR,"** 10 h.p., complete **160 gns.**

Now let me know your needs — I KNOW I can fill them. Exchanges arranged — Tuition free.

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FOR MOTORCYCLES & LIGHT CARS

MOTOR CYCLES FOR SALE.

Minerva.

4½h.p. Twin Minerva, good condition, sidecar, Mabon, B.B., tyres good, 26×2½, Dunlop belt, lamps, spares; any reasonable offer.—4, College Rd., Cheshunt. [4661

MINERVA, 3½h.p., thoroughly overhauled, cylinder re-ground, and new piston, B. and B. carburetter, Bosch mag., John Bull tyres, Lucas lamp, and horn; bargain, £15/10.—Particulars, Brookland, 2, Putlee Cottages, Haywards Heath. [X3288

Monopole.

MONOPOLE Lightweight, 2¾h.p., Precision engine, Bosch mag. (new), just unpacked, free engine; £36, cost £45—17, Oaklands Rd., Bedford. [4516

Moto-Reve.

2¾h.p. Twin Moto-Reve, taken for debt, good going order; 10 gns.—1, Railway Approach, Kew Gardens. [4574

MOTO-REVE, 2¾h.p. twin, new tyres, belt, perfect condition; £16.—87, Cambridge Rd., Hammersmith. [4678

MOTO-REVE 2¾h.p. Twin, 1912, Armstrong 3 speeds, free engine, perfect order and condition; £18/18.—Ward, Doa Jon House, Canterbury. [X3179

Motosacoche.

£43 Motosacoche, 2½h.p., hardly soiled, 1913 model, trial; £26 lowest.—17, Oaklands Rd., Bedford. [4515

MOTOSACOCHE, powerful, excellent condition, mag., acetylene lamp.—Munro, 37, Hertford St., Coventry. [X3392

1912 2¼h.p. Motosacoche, variable gear, very nice machine; £18.—Porter, 3, Logan Mews, Earl's Court Rd. [4749

MOTOSACOCHE Lightweight, mag., Druids, perfect condition, and very reliable; bargain, £12.—Woodley, Bicester. [X2966

MOTOSACOCHE, 2½h.p., late 1912, free engine, only shop-soiled; what offers?—Empire Cycle and Motor Co., Derby. [X2338

MOTOSACOCHE, 2½h.p., variable gear, in splendid order, with new lamp, etc.; £24.—De Beaufort, Radnor Club, Folkestone. [4550

MOTOSACOCHE, 1907, 1¼h.p., splendid condition; to quick buyer £8, or nearest offer.—Richardson, cycle agent, Thornaby-on-Tees. [X3172

2½h.p. Motosacoche, latest pattern engine, guaranteed order and condition; cost £44, for quick sale £18/10.—Weaver, 38, Broad St., Bath. [4683

MOTOSACOCHE, 2½h.p., Druid forks, 2 Whittle belts mag., just been re-magnetised, accessories; £14; cash bargain.—Clark, Stationer, Midhurst, Sussex. [4512

MOTOSACOCHE, 2h.p., 1911, £13; Palmer tyre (back), Dunlop belt, B. and B. carburetter, all new, Druids.—Danton, Eccles, Attleborough, Norfolk. [X3559

New Hudson.

1912 2¾ New Hudson, 3 speeds and free engine lamp, horn, tools, etc.; £29/10.—Cordingley, Haslingden. [X3402

NEW Hudsons.—6h.p., 1914 models; 68 gns.; ex changes or easy payments.—Maudes, 136, Gt Portland St., London, W. [836

1914 New Hudson, 6h.p., only being used for demonstration purposes, condition equal to new; what offers?—Empire Cycle and Motor Co., Derby. [X234

1913 New Hudson, 3½-4h.p., 3 speeds, free engine kick start, Montgomery sidecar, new condition splendid running order; £43.—"Bramlea," Charlton Rd., Shepperton-on-Thames. [472

NEW Hudson, 6h.p. Model de Luxe combination, a grey, with Cowey speedometer, and all accessories new end of April, good as new; £77.—Box L5,416, *The Motor Cycle* Offices, 20, Tudor St., E.C. [474

Norton.

1914 T.T. Norton, Binks, very fast and flexible, delivered Easter, under 300 miles; bargain, £44 bought car.—Johns, Glencoe, Launceston. [X336

N.S.U.

BARGAIN List.

ONE 2h.p. N.S.U. Single-cyl. Lightweight, complete with 2-speed gear and free engine, 1913 mode shop-soiled; £30 net.

ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, comple with 2-speed gear and free engine, 1914 mode £32 net.

ONE 3h.p. N.S.U. Twin cyl. Motor Cycle, comple with under-geared pulley, 1912 model; £25 n

ONE 3½h.p. N.S.U. Single-cyl. Motor Cycle, comple with b.b.c. 2-speed gear and free engine, 19 model, shop-soiled; £48 net.

ONE 6½h.p. N.S.U. Twin-cyl. Motor Cycle, comple with 2-speed gear and free engine, 1913 mode £45 net.

ONE 8h.p. N.S.U. Twin-cyl. Motor Cycle, comple with 2-speed gear and free engine; £25 net.—B L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C [05

MOTOR CYCLES FOR SALE.

Scott.

COTT, late 1913 shop-soiled only, absolutely as new; £58—Colmore Depot, 31, Colmore Row, Birmingham [X3062

COTT, 1913½, coachbuilt sidecar, 1914 drip feed, new tyres; exceptional bargain, £58.—Hopkins, Peter-e, York [X3111

COTT, 1915 brand new, unsoiled; £55, or near offer, usual price £68; exchanges entertained—Ginger tors, Banbury. [X3161

COTT, 1912, sidecar, accessories, perfect condition; bargain, first offer £30 secures.—Turner's Garage, zon Rd., Ealing [4746

COTT, late 1912 combination, perfect; £40, or exchange for Lwer power and cash.—7, Melbourne ve, East Dulwich Station [4716

COTT, 1913, 1 test 1914 Pinks and Scott drip-feed oiler, faultless condition; any examination; £35 6, Shirley Rd., Southampton [4594

COTT, 1913, 2-stroke, 2-speed, chain drive, kick starter, excellent condition, equal to new; £50 for cash —The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0472

COTT, 1911, Palmer cords, 2 lamps and generator, gong, new chains and sprockets and 1914 Lukin ometter, £32; 1913 cane streamline sidecar, with lug-e case, lamp, and generator, £8; Jones trip and ximum speedometer, £3; all in remarkably good con-on.—23, Rosendale Rd, Dulwich, S.E. [4524

Singer.

INGER, 2½h.p., 1913, Armstrong 3-speed, as new; offers.—41, Elm Rd., Malden. [4717

914 4½h.p Singer, 2-speed, chain drive; £65, or with sidecar £80.—Cross, agent, Rotherham [X3315

INGER Motor Cycle, good condition, fine hill-climber; £16 to quick buyer.—73, Camden St., North elds. [X3109

INGER, 1914 model, 4½h.p., sidecar combination, just from works; £80, special terms for cash.—rdingley, Haslingden. Tel.: 102. [X3415

INGER, 1913, 2½h.p., free engine, in splendid running order; bargain, £25.—Wilkins, Simpson, and 11, Hammersmith Rd., London. [4697

914 Singer Sidecar Combinations, 2-speed gear and F.E. models; £80 cash; extended payments or change.—Wauchope's, 9, Shoe Lane, London. [X3221

RAND New 1914 Singer 4½h.p. Motor Cycle, 2-speed gear, chain drive; £65 model; immediate delivery, and accept low price for spot cash—Below

RAND New 1914 2½h.p. Singer Motor Cycle, 3-speed gear, £48 model; immediate delivery, and accept price for spot cash.—W. E. Clark and Co., M tor gineers, Doncaster [4592

Sun.

UN-VILLIERS in stock, immediate delivery; 25 gns.—Larkin, Cinque Ports St., Rye. [X2253

914 Sun-Villiers, 2½h.p., 2-stroke, complete, with powerful lamp, horn, tools, etc.; sacrifice 26 —J. Richards, Rhosy-medre, Ruabon [X3326

Sunbeam.

914 3½h.p Sunbeam in stock; 66 gns.—Cross, agent, Rotherham [X3314

UNBEAM, 3½h.p. and 6h.p., in stock.—West End Garage, Blackburn. [1744

UNBEAM, 1914, 2¾h.p and 6h.p models in stock —The Garage, Uxbridge Rd., Ealing Common [4242

UNBEAM 2-speed Lightweight, late 1913 model, shop-soiled only; £49; Phelon and Moore's in stock, mediate delivery.—Hainsworth, Batley. [X3357

UNBEAM, 1913, 2¾h.p., chain drive, speedometer, lamp, horn, new Kempshall cover rear, little used; —Philpot, Sunbeam agent, Canterbury. [4526

3h.p Sunbeam, 2-speed gear and free engine, 1913 4 model, kick start, chain-cum-belt drive, drip lubrication, in sound reliable condition.—uchope's, 9, Shoe Lane, London. [X3213

Swift.

WIFT Motor Cycle, 3h.p., 2-speed gear box and free engine, chain and shaft drive, 2 accumulators, extra rs; £6/10, lowest.—14, Marsham St., Westminster. [4696

WIFT 1914 Combinations for immediate delivery; 6h.p. twins, 3-speed counter-shaft gears, and car; exchanges or extended payments; £86/10.—uchope's, 9, Shoe Lane, London. [X3216

WIFT 3½h.p. Motor Cycle, with hub 3-speed gear, free engine and kick starter, with canoelet side; 1913 model, in very good condition; £50.—For ber particulars, Swift Cycle Co., Ltd., 15, Holborn ducs, E.C. [4667

T.M.C.

M C, 7h.p., 4-cyl., w.c., 3-speed, complete with side-car, hood, screen, and numerous spares; £60.—te, T M C., 206, High Rd., Balham, S.W. [4518

Triumph.

08 Mag. Triumph, h.b.c., etc.; £16.—Cross, jeweller, Rotherham. [X3316

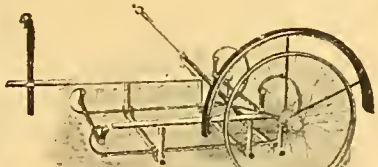
RIUMPH, 1914, 2¼h.p., 2-stroke, in stock; £42.—Ginger, Motors, Banbury. [X3162

No. 23B.—Lightweight, wicker and rush, weight 25 lbs. £3 0 0
Apron to match..... 5 0

No. 23A.—Lightweight, art cane, weight 26 lbs. £4 0 0
Apron to match..... 5 0

No. 5A.—Chassis to suit above bodies less tyre £3 13 8
Complete tyre for 26 × 2¼ wheel £1 7 11

No. 28A.—Convertible coach-built tandem body £9 0 0



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Complete tyre for 26 × 2¼ wheel £1 7 11

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To be obtained from any Motor Cycle Depot.

BRANSOM, KENT & CO., LTD.,
40, Great Eastern Street, E.C.

MOTOR CYCLES FOR SALE.

Triumph.

TRIUMPH Motor and Sidecar for sale; cheap.—253, Queen's Rd., Dalston, N.E. [4598

TRIUMPH, 1914, 4h.p., 3-speed; £60; delivery from stock—Ginger, Motors, Banbury. [X7382

TRIUMPH 1913 T T Racer, exceptionally fast; £35. Stour Cycle Depot, Stourbridge. [X3331

TRIUMPH 1912 Clutch Model, Lucas lamp; £28/10. —Stour Cycle Depot, Stourbridge. [X3334

1914 Triumphs.—Early delivery from The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0428

1914 T.T. Triumph, 3½h.p., as new, not run 300 miles; £42.—71, Bradshawgate, Bolton. [X3382

TRIUMPH, 3½h.p., 1913 Bosch, splendid condition; £20, or offer—W.S., 148, Hertford Rd., Dalston. [X3079

1913 3½h.p. 3 speed Triumph, splendid condition; £40.—Guyver's Garage, Stratford-on-Avon. [X3247

TRIUMPHS, 1914, 3-speed, in crate; Triumph, 2-stroke in crate; exchanges—Ewen, King's Lynn [X3362

TRIUMPH, 1910, 3½h.p., free engine, grand order; £25—P. J. Evans, John Bright St., Birmingham. [X3144

1912 3½h.p. Triumph, clutch model, all accessories; bargain, £30.—20, Chancer St., Leicester [X3166

TT Triumph, 1912½, faultless condition, almost new; 28 gns.—Stanley, 172, Finchley Rd., Hampstead [4665

1914 Triumph, 4h.p., 3-speed, Lucas best lamp set, horn, mirror, Cowey speedometer; £55—Plastow, Grimsby [X3174

TRIUMPH, late 1910, 3½h.p. free engine model; bargain £24/10—Brown's 12, Bull Ring, Birmingham [X3253

TRIUMPH, 1914 model in stock, for immediate delivery—Doncaster Autocars and Cycles, Ltd., Doncaster [0452

TRIUMPH, 1909, Mabon clutch, 1914 Sensspray carburetter, new Clincher cover; £27—Nix, Hartford, Huntingdon [X3324

1913 3 speed Triumph, perfect condition, lamp, horn, spares; £39.—Bodge, 601, Chorley Old Rd., Bolton [4631

TRIUMPH, 3½h.p., perfect order, Jones speedometer, Lucas lamp, new tyres and belt; £23—15, Grove Rd., Acton, W. [4595

TRIUMPH 2-stroke in stock, 4h.p., 3 speeds; and Rover 3 speeds; delivery at once—Walbro, Saffron Walden, Essex [X3379

TRIUMPH, 1913, free engine, P.U. lamp, all accessories, run under 2,000, as new; £39—7, Tunley Rd., Balham [4776

1914 Triumph, T.T., 3-speed, Lucas lamp, horn, Cowey, spares; £52/10—Gilbert, 1, Broomhill Rd., Goodmayes [X3243

3½h.p 1913 Triumph, lamp, horn, etc., all in first-class order, little used; £40—J. McFarlane, 246, High St., Perth [4541

TRIUMPH, 1909, standard model, good order; £15 cash—The Premier Motor Co., Ltd., Aston Rd., Birmingham [0530

2-STROKE Triumph latest 1914 model, actually in stock; immediate delivery—94, Gloucester Rd., South Kensington [4624

TRIUMPH, 1907, 3½h.p., and sidecar, Mabon clutch, in splendid condition; £17/10—57, Fiergrove Rd., Holloway, N. [4727

TRIUMPH, 1913, 3½h.p., 3 speeds, Gloria De Luxe sidecar, scarcely used; sacrifice £50.—Hygienic Laundry, Pontefract [4579

TRIUMPH, 1912, 3½h.p., free engine, equal to new; £35 cash—The Premier Motor Co., Ltd., Aston Rd., Birmingham [0473

1910 3½h.p Triumph, just been thoroughly overhauled, guaranteed perfect, £26—2, St. Ann's Well Rd., Nottingham [X3238

1911½ Triumph, free engine, excellent condition, spares, lamp bell, £30—28, Fulham Palace Rd., Hammersmith, London [4679

TRIUMPH, 1913, 3-speed gear, Clincher tyres, Bates belt, B170 saddle; £39—Robinson's, Green St., Cambridge [0515

1910¾ Triumph, brand new, Fitall 2-speed gear, new belt, in excellent condition; £28—E. Mills, 72, Brewery Rd., Plumstead [4542

TRIUMPH Combination, smart turn-out, Bosch mag., lamp set, watch, fully equipped; £19—Speechley, 45, Church Rd., Acton. [4730

TRIUMPH, 1912½, standard model, F.R.S. lamp set, horn, tools, as new throughout; £28.—Peacock, 274, High Rd., Balham. [4778

TRIUMPH, late 1913, 3-speed; cost £60, for £45; grand sidecar or solo mount.—Colmore Depot, 31, Colmore Row, Birmingham [X3004

TRIUMPH, 1909, Philipson pulley, speedometer, all accessories, spares, just been overhauled; £20, or offer.—George Smart, Furley Hill, Kersal, Manchester. [4588

MOTOR CYCLES FOR SALE.

Triumph.

TRIUMPHS, 1913, free engine and T.T. roadster models, good as new; £20 down and balance monthly.—Bunting, Harrow. [X3301

£20.—1911 Triumph, Dreadnought, Kempshall tyres, appearance, tyres excellent, carefully used.—Douglas, 77, Fairacres Rd., Oxford. [4706

1914 Triumphs for immediate delivery; liberal exchanges or easy monthly payments.—Newnham, 223, Hammersmith Rd., London. [2362

TRIUMPHS.—Book your order early for 4h.p. 1914 models; exchanges or instalments.—Maudes 136, Gt. Portland St., London, W. [8361

1913 3½h.p. 3-speed Triumph, with coachbuilt 16 gn. sidecar, splendid condition; £49.—Guyver's Garage, Stratford-on-Avon. [X3248

1914 3-speed Triumph, only done 1,500 miles, all accessories, with £14/14 coach-built sidecar; £55.—Crippin, Glenholm, Urmston. [4680

TRIUMPH, 1910, sidecar, Mabon, Cowey, Rom, and Dunlop tyres and belt, splendid condition; £18.—Wiles, 40, Carlton Rd., Mile End, E. [4714

1912 Triumph (clutch), condition perfect, Cowey, new tyre, new spare valve, all accessories; £40, or near.—73, Ribblesdale Rd., Streatham [X3187

NEWSOME and Fletcher, Ealing Broadway, London, W.—Immediate delivery new and second-hand Triumphs; cash, instalments, or exchange. [4737

TRIUMPH, 1912, 3-speed, bought new 1913, Montgomery sidecar, wind screen, speedometer, spares; £45.—48, Victoria Rd., Aston Manor. [X3142

3½h.p. Triumph, 1909, splendid condition throughout, cut-down frame, just re-enamelled, very fast, all tools; £23.—Knight, Barfield, Farnham. [4599

TRIUMPH, late 1910, excellent condition, horn, lamp, speedometer, new belt, semi T.T. bars, tyres good; £21.—Willey, Church St., Leatherhead. [4687

TRIUMPH, 1914, 4h.p., 3-speed Sturmey, speedometer, complete outfit; £45; owner going abroad.—Nutt, Station Approach, Gerrard's Cross, Bucks. [4689

TRIUMPH, 3½h.p., August, 1911, very little used, enamelling and plating as new; £26/10.—E. Bateman, "Huelva," Outram Rd., Addiscombe, Croydon. [4597

TRIUMPH 1914 3½h.p. T.T. Roadster Model, type D, had very little use, exceptionally fast; approval willingly; £42.—The Morris Garages, Oxford. [4709

TRIUMPH, 1910, with 1913 engine, just been re-enamelled and plated, perfect condition; £23/10.—Elite, 260, Coldharbour Lane, Loughborough Junction, S.W. [0476

TRIUMPH, late 1912, 3½h.p., free engine, Philipson pulley, tyres and belt new, perfect condition; £37, or near offer, exceptional bargain.—Baker, Salisbury Rd., Shaftesbury. [4546

TRIUMPH, 1911, 3½h.p., free engine, excellent condition, fitted with lamp and horn; price £28 cash.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0471

TRIUMPH, T.T., 1912 (late), 3 speed, all accessories, perfect condition, £35; new coachbuilt sidecar, complete, suit twin, £8/10.—Crawfords, Ltd., Stretford Rd., Manchester. [X2319

1914 Triumph Lightweight, 2-stroke, 2-speed gear; in stock, ready to ride away; £42.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0462

1913 Triumph, 3-speed, and coachbuilt sidecar, complete with speedometer, lamps, and tools, all in excellent order; £52.—Newnham, 223, Hammersmith Rd., W. [4764

LATE 1911 3½h.p. Triumph Motor Cycle, clutch model, good condition throughout, including tyres; first offer £24/10 secures, genuine bargain.—Owner, Lansdowne Cottage, Worthing. [X3123

TRIUMPH, 1908, many 1910 improvements, new Brooks saddle, Cowey speedometer, F.R.S. lamp, horn, tools, complete, engine excellent condition; £21.—Marshall, Kenwyn, Dartmouth. [X3117

TRIUMPH, 1914, 4h.p., 3 speeds, equal to new, £52; Mills-Fulford coachbuilt sidecar, with Triumph fittings, only attached for a few miles, £10; owner bought car.—Mould, Palmerston Rd., Ipswich. [4653

TRIUMPH, 1914, 4h.p., three-speed, just arrived from works; immediate delivery, no waiting; £60 cash; easy payments; also any Triumph model.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6407

1911 Triumph, excellent condition, non-skid Kempshall and Avon (nearly new), decompressor, long exhaust, Stewart trip speedometer, lamp, horn, tools; £23/10, quick sale.—Bullock, Mill Lane, Blackburn. [X3337

TRIUMPH, June, 1912, with 1914 Armstrong 3-speed and large comfortable sidecar, just overhauled by makers, 2½ front and sidecar tyres, 3in. Stelastic back, general condition excellent; £36, no offers.—73, St. Julian's Farm Rd., West Norwood. [4609

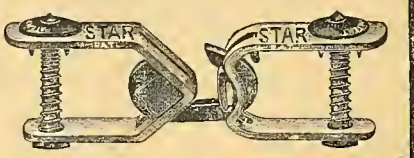
Velocettes.

1914 2¼h.p. 2-stroke Velocette, 2-speed, chain drive, as new, climb anything; £27/10.—2, St. Ann's Well Rd., Nottingham. [X3239

VELOCETTES, belt and chain drive, in stock, 25 and 30 gns., or by very easy monthly payments.—Immediate delivery from Newnham, 223, Hammersmith Rd., London. [2361

THE FAMOUS STAR FASTENER.

GUARANTEED NOT TO PULL THROUGH.



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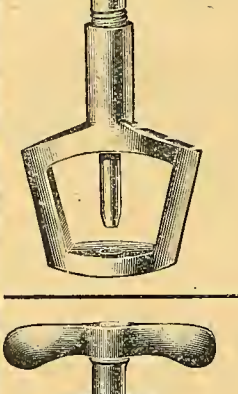

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SELF-CENTRING ADJUSTABLE BELT PUNCH.

TWO SIZES—

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S.T.ROBSON

275/7, Coventry Road,

BIRMINGHAM.

MOTOR CYCLES FOR SALE.

V.S

V.S., 5h.p., 2-speed, and sidecar, Mills-Fulford; £ Outram, Sevenoaks. [X

V.S., 2-speed, 7h.p., double-seated sidecar, as £50.—32, Colchester Rd., Walthamstow. [X

V.S., 5-6h.p., and Sidecar, kick starter, 2-speed, engine; £30, offers, or exchange.—82, Caledo Rd. [

8h.p. Road Racing V.S., 2-speed gear and F.E., with J.A.P. engine, in good sound condition; —Wauchope's, 9, Shoe Lane, London. [X

V.S., 1913 model, 8h.p. J.A.P. engine, 2-speed free engine, and kick start, fitted with a sup sidecar; 49 gns.; splendid opportunity to secure a s reliable combination before the holidays.—Seen Wauchope's, 9, Shoe Lane, Fleet St., London. [X

Victoria.

1914 Victoria, 2½h.p., 2-stroke; in stock; 25 Purcells, 78, Charlotte St., Fitzroy Sq., [

Villiers.

VILLIERS, 2½h.p., 1913, 2-speed gear, Bosch Druid spring forks; bargain, £26.—Brown's, Bull Ring, Birmingham. [X

Vindec.

VINDEC Special, 5h.p. J.A.P. engine, 2 sp bargain, £20.—Brown's, 12, Bull Ring, Bir ham. [X

White and Poppe.

WHITE and Poppe, 3½h.p., Bosch mag., B. an new belt and back tyre, good running cond £10.—Wright, 3, Cardington Rd., Bedford. [X

WHITE-POPPE, 3½h.p., Chater-Lea fittings, Brown-Barlow carburetter, b.b.e., good tyre cellent condition; £11/10.—115, Shrewsbury Rd., Gate, E.

Williamson.

WILLIAMSON, new 1913 air-cooled model; £ exchange lower power and cash.—Moss, W [X

1914 Williamson Combinations, water-cooled, d from stock; £98/10.—Wauchope's, 9, Shoe London. [

WILLIAMSON 1914 Sidecar Combinations, heating and carbonisation defeated; excel quoted.—Motories, Westgate, Halifax.

1913 Water-cooled Williamson, sidecar combin screen 3in. tyres, F.R.S., speedometer, horn, cover; £67/10.—Holdsworth, Pudwell Lane, Hali [

WILLIAMSON.—1914 models; earliest deliv exchanges or deferred payments. Trad plied.—Maudes, 136, Gt. Portland St., London,

WILLIAMSON 1914 Models for quick deli Best terms for cash, exchange, or easy pay from Elce and Co., 15, Bishopsgate Av., Can St., E.C.

8h.p. Williamson Douglas, 2 speeds and free W.C., and £16/10 coachbuilt sidecar (bra Bradbury), in grand order; £55, a gift.—Cordi Haslingden. Tel.: 102. [

1913 Williamson Combination, 8h.p., only run miles, speedometer, spares value £10, co as new; £70, no offers.—Hicks, 143, Oswald Rd., ton-cum-Hardy, Manchester.

WILLIAMSON, late 1913, 8h.p., water-cool speed, kick starter, coachbuilt sidecar, ometer, lamps, horn, in splendid condition; £70. Mart, 133, Hammersmith Rd., W.

WILLIAMSON (September, 1913), handsome car, overhauled, kick starter fitted, new Ste car re-painted, 3 lamps, speedometer, wind spare tubes, etc.; purchased car; bargain, 72 Ubsdell, 60, Oaklands Rd., Cricklewood. [

WILLIAMSON, 1914, 8h.p., water-cooled fitted with a Williamson special speed s actually in stock and ready for delivery. This ful combination is worth your attention; ca see it; your present machine taken in part exc 'Phone: Chiswick 621.—King's, 2, King's R Acton Hill, W.

Win-Precision.

WIN-PRECISION, late 1912, 2½h.p., 2-speed tools, excellent condition; £25.—M., 35, Bi bury Rd., Plumstead.

Wolf.

WOLF Lightweight, mag., good order, liber fit; £10.—Morgan, 60, Kingscourt Streatham, S.W.

Yale.

YALE, 7h.p. twin, just arrived from U.S.A.; one of the first and be up-to-date with machine.—Can be seen running at Newnham's Hammersmith Rd., W.

Zenith.

ZENITH, 3½h.p., 1912, accessories and spares, 2,000 miles; £25.—S. Rix, Beccles.

1914 5-6h.p. Twin Zenith, clutch model, cash offers to clear.—Guy and Re Weymouth. [

ZENITH, 1912, 3½h.p., Gradua gear, couple cellent condition; £28/10.—Stour Cycle Stourbridge. [

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FIVE HUNDRED AND EIGHTY-NINTH CONSECUTIVE ISSUE.

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An index to advertisements will be found on the page facing the back cover.

The Trade and this Week's Trials.

THE reason for the abstention of several large firms from competing in the A.C.U. Six Days Trials which started from Sheffield on Monday morning, and which fact was pointed out in our columns last week, has caused a good deal of speculation. From observations we have made recently, the trade and the A.C.U. do not appear to see eye to eye on the question of the conduct and organisation of the more important trials. We believe it is a fact that the Manufacturers' Union would like to have more say in the framing of the regulations, they having to conform to them, and, therefore, knowing most of the weaknesses of trials conditions. One cannot dispute such reasoning, but we must say we think that the object of trials would be misconstrued if the trade framed conditions for events which they themselves supported. Last year, it will be remembered, there was a good deal of grumbling at the inclusion of freakish road surfaces and hills in the Six days Trials in the Lake District, and, moreover, the inclusion of watersplashes, which it is claimed in some quarters serve no useful purpose. It would appear at first sight that the manufacturers concerned have formed a compact among themselves to boycott the trial, but we have the authority of the secretary of the Manufacturers' Union in stating that the absence of seven important firms, viz., B.S.A., Rover, Rudge, Indian, Zenith, Rex, and F.N., is due entirely to their individual judgment.

One can only express regret that the grievances which exist could not have been smoothed over in order to render the trials fully representative, especially seeing that the A.C.U. Six Days event is among the most important annual fixtures, one which is looked forward to from year to year, and, moreover, has proved in the past a most useful guide to the prospective purchaser.

At the same time, it must not be imagined that the trial is unrepresentative on account of the firms in question having withheld their entries. It must unquestionably suffer prestige by reason of seven important firms holding aloof, but with 133 entries, largely composed of representatives of the trade, a successful trial is assured, and we express the hope that the differences existing may soon be adjusted, and no such deadlock occur again.

Pressed Steel Frames for Motor Cycles.

THE recent public appearance of pressed steel wheels on sidecars in the Scottish Trials opened up a new vista in motor cycle construction. Whether these wheels are superior at all points to wire wheels may possibly be a moot point; we know that steel wheels are easier to clean, the rims unlikely to dent, and spoke head troubles impossible, but they are not so light, at present at any rate, and resiliency is not, perhaps, so pronounced, but their future for severe work should be bright.

The question naturally arises, Why confine pressed and welded steel work to the wheels? A larger field than this lies before such craft, and in our opinion it must only be a question of time before the framework of motor cycles will be constructed on these lines. All brazing weaknesses could then be eliminated, crystallisation of the tubes practically banished, and probably considerable weight saved. It is instructive to cast an eye backward over automobile construction and watch the once almost universal tubular frame give way before the all conquering product of the steel pressers. Nowadays, pressed steel frames are so cheap and so exquisitely produced and the science of electrical welding has been brought to such a state of perfection that we really cannot see any insuperable difficulty in the way of such frames for motor cycles. In sidecar work in particular they should prove ideal. The only drawback that seriously presents itself is the fear that rigidity may be too pronounced, but in a measure that might be a blessing in disguise, as such a happening would inevitably hasten the universal adoption of rear sprung frames.

MACHINES ON THE ROAD.

An Appreciation of the 6 h.p. Bradbury and Sidecar.

"IT has been 3,000 miles by now without any looking after at all, so you will probably find it wants tuning up," we were told when we took over one of the new 6 h.p. Bradbury machines with sidecar—the first one that had been turned out, as a matter of fact.

Our informant was quite right; it did want tuning up. In fact, the following morning it flatly refused to start at all, but the trouble was merely due to the valve stems being stuck in their guides with excess of oil. The magneto contact breaker, also, wanted a little adjustment, and the cylinders were taken off and cleaned, and, finally, the engine and gear box were washed through with paraffin, provided with fresh oil, and the chains were adjusted. Attention to this last item disclosed another source of trouble, for the second gear would not engage nicely, and was prone to jump out of engagement. This was due to the gear box having been slightly shifted during the chain adjustment, with the result that it had altered its position relatively to the change speed lever. Two or three minutes, however, sufficed to turn the coupling and lock nut of the rod connecting this lever with the gear box striker, and so to shorten it: then the machine began to show its real quality.

A BRADBURY AND SIDECAR IN A WATER-SPLASH.

The passenger is wisely protecting herself with the useful cover apron which many makers supply as standard.

Traffic and Hill-climbing Tests.

For a first trial we turned into the Edgware Road, where among the traffic the machine showed itself eminently controllable. In fact, it ran so gently as to give no indication of its power, and it was only when the A.A. scout had been passed at the turning down to Stanmore, and we put the machine at Brockley Hill, that we began to realise that we had got something uncommonly good in the way of an engine. It was a Saturday afternoon, and the usual crowd of motor cyclists were carrying out a trial on Brockley Hill, but though some first-class machines were among them, the way the Bradbury came up on top all the way drew their attention; it was an eye-opener to them as well as to the driver of the machine. At Elstree we turned off, and put our little machine at Woodcock Hill, but that and Highwood Hill on top gear were, of course, foregone conclusions to a machine that could surmount Brockley in the way the Bradbury had done.

All-round Reliability.

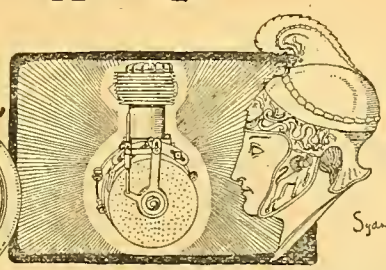
Our first trial run was only a sample of what the Bradbury habitually did for us every week-end for two or three months with great reliability. Wet or fine, over smooth or heavy roads, it seemed to make no difference, and it regularly took on top gear hills that had always forced the writer to drop into second on a far more powerful machine. And it was not a question of low gearing either, for on the level the Bradbury, although not abnormally fast, could show a good turn of speed—certainly something well over forty-five miles an hour. At such speeds, too, the riding was remarkably smooth and easy. In fact, at high speeds for rough roads it proved one of the most comfortable machines it has ever been our lot to ride, while the sidecar in no way fell behind in this respect. The steering, too, though sensitive, was extremely easy and light on the tyres. In fact, during the whole time we had the machine no suspicion of tyre trouble showed itself. The writer can honestly say that he has never driven a more satisfactory sidecar combination than the 1914 model 6 h.p. Bradbury with its twin-cylinder engine of 74½ × 86 mm. bore and stroke, and it says something for the confidence the makers have in their product that they left it in our hands for such a long period in order that it might undergo a thoroughly severe testing under all conditions.

A
'TWO-STROKE
AND LIGHTWEIGHT NUMBER.

Special articles and illustrations are in course of preparation for the "Two-stroke and Lightweight Number" of "The Motor Cycle," to be issued on THURSDAY, JULY 23rd.

OCCASIONAL COMMENTS

By 'IXION'

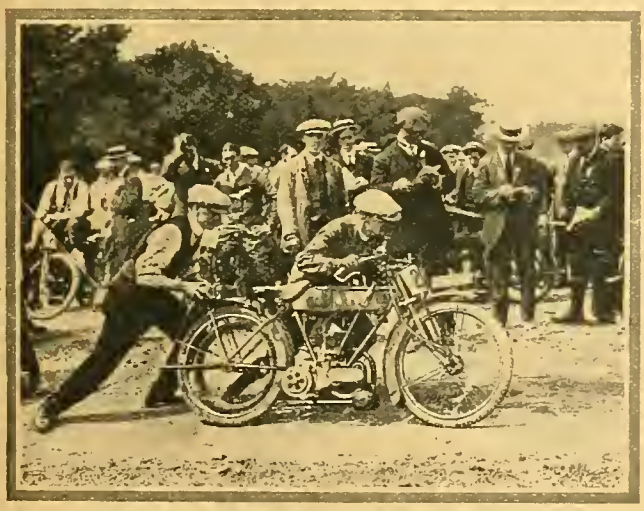


Chills on the Abdomen.

I have heard of several riders being laid up with internal chills after long night rides, and I fancy this rather serious complaint is due to foolish clothing. Many riders stuff themselves into a couple of coats, and pull a separate legging over each thigh, the legging terminating short of the groin. When they get in the saddle and begin scrapping against a chilly wind the front corners of both coats blow sideways, and the abdomen, where so many vital organs are massed, is left with no better protection than suffices for walking exercise. The waterproof trousers, which come right up to the waist in front, are windproof, and are much better wear than the separate leggings, though they are usually deficient in ventilation. A cholera belt is probably a wise provision, but has the disadvantage of remaining in position till the rider changes his clothes. A correspondent advises a square of glazed leather, safety-pinned to the lower part of the waistcoat, to hang down like an episcopal or masonic apron. At any rate, some protection is a sheer necessity in winter work and also at night.

Marking System in the Scottish Trials.

The Edinburgh M.C.C. introduced a novel marking system in their recent Six Days Trial. When a rider lost his *first* time or reliability marks, *i.e.*, by being late or early at a control, he was mulcted in a double penalty; primarily, he lost one mark for every minute by which he was late or early; secondly, he lost an Irishman's bonus of fifty extra marks because it was his first offence! The absurdity of the system is obvious from my phraseology. It is, however, easy to see how the organising committee fell into such a ridiculous pitfall. They had determined—quite legitimately and wisely—that nobody should receive a gold medal if he lost any time (*i.e.*, reliability) marks at all. Furthermore, they had resolved to take climbing power and finishing condition into account, so they framed another rule, which fixed a minimum marks total as qualifying for a gold medal; and to make this rule workable, they had to employ some system of exaggerating any small failure of reliability. Hence the Irishman's bonus for the first offence.



THE BIRMINGHAM M.C.C. SPEED TRIALS.

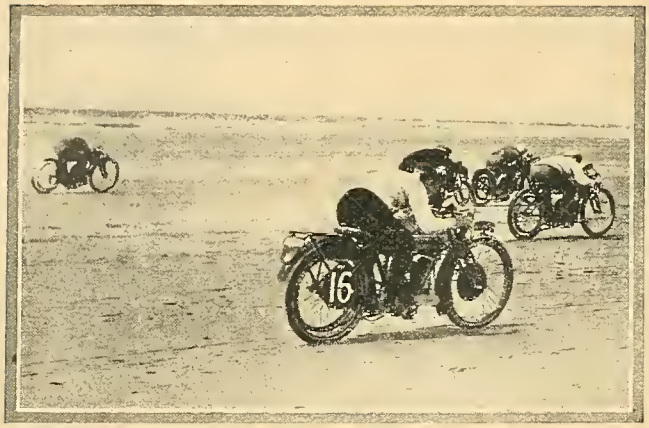
J. J. Woodgate starting in Class II. on a new two-stroke machine of his own make, known as the V.T.S.

Stupidity and Bad Luck.

I think their plan is mistaken, because Trials exist to give the public information; and, as any veteran journalist knows, the public are incapable of assimilating information unless it is given in a very lucid form indeed. The public will never realise that some unfortunate competitor who lost fifty-one marks in the Scottish Trials was guilty of no worse crime than being a minute early at a control, owing possibly to a discrepancy between watches, which the judges may refuse to admit on appeal. (As every experienced competition rider is aware, protests and appeals receive rather short shrift in big trials, because all the riders are out to do the best they can for the reputations of their machines and themselves, and judges who turn a tender ear to one protest are immediately bombarded with a score of frivolous appeals.)

Harsh Working of the Rule.

However, let us cite a few instances which *The Motor Cycle* representative noted with some commiseration. Haddock, I hear, got shut in behind a car on a short control where the road was so narrow he could not pass for several miles. The cycle cars were running to a more liberal time margin than the motor cycles; he was 1m. late at the next check, and lost 51 marks. Selby, through a discrepancy of watches, checked in a minute early at one control, and lost 51 marks. Davenport reached the finish of the trial half an hour ahead of time, and spent the interval prior to checking in in cleaning his machine (just as all the other riders employed similar intervals). During his labours his watch stopped; as a consequence he checked in 5m. late, and lost 55 marks. Whether these men (and the manufacturers who make their machines) should suffer any loss of awards or reputations for such trivial reasons may be an open question. The A.C.U. used to ignore time mistakes up to three minutes per check; but, *if a trial exists to provide the public with lucid, accurate, and reliable information about the different types of motor bicycle*, it is obviously absurd that a machine should lose more than 25% of the total marks for the week because some trumpery little accident robs it of one, two, or even five minutes at one out of thirty or forty checks.



A NATURAL SPEED TRACK.

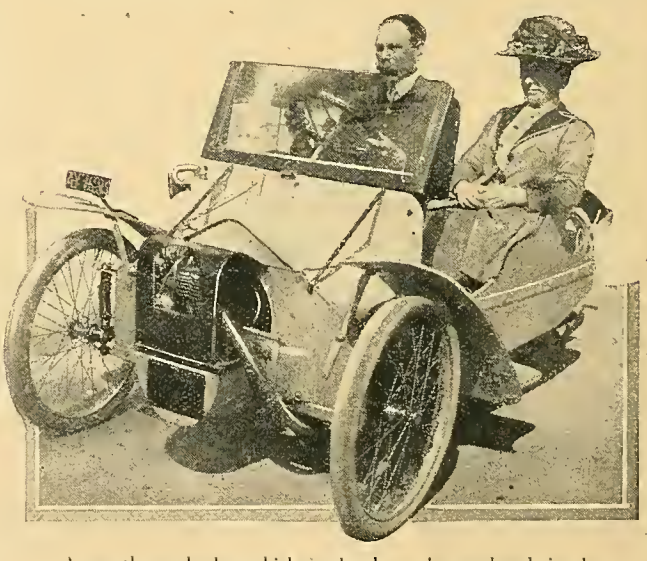
Racing on the sands at popular seaside resorts has lately been favoured.

Automatic Carburation.

I return to an old subject in a less sanguine spirit than usual. A cycle car which I have been driving lately is ornamented with a carburetter possessed of a deservedly high reputation amongst the automatic one-lever variety. When I first handled it I was fresh from rather a sensitive sample of the two-lever type, and it positively enchanted me. The engine would tick over almost inaudibly at an absurdly low number of revolutions, and when I opened the single lever it accelerated without choking into a stupendous blur of sound. The paces ranged from 5 to 50 m.p.h. on the flat, and the consumption of 30-35 miles per gallon at 27 m.p.h. averages was not disgraceful for a vehicle which is a bit of a hypocrite under a 7 cwt. limitation. But the more I learn of this vehicle the more I regard its carburetter with awe. There is an insignificant air adjustment on the carburetter; of course, it has no separate lever—otherwise the contraption would obviously cease to be "automatic." But if I open this wee air lever the merest thought, things begin to happen. For one thing the engine will no longer run slowly; I do not say that it creates as much pother and fuss on minimum throttle as a motor cycle V twin engine would, but its running becomes neither silent nor slow. Moreover, the engine cannot be started with this plate open to one-fifth of its maximum orifice. Furthermore, the acceleration is enormously improved by the extra air. Finally, the consumption improves at least 10%. These facts show that users of this alleged "automatic" vaporiser pay a very high price indeed for their automaticity. They sacrifice several very important advantages in the sole interests of that stationary tick-tick-tick; and you can only combine all the merits of the carburetter by opening the bonnet and moving the plate whenever the engine is started up, and re-opening the bonnet to close the plate when the engine is stopped.

"Whew!——"

Alternative cross-heading—"the Ford outforded!" My latest American mail contains particulars of a new cycle car de luxe designed by C. F. Herreshoff, better known "this side" in connection with racing yachts. The specification includes a four-cylinder water-cooled engine, dimensioned at 65 mm. × 82 mm., hand lever starter from the driving seat, three-speed gear box, propeller-shaft drive with two universal joints, 3in. tyres, worm and sector steering, cantilever springing, hood, wind screen, electric hooter, electric lighting (head lights provided with "dimmers," too!), and a speed range of 2-50 m.p.h. The price is 500 dollars, about £100; or half what a first-class British maker has to charge for a less luxurious specification. Again, I ejaculate "Whew!" No doubt the price contrast is partially explained by the workmanship, but beyond question some of the American manufacturers are tackling the cycle car and light car problem on the economical lines which giant capitals and huge outputs render possible. The same journal contains particulars of no fewer than fifty-five American cycle cars (I am specially smitten with the "Gadabout," the "Scout," and the "Little Princess," so far as nomenclature is concerned, though the "Dudly Bug" would draw my cheque every time). Sixteen of the machines have water-cooling, fifteen have shaft drive, and only three of the fifty-five cost £100 or over. I wonder muchly how many of the fifty-five have any actual commercial existence, and I wonder also how many of the fifty-two listed at less than £100 will make good. The cheapest is the 10 h.p. twin Real, with four friction speeds, tandem seating, and final V-belt drive at £58. The Editor opines that Great Britain will produce 30,000 cycle cars in 1914—another "Whew!" please, Mr. Printer. The weirdest egg in the basket is the Biautogo, described and illustrated in *The Motor Cycle* for August 21st, 1913. This is a genuine lightweight motor bicycle, of 35 h.p., with 935 × 135 mm. tyres, scaling 3,000 lb. and accommodating three persons. As the jump mount would try anybody but an athlete, two pairs of small pneumatically-tyred castors are provided astern, and a compressed air engine starter is included. Our editorial staff are unanimous in saying that the office boy will take the press trial when the Biautogo invasion comes. And this nightmare of a motor bicycle is the invention of a brother pressman—at which I blush for my profession!



A new three-wheeler which is shortly to be marketed is the A.Y which is fitted with 5-6 h.p. Stag engine, friction drive, six speeds forward and reverse. The engine can be started up from the seat.

STY HEAD PASS

The First Crossing By Motor Cycle

By GEORGE D. ABRAHAM.

Author of "Motor Ways in Lakeland," "The Complete Mountaineer," "Mountain Adventures at Home and Abroad," etc., etc.

A WAY into the heart of the mountains we sped. Grey crags loomed overhead through rolling mist-masses borne on a wind from the west, the wet quarter in Lakeland. It augured ill for the settling of the oft-disputed point, could a motor cycle cross the Sty? During the ascents of Skiddaw and Helvellyn last year, the writer's promise of something still more "spicy" had scarcely been appreciated by the motor mountaineers. How could the Sty, only 1,600 feet high, be harder than Helvellyn? Now there is no disputing the facts. The successful rider, again Mr. W. B. Little, bears ample marks to prove the hardness of the rocks on the Sty, and he also agrees that it is much the most difficult feat he has yet achieved. This is saying a good deal.

The Situation of the Sty Pass.

Few motorists who come to Lakeland fail to notice the back of a road crossing the main mountain mass joining up the east and west side of the beautiful district. The Sty Head Pass, which connects Borrowdale and Derwentwater with Wastdale, and thus seaward to Seascale, is the obvious route, and doubtless in years to come the grandest scenic round in all Britain will become an established fact. Some, and amongst them is the writer, will be sorry to see this special abode of mountain solitude disturbed. At present only the roughest of rugged rocky tracks serves for the crossing. All who have been misled by the maps into making the attempt on wheels will agree with this description.

"Ye may ga ower in a wheelbarrow, but nivver on a motor bike," was the encouraging prophecy we received from the farm folks at Seathwaite, where the road ended. The little village, famous for its collie dogs and record British rainfall, was surely never so stirred. At the outset the rain fell, the dogs fought, and cycles, cars, and sidecars whirred and barked in every direction. In due course Little extricated himself from the village and set his face up towards the misty heights. The first mile was, comparatively speaking, easy going. What mattered a sudden splash through a stony stream, continuous boulder jumping, or sudden bog sliding? All was fairly level running. Yet even this discovered the weakness of the chains which had been fixed round the driving wheel; worse still, the rough riding had restarted an ill-repaired leak in the petrol tank. The chains had to be left behind, like a "lot of other little things," such as silencer, footrests, starting handle, detachable bands, and numerous other details which proved unnecessary. Unfortunately a trail of leaking petrol was also left all the way up the pass, and this loss almost proved our undoing so far as success was concerned.

On the rough zigzags near the top of Sty Head Pass.

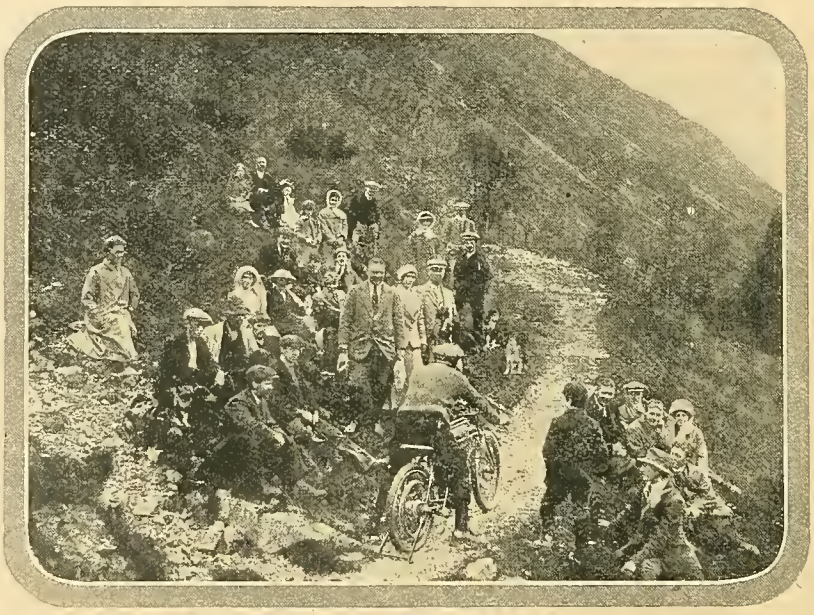
A Freak Climb with a Vengeance.

At Stockley Bridge, the quaint old reminder of how easily the Romans crossed here ages ago, the real climbing began. The track, a mere scratch in the mountain front, zigzagged up to the sky line. Soon Little was stirring the echoes sonorously, as, exhaust free, he dashed up to the rocks above the first grassy corners. Though astride it he was seldom on the saddle—one had a picture of him mostly bouncing in mid-air, with legs wildly waving.

Sty Head Pass.—

In places the path, shaped like a deep groove, ran upwards with turf and boulder-bulging walls on either side. In the depths of the narrow way, which was so constricted that footrests had to be removed, Little wriggled his way up skilfully but painfully. There was scarcely room for his feet. It was here that the hardness of Sty Head Pass was felt. At the next halting-place it was noticed that contact with a jutting boulder had made Little limp badly, but those were limper who had attempted to race alongside the rider up the rugged gradient. It was warm work.

About two-thirds of the way up a crowd was gathered, and wondered whether the wheels would grip the rocks. Some of us stood by to hold the rider should gravitation hit him too hard and threaten a backward fall over the edge. For here was an edge over which the prospect, in cool blood, was none too pleasing. At almost too high speed the Premier was set at its task. The loose zigzags were passed with loose stones flung far and wide, and straightway the front wheel rose at the foot of the "staircase." The steepness of the place flung the spinning wheel into mid-air, and for an instant it seemed that the heavy machine would topple backwards on the rider and carry him over the edge. There were audible signs of fright from the spectators. However, it was the work of an instant to clutch the machine whilst it stood on end, and then nothing would serve but another attempt. At slower speed this proved successful, and, amidst more applause than has ever before stirred the birds that haunt the wild crags overhead, machine and man dashed up to the easier zigzags.



A halt on the way up Sty Head Pass—a typical group of cheerful watchers.

Steel-studded Tyres Discarded.

One steep, rocky slab had yet to be scaled, and here the steel-studded band of the driving wheel was discarded; in fact, the ordinary grooved rubber tyre would doubtless have been better also on the lower difficulties. However, the rounded rocks were climbed on a second attempt, and soon the long grassy slopes occupied all attention. The driving wheel spun helplessly in the damp stretches. Some slithering acrobatics finally showed that the rough and stony path was to be preferred, and this was now followed more carefully.

Instead of crossing the footbridge, a notable landmark higher up the pass, Little preferred making a way through the river, and he was disagreeably surprised at the depth of the water.

Where Motor Cycles cannot go.

The easier upper section of the climb now only remained, but the soap with which the leaking petrol tank had been "doctored" had mostly been lost, and the precious spirit made its presence felt as well as smelt. Thus there was slightly erratic running to the summit. Sty Head Tarn loomed through the mist on the left like a great white sheet, and there was a passing glimpse through skurrying clouds of Scawfell Pike, seemingly straight overhead. In thick mist by the cairn on the highest point of the pass we talked over the possibility of its ascent by motor cycle. It should be understood distinctly that this mountain—England's highest—cannot be reached by a motor cyclist riding his machine. Lately an attempt ended before the real difficulties had begun, and at a place quite three miles from the actual top of Scawfell Pike. In any case, a machine, which reached a much higher point than this would have to be carried most of the last mile on the great boulders over and upon which the ordinary pedestrian has to jump and scramble in gaining the final summit. To ride here would be impossible.

The End of the Day's Work.

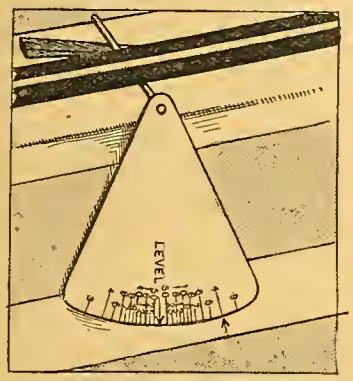
Having ended this excursion the party separated, Little and several of us continuing over the pass on the Wastdale side and the others returning to Borrowdale. The long, steep descent was not achieved without exciting moments, and there were many slippery collapses on the loose and stony surface of the apology for a track.

But soon below the gloom of the damp mist the clear air was reached and the valley revealed a thousand feet below, with the little white-washed inn gleaming like a bright omen in the greyness of the depths. Wastwater sparkled beyond in bright sunshine, and then the sea and its golden sands afar off. An hour later the normal road was under wheel once more. The tiring fifty mile ride round the mountains to Keswick was cheered by the day's success, and thoughts that the same place was only fourteen miles away from Wastdale over Sty Head Pass roused small desire to make the return journey by the same route—at least not that day. One such excursion is sufficient for a day, if not for a year.

AMONG THE ACCESSORIES.

The Dunhill Gradometer.

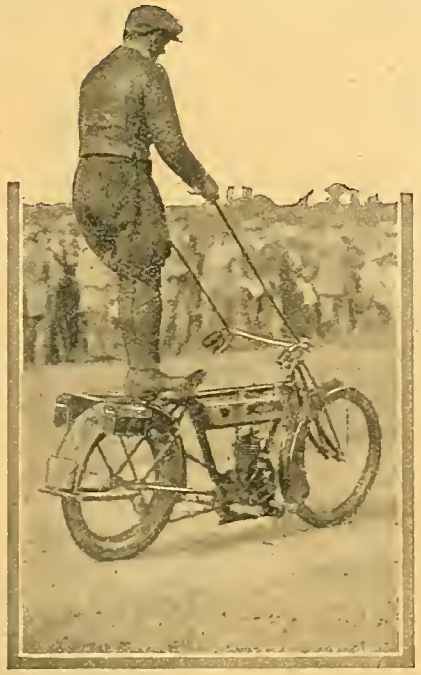
There is always much speculation and discussion amongst the spectators and competitors at a hill-climb over gradients. Moreover, the tendency is always to over-estimate, and a few actual readings on the various portions of a hill would create much surprise. Motor cyclists will



A simple form of gradometer marketed by Alfred Dunhill, Ltd.

therefore find that a little device like the Dunhill gradometer would prove itself to be of great use on many occasions. It simply consists of a scale plate and a pivot which is held in position by means of a wedge, as shown in the accompanying illustration. Before readings can be taken, the machine must be placed on a fairly level piece of ground. A mark should then be made on the tank, corresponding to the level position shown on the scale plate. This should be done twice, with the machine pointing in opposite directions; then, if the ground is not quite level, two marks will be obtained, and a point halfway between them will give the true level mark. If the machine be then placed on the hill, the gradient can be read off from the scale provided.

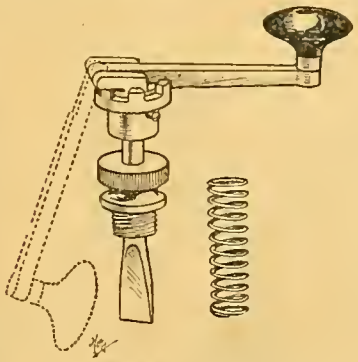
Miss Glostel, of Limerick, who is the only lady motor cyclist in her district. Her machine is a 3½ h.p. Rover.



Intermingled with the events at the Birmingham M.C.C. speed trials on the 27th ult. was a display of trick riding by Albert Milner on a Levis.

A Valve Grinder.

A valve grinding tool has lately been brought out by Messrs. Wood and Lamplugh, Tyseley, Birmingham. The device is intended to be screwed into the exhaust valve cap, and is sold complete with spring, so that when the pressure on the tool is released the valve can rise from its seating. It will be noticed that the top of the spindle holding the screwdriver is castellated, so that the position

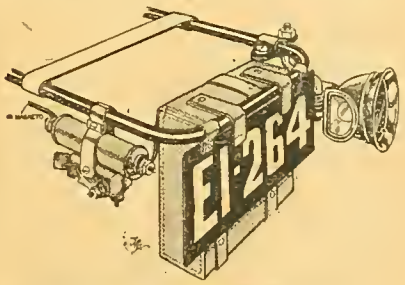


The Woodlam valve grinder

of the handle may be altered relatively to the valve in case the former is found to be in an inconvenient position. When it is required to grind in the inlet valve the exhaust valve cap is removed and placed into the inlet orifice. It will be noticed that the screwdriver is held rigidly and true over the centre of the valve, and since it fits into a sparking plug hole will fit any make of machine. When out of use the handle is placed in the position indicated by the dotted lines.

Lighting from the Magneto.

An addition to the many useful accessories placed on the market for motor cyclists by A. H. Hunt, 115, Cannon Street, E.C., is the Netolite rear lighting device, a system for illuminating the back number plate and showing a red rear light worked by the magneto. The accompanying sketch gives an idea of the Netolite. On the extreme right is the rear lamp; behind the number plate is a leather case for a "flash" Hellesen dry battery. On the left of the picture is an auxiliary coil, which acts as a damping device and ensures a steady current to the lamp, while below this is a two-way switch, allowing the lamp to be switched on when the machine is



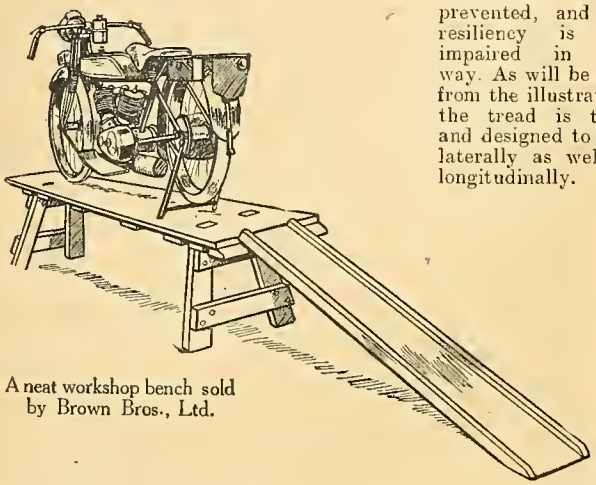
The Etolite rear lighting installation.

stationary. The battery alone supplies enough current for lighting the lamp for many hours. The light derived from the magneto is obtained direct from the low tension terminal on the contact breaker, to which the switch wire is usually fitted, and though it is rather unsteady at slow speeds, it is perfectly steady over about fifteen miles an hour. To have a two-way switch, enabling the lamp to be lighted when the machine is stationary, is an enormous boon, as then the law is easily complied with

Captain Okuizumi, a veteran of the Russo-Japanese war, with his 2¾ h.p. three-speed Humber. He is the author of a techincal book in Japanese on motor cycling.

The Challenge Motor Cycle Stand.

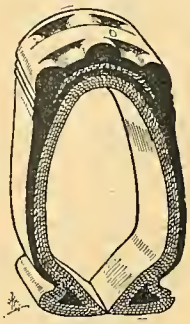
All motor cyclists know that the cleaning or adjustment of a motor bicycle is rather a back-aching affair, as the owner has to be continually stooping while adjusting or repairing his machine. To get over this difficulty an inventor has brought out the Challenge motor cycle stand, which is handled by Messrs. Brown Brothers, Ltd., Newman Street, W., and sold at a very moderate figure. The neat manner in which it is constructed is shown in the accompanying illustration. A ramp is provided so that the machine may be pushed up on to the platform. The platform itself is fitted with detachable legs, so that the whole may be dismantled in a few seconds and stowed away so as to take up very little room.



A neat workshop bench sold by Brown Bros., Ltd.

A New Wood-Milne Cover.

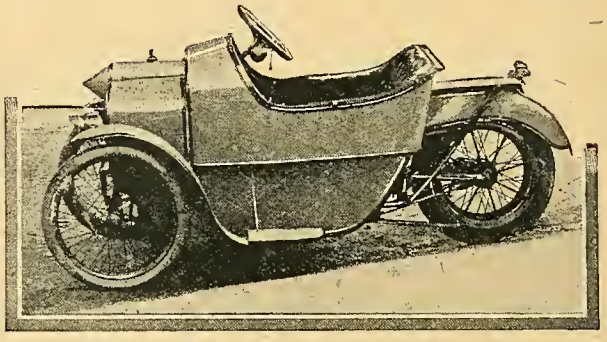
A new cover has been put on the market by the Wood-Milne Co which presents many unusual features. For instance, the shape when viewed in transverse section is that of a pear. Many advantages are claimed from this formation, for when inflated the tread is in compression, so that in the event of its being cut the tendency is for the cut to close and not to open. Furthermore, ingress of grit and water is also prevented, and the resiliency is not impaired in any way. As will be seen from the illustration, the tread is thick and designed to grip laterally as well as longitudinally.



Section of the new Wood-Milne cover.

A NEW THREE-WHEELED CYCLE CAR.

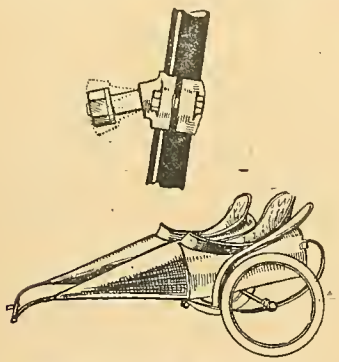
A new type of cycle car known as the Thurlow Three-wheeler has recently been built by G. H. Thurlow, Kingston Road, Wimbledon, S.W. It is shortly being placed on the market at the very moderate price of 75 guineas. It is fitted with an air-cooled 8 h.p. J.A.P. engine driving the back wheel by a 12ft. 1½in. belt through a Sturmey-Archer three-speed hub gear. As will be seen from the illustration, the little machine has a very compact appearance. Petrol consumption is said to be on a most economical seale, and the belt, on account of its great length, can be run very slack without any fear of slipping. The little machine is capable of forty-five miles an hour on the level, and will climb practically any hill. The Thurlow appears to be an admirable example of the simple type of cycle car.



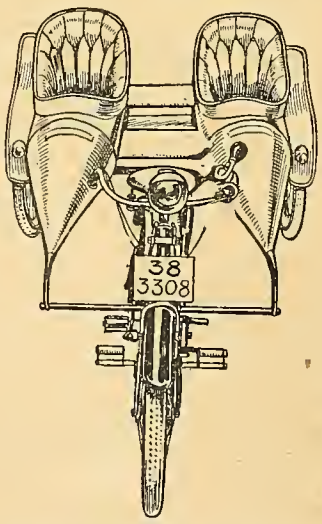
Side view of the Thurlow cycle car which is fitted with three-speed hub gear and belt drive.

The Sulky Trailer.

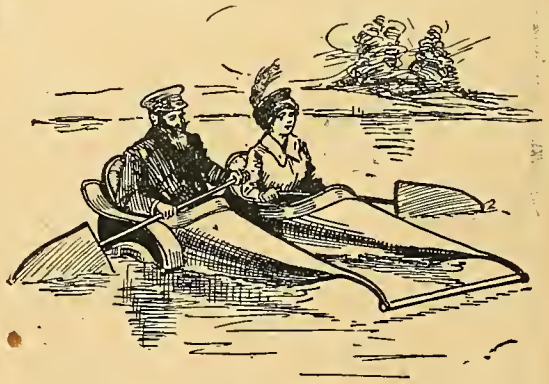
AN Italian inventor, S. Baratelli, of Milan, has produced a curious double trailer, which appears very like a double sidecar. The illustrations show clearly how the two trailers are flexibly coupled up by two parallel wooden luggage grids and sprung by two C springs carried on a two-wheeled axle, and are attached to the head of a motor cycle by means of a universal joint. This allows considerable movement to the trailers. The inventor states that the combination can take corners without the slightest fear of upsetting either when fully loaded, one only occupied or both empty, and that every ounce of motor power is used for hauling the trailers, and practically no strain is imposed on the motor cycle frame. Another interesting feature of these trailers is that they can be used as a canoe if removed from the chassis, as they float admirably. The invention is known as the Sulky trailer, and weighs about 150 lb.



Side view of the Sulky trailer, also showing method of attachment.



Front view, showing the trailer in position on the back of a motor cycle.



A use to which the Sulky trailer may be put.

The Care of Chain Transmission.

Some Hints for the Proper Treatment of Chains and Bearings.

THE average motor cyclist is one of the hardest persons to satisfy in the world. Before he has had his machine a few weeks he sometimes tries to get more power and speed, but his methods for satisfying his cravings are peculiar, and are nearly always in one direction.

He starts with perfect confidence to re-design the carburetter that has taken years in perfecting, but never gives a moment's thought to his transmission, the alignment of his sprockets, or the adjustment of the wheel bearings. He alters the magneto timing, and interferes with the engine compression, but he gives not a thought to cleaning the chains and gears. He strives in vain, by operations he does not sufficiently understand, to increase his engine power, but at the same time he is continually wasting the power he already possesses by neglecting parts that are easily within his ability and comprehension.

The pedal cyclist regularly and carefully examines his chain and wheel bearings, because he knows that any loss of speed has to be made up by his own muscular exertions. With a motor cycle, however, the engine does all the work, and very little attention is, therefore, concentrated on the transmission system.

Thoroughness the Keynote of Success.

In the regular overhaul of the motor cycle, every part of the transmission system should receive special and individual attention, including the chains, sprockets, gear box, and wheel bearings. The chain, of course, should come in for first consideration, because upon it falls the severest work. It should be cleaned with a stiff brush on top, bottom, and sides. A round brush should be procured to clean between the rollers. When the chains are being cleaned, the teeth on the sprockets should also be cleaned of the particles of grit that collect between them, because they prevent the chain from seating properly.

The chain should frequently be removed for a thorough cleaning. The dust and grit that have worked into the roller joints must be removed. To do this, place the chain in an oil tin and fill up with paraffin. Screw the cap on tightly and shake well. This process will work the links about, and it is surprising how much dirt will be extracted. After this washing, put the chain into a bath of tallow and graphite. Stir the chain round when heating the mixture in order to work it well into the joints. The chain should then be hung up, and the tallow wiped off while warm.

Renew Sprockets as well as Chains.

The most trifling wear in each rivet will make a considerable difference when the total number of rivets in the chain are added together. The result of this lengthening therefore increases the pitch of the chain which prevents the rollers from assuming their proper position on the sprockets, the chain having a tendency to ride on the teeth.

When a neglected chain has to be replaced, it will be found that the sprockets are so badly worn that the teeth will not mesh properly with the new chain. This, therefore, means buying new sprockets.

Precautions should be taken that the gear box is in perfect alignment, otherwise the sides of the teeth on the sprockets, and the inner faces of the chain plates, will be worn. When dismantling the chain to be cleaned, examine it for any signs of wear in these directions. If it is found to be the case, it must be remedied immediately if the best results are to be obtained.

Correct Chain Tension Most Important.

The adjustment of the chain is a feature that greatly affects its longevity. The tension of the long chain should be such that it can be pressed just $\frac{3}{4}$ in. at its mid-width and the front chain about $\frac{1}{4}$ in. If there is too much slackness the high speed at which the chain runs will tend to throw it from the sprockets, or make it ride on the teeth, which, of course, is simply courting a smashed chain.

A slipping clutch is a great source of loss of power, and should be remedied immediately. If the clutch is released before the lever has been moved its correct distance, it is evident that the clutch is not gripping properly when thrown in.

Lubrication of the clutch should be done regularly. That golden rule, "a little and often," applies very forcibly here. A good grade of clutch oil—sold by the makers expressly for this purpose—should be used, and not heavy cylinder oil. The film of oil forms a cushion between the plates of the metal-to-metal clutch, and permits them to come into engagement smoothly and gradually. If a heavy cylinder oil is used, it will tend to clog up the clutch discs, and prevent them from engaging properly. Plate clutches should be regularly swilled out with petrol or paraffin, and then re-charged with fresh oil.

A Word Concerning Lubrication.

All wheel bearings, and gear box bearings, should be regularly lubricated. It is better to pack the bearings with thick grease instead of ordinary thin oil. The thick grease, which tends gradually to work out of the bearings, will also keep out any grit or water that would otherwise find its way into the cones and ball races. When lubricating these bearings, it is advisable to examine them and see if any re-adjustment is needed. There is always a liability of them working loose, and they should be adjusted so that only the slightest amount of play is perceptible.

Generally it is safe to say that the average rider will derive more benefit from attention to the transmission of the machine than any alteration that he can make to the engine—economical, reliable, and smooth running being the result obtained. G.S.P.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and all that are notified to us are inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

In the Eastern Counties.

I propose spending a week of my holidays at Lowestoft this year, and would be very grateful if you could give me half-a-dozen places of interest worth visiting in that vicinity, each journey to be about sixty miles there and back.—A.G.W.

The question you ask us is really rather outside our province. Your best plan would be to apply to the Touring Department of the Auto Cycle Union (which you can join if not already a member), and they will send you free of charge a book of that part of England giving the places of interest. Lowestoft is quite close to the Broads, where you can amuse yourself immensely. There are numerous fine old churches at places like Loddon, etc., and the country round is most interesting.

A Collision with a Horse.

I should be glad of your opinion respecting an accident which has occurred to me. I was riding a motor cycle on a main road on my right side, and approaching me was a horse and trap also on its right side. Just before I got to same the horse evidently took fright (it was a young horse being broken in) and dashed right across the road in front of me, causing me to smash into the trap. I sustained a broken collar bone and other smaller injuries, and, of course, the motor cycle was very badly damaged. Under the circumstances, can I claim damages? I was given no warning from the driver of the horse.—G.H.

We have obtained our legal adviser's opinion on your case, which is as follows: "The question of liability is determined by ascertaining which, if either, party was guilty of negligence, and upon the facts before me it is practically impossible to do this. It has been laid down that the mere trying of horses whose temper is unknown to the rider in a frequented thoroughfare, whether in harness or otherwise, is not by itself evidence of negligence, nor does the mere bolting of a horse constitute conclusive evidence of negligence on the part of the person in charge of it. Although there are decisions to this effect, the question of negligence being always one of fact and not of law, it may very well be that your correspondent would have a right of action against the driver of the carriage, as he may be able to explain the bolting of the horse and show how it was caused (*e.g.*, by the inexperience of the driver or by his attempting to pull up when driving at an improper pace)."

The Noise of a Two-stroke Engine.

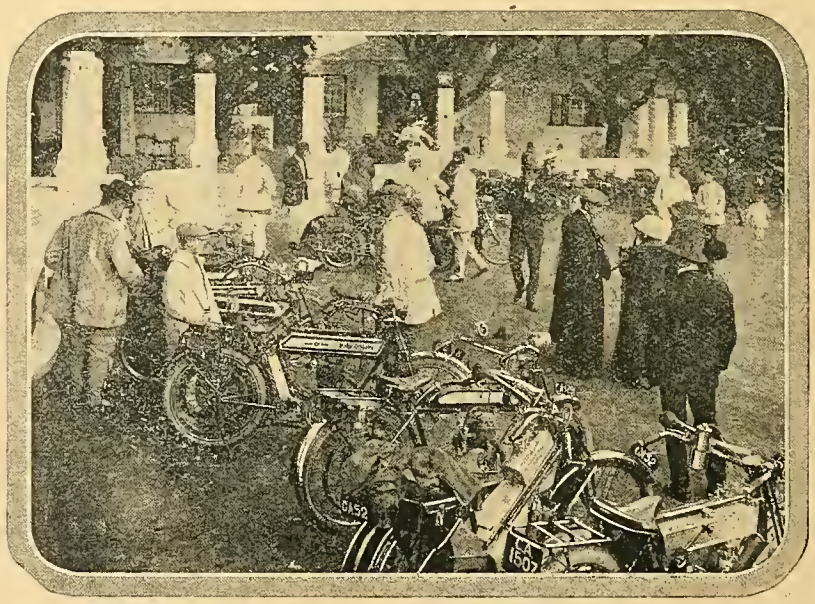
I have noticed a peculiarity about many small two-stroke machines on the market. This is the curious noise many of them emit. It does not appear to be exhaust noise, nor does it seem to be an unmechanical sound, and the strangest part of the matter is that one can often hear these machines approaching more clearly than when they have gone by, despite the exhaust being naturally directed backwards. The sound is a curious drumming sort of noise. Can you explain it at all? —ENQUIRER.

What you describe is probably simply due to the increased number of explosions in a two-stroke over a four-stroke in a given period. These little engines, if not actually running at a greater number of r.p.m. than four-strokes, are much "busier," and are inevitably bound to buzz a little. The noise being more apparent when the machine is approaching than when departing is a thing we do not pretend to explain, but we have noticed it ourselves in one or two cases. The same phenomenon is observable with the Gnome engine in aeroplanes.

North London to Barmouth.

I am shortly going to spend a holiday at Barmouth, and I should be obliged if you will let me know the best way to get there from N. London, and how to return by a different route? What are the most interesting places in that district? My machine is an 8 h.p. Bat two-speed and sidecar, so I do not mind hills.—G.J.M.

We should advise you to go by Barnet, St. Albans, Dunstable, Fenny Stratford, Stony Stratford, Towcester, Weedon, Daventry, along Watling Street through Atherstone to Shrewsbury, then through Llangollen, Bala, Dolgelly, to Barmouth. You could return by Towyn, Aberdovey, Machynlleth, Newtown, Bishops Castle, Ludlow, Tenbury, Evesham, Moreton-in-the-Marsh, Chipping Norton, Oxford, Tetsworth, High Wycombe, Beaconsfield, to London. If you wish for further information regarding the interesting places in the district, we should advise you to apply to the touring department of the Auto Cycle Union, 83, Pall Mall, S.W., or the Automobile Association and Motor Union, Fanum House, Whitcombe Street, W., both of whom make a speciality of planning out tours for members.



SCENE AT A RALLY ARRANGED BY THE CAPE PENINSULA M.C.C.

First arrivals in the grounds of the Royal Hotel, Houl Bay. In the foreground will be seen P. and M., Douglas, Humber, Rudge, Premier, F.N., and Matchless machines.

A Taxation Query.

Early this year I owned a motor cycle. Now I have sold it and bought a cycle car. I paid the twenty shilling revenue tax on my motor cycle, and I wish to know if I need pay anything more now than the difference between the motor cycle tax and the cycle car tax, namely, a matter of twenty-two shillings.—A.M.C.

No, you need only pay the difference. The twenty shilling tax you have already paid is valid for twelve months, and if you have disposed of your motor cycle this sum will be carried forward to the credit of your cycle car tax. Of course, if you have had both in use at the same time, even for a single day, you would be liable for the tax on each machine.

Carburetter Dries Up.

I have a 1911 3½ h.p. motor cycle, and lately I have experienced carburetter troubles which I am unable to remedy. The machine travels well, as a rule, on the level, but when ascending hills petrol fails to reach the float chamber, with the result that the machine is brought to a gradual stop. When I flood the carburetter all is well again. I fitted a new needle, as the old one looked worn, cleaned carburetter and petrol pipe from the tank, with the result that I cannot now flood the carburetter at all, though the machine, if anything, seems to develop more power. I still experience, however, the same trouble on hills.—B.V.R.

Possibly the float chamber is fitted behind the vaporising chamber, so that when the machine is tipped up on a hill petrol does not reach the latter. Try setting the float chamber in the forward position, when the trouble will probably cease. If it does not, we should recommend you to write to the makers of the carburetter, who will doubtless be able to remedy the defect.

A Magneto Eccentricity.

A strange experience befell me the other day. I was running my motor cycle engine on the stand, and was varying the ignition lever. When fully retarded the engine, a 2¾ h.p. single-cylinder, immediately stopped firing, as though the current had been suddenly switched off. Thinking the mixture might be too weak to be fired by a retarded spark, I tried again with a stronger mixture, but the result was precisely similar. Since then a friend who owns a small four-cylinder car tells me he has had an exactly similar experience. Can you suggest a cause?—M.F.W.

Your experience is certainly peculiar and puzzling, and it is difficult to give a reason unless one can examine the particular machine; but we are inclined to think that in fully retarding the magneto you do not merely weaken the spark, but actually eliminate it altogether. Probably what happens is that there is oil and foreign matter spread about the contact breaker, and that a thorough clean with petrol will effect a cure. A dirty connection between the contact breaker cover and the spring securing it will cause the symptoms you describe.

Southward from Carlisle.

Would you be good enough to give me a route from Carlisle to Biggleswade, taking in Chester but avoiding Liverpool and other large industrial towns?—TOURIST.

The route we would suggest from Carlisle to Biggleswade, if you wish to avoid as much traffic as possible, is to proceed from Carlisle to Penrith and thence *via* Appleby, Brough, Barnard Castle, Scotch Corner, and then down the Great North Road, but if you wish to take in Chester, proceed *via* Penrith, Kendal, Lancaster, Preston, Wigan, Warrington, Chester. This route brings you into traffic *via* Wigan, but otherwise is admirable. From Chester go *via* Nantwich, Stoke, Uttoxeter, Burton, Ashby-de-la-Zouch, Leicester, Market Harborough, Kettering, Higham Ferrers, Bedford, Biggleswade.

Durham County to North Wales.

Will you kindly give me the best road to follow from Bishop Auckland to Conway, North Wales? I am not nervous of hills.—H.N.H.

It is difficult to advise you which is the best way to take for the early part of your journey, as the route lies through populous manufacturing districts over, for the most part, rough roads. We think perhaps the best way would be to proceed as follows: Bishop Auckland, Richmond, Ripon, Harrogate, Leeds, Huddersfield, Stalybridge, Hyde, Stockport, Altrincham, Northwich, Chester, Mold, St. Asaph, Abergele, Colwyn Bay, Conway. The portion between Leeds and Stockport is bound to contain a good deal of unpleasant riding conditions, but from Stockport onwards the road is delightful. We advise you to take the route we give in Wales in preference to the coast road.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"C.F.M." (Letchworth). — Electric Indian and 6 h.p. Sunbeam. Reliability, wearing qualities, adaptability to solo use as well as sidecar, etc.

"P.C.H." (Eye).—Carden Monocar or Aviette. Petrol consumption, reliability, speed, wear of tyres, etc.

"J.B.J." (Ayrshire).—New Ryder 2½ h.p. two stroke and Wolf 2½ h.p. model A. Reliability, petrol consumption, hill-climbing, and speed.

"Ella" (Ireland).—Sunbeam 2¾ h.p. with wicker sidecar. General efficiency as passenger machine and m.p.g. Also Scott. Hill-climbing power, m.p.g., and use of benzole.

"C.A.M." (Kingstown).—3½ twin Motosacoche. Reliability, speed, hill-climbing with sidecar.

"G.W.K." (St. Ives).—Harcourt radiators fitted to a 3½ h.p. single-cylinder machine.

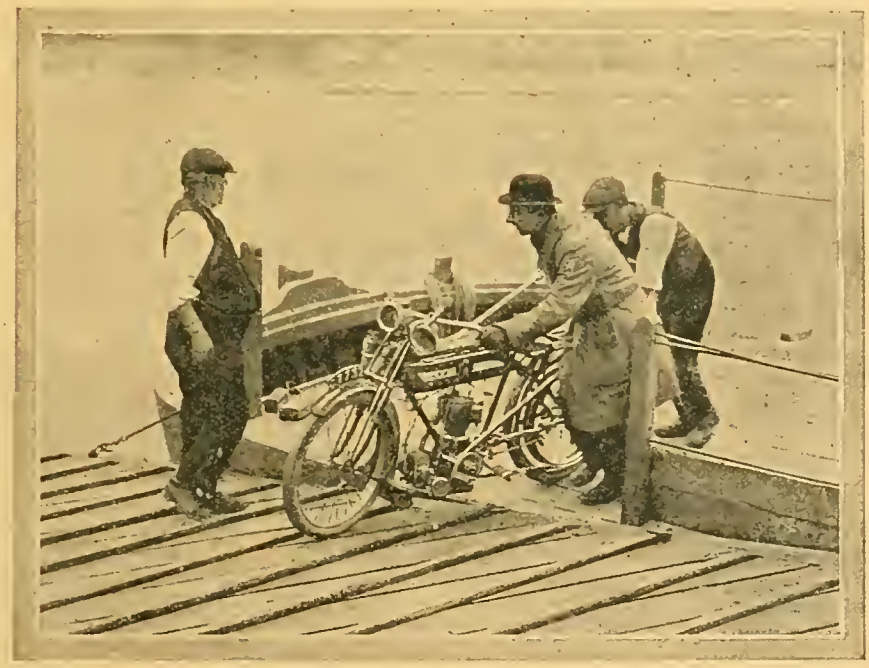
"A.B.C." (Herne Hill).—3 h.p. Royal Enfield. Reliability and speed. Also reliability of forced feed method of lubrication on this machine.

"T.M." (Pontycymmer).—Indian motor cycle. Reliability, etc.

"H.S." (Bristol).—Reliability, petrol consumption, etc., of small two-stroke machines.

"J.E.H." (Plaistow). — Wear and durability of Pedley, John Bull, and Dunlop belts.

"C.W.H.C." (Yeovil).—7 h.p. F.N. and sidecar and 7 h.p. Matchless, fitted with M.A.G. engine, and sidecar. Reliability, cost of upkeep, hill-climbing, speed, and comfort.



NEW MOTOR FERRY OVER THE OUSE.

The ferry at Boothferry, which connects the road between Goole and Howden, East Yorkshire, is now equipped with a ferry boat propelled by motor power. The photograph shows a B.S.A. rider disembarking.

Lessons of the Scottish Trials.

Good and Weak Points of Design indicated by this Severe Test.

THE Scottish Trials rank as the most formidable event of the year, for if the A.C.U. have learnt to include some terrific hills, English roads cannot furnish such an enormous total mileage of bad going, nor any gradients of such appalling *length* as Tornapress, Applecross, and the (unfortunately discarded) Rest and Be Thankful, each of which spells over six miles of continuous ascent. To put it in a nutshell, a rider who encounters trouble in Scotland is almost bound to lose his medal; the corners are so numerous, loose, and severe, and the road surfaces so atrocious, that it is next to impossible to recover lost time by "blinding."

Three very gratifying features emerge from the welter of incidents. The first is the marvellous scarcity of detail troubles. Lost nuts, stretched control wires, missing front brake shoes, broken spokes, and suchlike trifles may be trumpery annoyances alike in touring and competition, but they entail a certain amount of trouble and expense. This year they have been conspicuous by their absence. Neither in the quarter of an hour allotted for work on the machines before breakfast nor in the waits outside controls have we seen many riders occupied with these petty nuisances. To quote a signal example, it chanced that we very frequently had J. T. Wood's G.W.K. under observation at such moments. Wood is a particularly watchful and painstaking driver, and a 9 cwt. four-wheeler is peculiarly susceptible to such tiresome mischances as we have indicated: but he never seemed able to find a loose nut on his twelve month-old car.

Hills Beaten by Modern Engines.

The second and even more eminent feature of the trials has been the supreme mastery of the hills evinced by all the engines down to the little Clyno baby two-strokes. We say "engines" advisedly. A reference to the tabular results will show that there was a large percentage of stoppages on hills; but the vast majority were wholly ascribable to rank bad driving, and especially to clumsy steersmanship on hairpins. With the exception of certain overgeared machines we never once saw a single well-driven cycle or sidecar conk out because its engine was unequal to the gradient. Without a shadow of doubt many of the 500 c.c. solo mounts could have got round the course on middle gear, without recourse to the emergency ratio, if the drivers had cared to run greater risks at the hairpins. There were not many "baby" machines entered, but such as came devoured the hills with consummate ease. No spectator could have picked out the miniature engines by listening to their beat on the hills.

The third glory of the week was the splendid reliability of the variable gears. No course could give a gear more gruelling, and out of 123 starters less than half a dozen experienced gear troubles. Transmissions as a whole proved absolutely reliable.

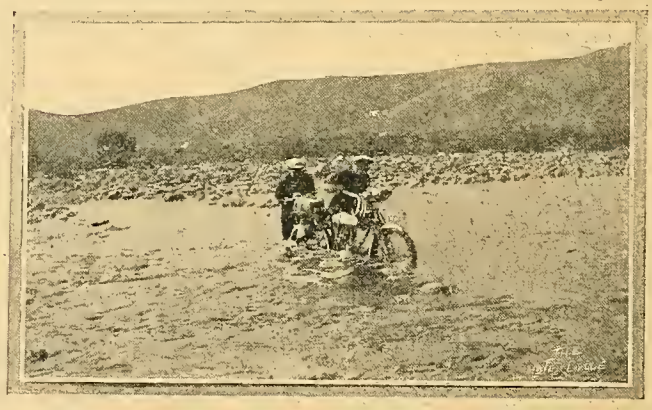
It is difficult to deal with the tyre question at all definitely, as there is no real clue to the number of stoppages experienced, but, trusting our own observation, we should estimate that far less time was lost from tyre troubles than in any previous Six Days. The commonest type of cover was the 26in. × 2⅜in. extra fort: and there is no doubt that this size will stand a lot of banging about.

Improvements Wanted in Sidecar Chassis.

Turning to the darker aspect of the week, the wholesale disablement of more than half the sidecar entry, due in most cases to serious structural fractures, gives one furiously to think. Sidecars of many leading makes were involved, and in most cases they were very tenderly nursed by expert drivers. Moreover, the case against them is blacker than the official results suggest; some of the survivors used spare couplings *en route*, etc. In some cases the design was grossly absurd; what are we to think, for instance, of a maker who fits a saddle pillar to axle stay curved like Cupid's bow, solely to clear his C springs and patent luggage grid? But this conclusion is inevitable. Existing sidecars are too weak, intrinsically, for really bad roads and very heavy country. The comparative success of the cycle cars, including the light high-powered Morgan three-wheeler, suggests that the side stresses inherent in sidecar design are the real culprits, and that no thickening of parts or recourse to special steels can ever wholly obviate the danger of similar collapses in work of this character.

The trials further sounded the knell of those variable gears which, by reason of design, are limited to high emergency ratios. Two or three makes are implicated.

The cycle cars did quite extraordinarily well considering the excessive severity of the route, and the G.W.K. and Humberette teams especially deserve the highest credit. One cannot help noticing that the cycle cars sustained no structural fractures, as a contrast in their favour against the sidecars.



Fording rivers is often necessary in the Colonies and Overseas Dominions, and the above photograph depicts a Wellington, New Zealand, rider crossing a drift. The fact that motor cycles can be put to this use and immediately restarted shows the perfection to which water-proof magnetos have now been brought. The Zenith machine shown is equipped with a Bosch magneto.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Thunderstorms.

Sir,—I have discovered something new this "thunderous" period which I have no recollection of seeing commented upon in any of the motoring papers, namely, that in a thunderstorm the safest place to shelter is on the machine itself, and, if a sidecar is attached, passenger and rider can cover themselves over with a gamp or sheet and defy the elements. We are *doubly* insulated against lightning with rubber tyres and the air they contain. We have had a lively week in the north, and water-splashes have been as numerous as "Letters to the Editor." My wife and I rode through one on the Otterburn Road on Sunday at 40 m.p.h., and were absolutely drenched from head to foot, the water "covering" the engine. A gunful of petrol and a wipe round with a rag reinstated the spark. "X 37."

Thames Ferries.

Sir,—Having recently taken my motor cycle from this town (Harwich) to Sheerness and back, it has occurred to me that there are many of your readers who may wish to travel from the Eastern counties to Kent, and who are unaware of an excellent short cut. There are two ferries—Tilbury to Gravesend, and Southend to Sheerness, Chatham, etc. The former is the only way for sidecars and cycle cars, and the road leading to it from Billericay is very second-rate and hard to find. As regards Southend for solo machines, the fact that one has to push the machine along the pier, almost a mile long, if not more, takes the gilt off the gingerbread. Otherwise, as will be seen from the map, an enormous saving is made, amounting, in my case, to over twenty miles.

Could not the A.C.U. approach the pier authorities? They could enforce a speed limit of 3 m.p.h. if necessary, and would profit by it, as they already have many porters there. R.N.

[We have submitted the contents of this letter to the A.C.U. Touring Department.—ED.]

Extra Radiators for Air-cooled Engines.

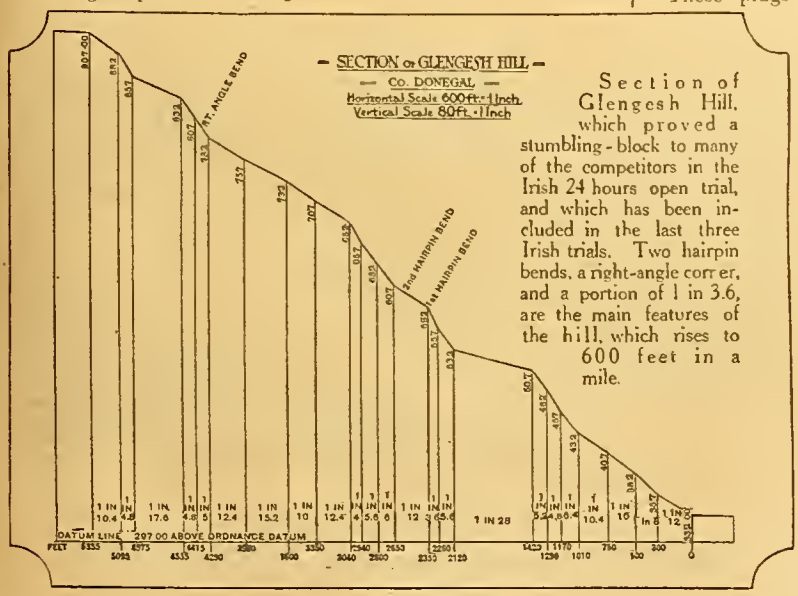
Sir,—In the spring of this year I bought a second-hand motor cycle with sidecar. The engine is a 3½ h.p. single fitted with N.S.U. two-speed gear, and the sidecar a rather heavy cane body with underslung chassis, a large space being provided under the seat in which I carry all my tools, repair outfits, spare tube, and belt, etc., these totalling roughly two stone weight. I always go out into the hilly parts of the Dublin mountains and through County Wicklow, which is known for terrible hills, bad roads, and splendid scenery. On my runs with a passenger I almost always was troubled with overheating when tackling long stiff climbs. On reading of the Harcourt radiators in *The Motor Cycle* I ordered a pair, which were easily fitted. The change they made to the running of the engine was simply extraordinary, the power seemed to have increased by a couple of horse power, while overheating disappeared at once; the oil consumption also decreased considerably. I can now, with ease, take two passengers where I previously found difficulty with one only. DUBLIN.

Best Width of Sparking Plug Gap.

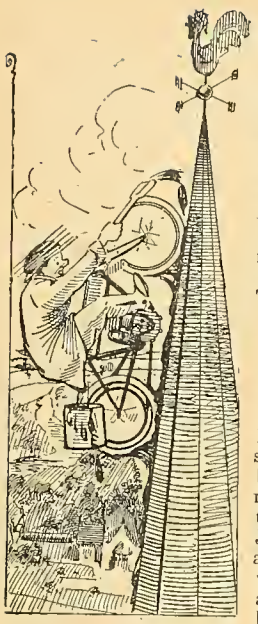
Sir,—We frequently have brought to our notice various ingenious designs of sparking plugs. The most usual device on which these designs are based is that of a variable gap sparking plug; the designs embracing both automatic and hand adjustable gaps. Now all these designs are based on a wrong impression of what is required, and we think that our own experience will be of some interest.

Several years ago we made a few sparking plugs with spark gaps that could be varied by hand by a knob on the outside. There were two positions in which the knob could be placed, one labelled "Starting" and the other "Running." By placing the knob in the "Starting" position the spark gap was set to $\frac{1}{10}$ in., and with the knob in the "Running" position the spark gap was $\frac{25}{1000}$ in. These plugs were given to five experienced motor cycle riders to test, and we expected to have reports of extremely easy starting with these plugs. The report in four cases was that the plugs were quite good, but no better than any good ordinary plug, while the fifth report was that the plug was very bad for starting. This was disappointing, but on investigation we were astonished to find that four of the testers had ignored the printing on the knobs, and always started up their engines in the position marked "Running," and when the engine was started, turned the knob to the "Starting" position. The fifth tester, who found the plug a bad starter, was the only one who used the plugs as we had intended. These results led to further investigations on this subject, and we then found that, contrary to what we had expected, *it was more important to have a large spark gap at starting than at any other time.*

The explanation, of course, is that difficulty in starting is nearly always due to a weak or patchy mixture, rather than to failure of the magneto to give a current of sufficient pressure to jump the gap. This proved that there was no advantage in an adjustable spark gap plug, as while the spark gap was required as big as possible for easy


— SECTION OF GLENGESH HILL —
— CO. DONEGAL —
Horizontal Scale 600 ft.=1 Inch.
Vertical Scale 80 ft.=1 Inch
1 IN 28
DATUM LINE 297.00 ABOVE ORDNANCE DATUM

Section of Glengesh Hill, which proved a stumbling-block to many of the competitors in the Irish 24 hours open trial, and which has been included in the last three Irish trials. Two hairpin bends, a right-angle corner, and a portion of 1 in 3.6, are the main features of the hill, which rises to 600 feet in a mile.



starting, there was no advantage that could be traced in altering the spark gap either way for running. However, an important result from these experiments was that we increased the setting of the spark gaps on the standard model Lodge plugs from $\frac{20}{1000}$in. to $\frac{25}{1000}$in., and at the present day we are setting the spark gaps to $\frac{30}{1000}$in., which, we find, gives the best results with the average modern engine and modern magneto.

THE LODGE SPARKING PLUG CO., LTD.
ALEC M. LODGE, Director.

The Freakiest Climb.

Sir,—I enclose drawing of my latest climbing feat. As you will see, it was an interesting exploit, but the radiators on my cap kept me cool and collected. Owing to the danger of skidding I used Johnnie Dewar's spirit to counteract the dryness, and glue to prevent sticking. I felt no ill effects afterwards except for a very severe headache next morning.

"SCOULLER."

British Machines in Germany.

Sir,—Reading your article about "British Motor Cycles in France," I beg to inform you that the number of English machines in Germany, specially in Munich, is visibly increasing. Here are more Douglases running than N.S.U.'s or Wanderers, which are doing their utmost to compete with English machines as regards appearance, construction, and reliability. The Douglas and Indian agent in Munich is doing very well indeed. If this man could get quick delivery he could sell a good many more. There is also a B.S.A. agency here which is doing fairly well already. Our motor cycle club, for instance, counts about thirty-five members. Most of them are riding English and American motor cycles (Douglases, Indians, P. and M.'s, Broughs, Scotts, and B.S.A.'s). The country around Munich is very hilly indeed, and all the machines are splendid hill-climbers. Reliability runs, hill-climbs, etc., are held nearly every month.

ROBERT CAP.

16/11, Knoebelstrasse and 35, Theatinerstrasse, Munich.

Advice to Overseas Riders.

Sir,—I often see enquiries in your paper as to the Binks carburetter on a Scott. I have been a Scott rider since 1910, but I never realised the perfection of this machine till I fitted a Binks three-jet carburetter this year. The Binks allows quite slow free engine running, no petrol injection, wonderful acceleration, no flooding, however long left with petrol tap open, very slow running on the pilot jet, and any amount of power when the other jets are opened up for fast work on hills. The extra air lever used as a brake is a splendid help on bad roads.

I also see letters from Colonial readers as to difficulty in getting accessories, etc., per return. A small deposit with a good firm will fetch most things per return mail. The Service Company, of High Holborn, have supplied me unfailingly to South Africa, Ireland, the Malay States, and Burmah with goods stocked in their catalogue and procured from other firms also.

H. G. KENNARD (COLONEL).

Magui, Burmah.

The Question of Gears.

Sir,—I absolutely fail to comprehend why the public are made to gasp over the so-called magnificent performances of the 2 h.p. motor cycle in climbing ultra-steep gradients. They go, they see, and they come away, saying what wonderful things these little machines are, and they ask why cannot an ordinary 3½ h.p., which has practically double the power, do the same? Then you endeavour to explain that the 3½ h.p. has double the power. It has also double the weight, and last but not least a gear which is many times higher. The matter of gear not engine power is the secret of success in climbing freak hills in trials. May I suggest that a trial be held in which the lowest gear is restricted to 5 to 1 for all the 500 c.c. solo, *pro rata* for the rest, and then we shall see what we shall see, and not till then will the engine which has the best qualities come out trumps, not only that, but it will bring out a certain amount of driving skill (if any) in some of the competitors.

E. R. STRANGER.

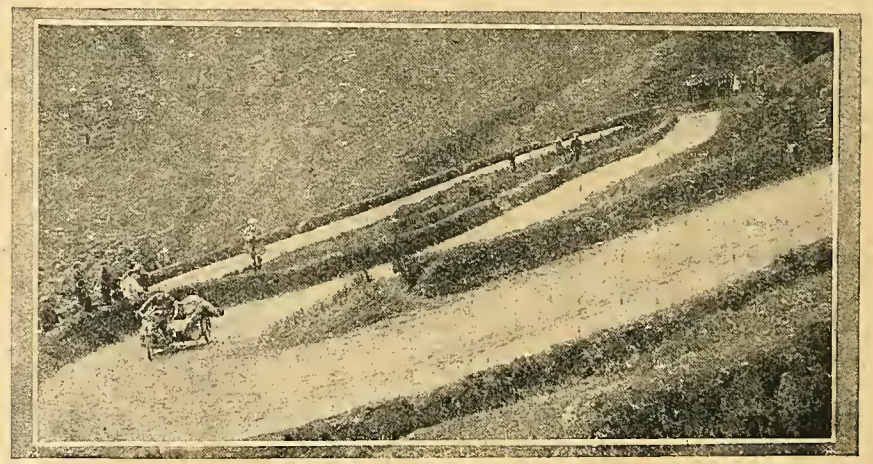
A Lightweight Tourist Trophy Race.

Sir,—As a lightweight enthusiast, and regular reader of *The Motor Cycle*, I should like to thank you for the interest you are taking in the lightweight movement. I observe that it is suggested the cubical capacity be limited to machines of 250 c.c. and under, but do you consider this fair? If such be the case the Villiers unit with a 269 c.c. will be excluded, and as this is such a popular little engine, it appears rather harsh FREDERICK C. CLEETON.

Sir,—In reference to the proposed T.T. race for lightweight motor cycles, I may say that I know a dozen men here in Geneva who would buy a motor cycle at once if they could find what they want. Like "Ixion's" correspondent referred to in "A Gap in the Market," they want a really, light, reliable machine for running out to the golf club or to business. Speed is not desired, but light weight, reliability, and low cost, and some mechanism that will give an absolutely free engine for coasting hills is essential. They are all old bicycle riders, and what we want is a machine weighing between 80 and 100 lb., costing not over £30 or £35, that one can jog about on at a 10 to 12 m.p.h. gait, and "get there and come back."

As to the T.T. race, by all means limit the weight and the price. It seems to me though that the T.T. race will only cater to the development of speed, and that is the very last thing wanted by the type of people who will eventually buy the machines. A six days 100 miles test over give-and-take roads at a 12 to 15 m.p.h. speed would be a much better test, the lightest and cheapest machine that finished with the least loss of marks to win the trophy.

Geneva, Switzerland. EDMUND CASEBY, M.D.



IRISH 24 HOURS RELIABILITY TRIAL.

R. E. Guest (7 h.p. Matchless sidecar) making a clean ascent of Glengesh Hill—which stopped many competitors. It is the most severe hill in Ireland, and a contour section with gradients is given on the previous page.

Bristol B. and M.C. Open Hill-climb

Sir,—With reference to the above event, held June 27th, and the excellent account appearing in *The Motor Cycle* last week, I am asked to inform you that the provisional results have now been confirmed, and will thank you to be good enough to publish that statement.

I might add that the only possible error is in connection with Class I., for miniature motor cycles, where the Levis is credited with practically an impossible time for such a mount, but as the time given is that taken by the official timekeepers the result must stand as issued.

ARTHUR S. RICHARDS (Hon. Sec.)

Classes in Hill-climbs.

Sir,—As an occasional competitor in club events, may I be permitted to make a suggestion to secretaries, etc.?

In many cases the classes at hill-climbs and speed events for solo mounts include "up to 500 c.c.," "up to 750 c.c.," and over 750 c.c. The "up to 750 c.c." class is usually considered as being for the 5-6 machines, but it is a fact that the most popular make of 6 h.p. twin has a capacity of 770 c.c., and so those of us who have realised the unquestionable superiority of a 6 h.p. machine over a 3½ h.p. for touring have to go into the "unlimited" class.

This in itself would not be so bad, but it seems that when a man uses an 8 h.p. for solo work he has become an incurable speed merchant, and usually has an overhead valve engine while he is about it. I feel sure that by altering the 750 class to "up to 770 c.c.," as some clubs do already, this class would be much better supported. CASTOR.

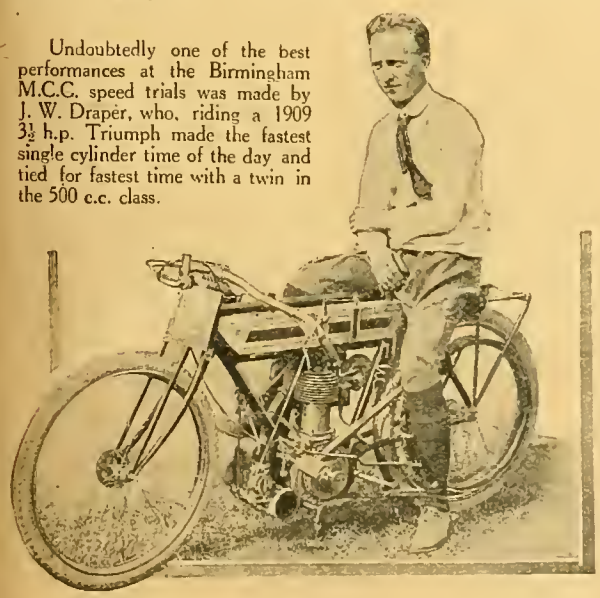
Suggested Double-purpose Machine.

Sir,—I write to you on the old but ever-interesting question of the best type of machine for particular purposes. I am constrained to do so by the fact that the particular type I consider best for my purposes has been somewhat "blown on" by some riders lately. Perhaps my conclusions are wrong, and if so, I shall be very glad to hear the opinions of others, and to have my mistakes pointed out.

The problem I have to solve is this, viz., a machine which will take me away for week-ends to a distance of sixty to eighty miles, which can be ridden solo when luggage is light, or with sidecar for more luggage or for the company of a passenger. I do not want wind screens.

This seems to indicate a machine (1) having belt drive and adjustable pulley, to allow for getting suitable ratios for solo, sidecar with luggage, and sidecar with passenger; (2) a machine which can keep up a speed of forty miles an hour with sidecar, without drying up or burning valves.

I mention this speed because an eighty-mile run into London on Monday morning means rapid travelling, or else a very early rise.



Undoubtedly one of the best performances at the Birmingham M.C.C. speed trials was made by J. W. Draper, who, riding a 1909 3½ h.p. Triumph made the fastest single cylinder time of the day and tied for fastest time with a twin in the 500 c.c. class.

Allowing for speed limits, etc., a machine of this speed would run up from, say, Portsmouth, in three hours, not less. Its minimum speed should be about forty-five to forty-seven with sidecar, and sixty or a trifle more solo; (3) a machine with a change-speed gear.

Now it seems to me that the nearest approach to this specification is a 750 c.c. twin with a hub gear. I have at present a single-cylinder with a hub gear, and the only faults I have to find are insufficient power for these speeds and a tendency to clutch slip. But the 750 twin would probably cause less slip than the 500 c.c. single, and in any case it is surely possible for the hub gear makers to put in a stronger spring or a few more plates. If they would do this one could use decent thick oil (engine oil) instead of the watery stuff at present advised.

Now for alternatives, of which there seem to be only two: (a) a chain drive machine. But the gear cannot be changed so easily, and I really do not see the object in adding two chains, chain cases, spring drive, and counter-shaft, to avoid the trouble of carrying a spare belt. I can get 2,000 miles out of a belt on my present machine or rather more, and I can put on a spare belt in a few minutes. If only people would see to their spare belts at home and have them of the right length we should hear much less of belt "troubles." A 750 c.c. twin should be no harder on the belt than a 500 c.c. single. (b.) The other alternative is a chain to counter-shaft and belt to back wheel.

But, I ask, why all this additional complication? A direct belt drive is all right if the machine is powerful enough to pull a decent high gear. If, in addition, the gear box is in the counter-shaft, there are further disadvantages. In wet weather the belt is certain to slip on a low gear, while with the hub gear the belt speed is kept up, and even on hills slip is not unusually troublesome.

Also, many makers, for reasons best known to themselves, do not fit adjustable pulleys to counter-shaft machines, thus losing the greatest advantage of the belt.

To conclude, I maintain that this is the best specification for a sidecar machine, to equal the performance of a good 15 h.p. car and to do serious touring: 750 c.c. twin; direct belt drive; three-speed S.A. gear, improved as stated, and mounted in blocks which are clamped into the fork ends, so that it can be quickly removed; light sidecar. No fal-lals.

H.J.W.P.

Adjustment of Carburetter.

Sir,—The letters on the above subject do not go half far enough, as no hints or suggestions are given to help novices. Perhaps some of your readers will be good enough to give a few hints.

When I bought a motor the firm sent the wrong carburetter, and I had to take it off and exchange it for the one I fancied, viz., a Senspray. Try as much as I could, not a single start could I make with the kick-starter. A fellow rider told me to weight the float. This I did by putting on a small collar on top of the needle, and I have since had no trouble or very little, but it seems to me rather a "home patch." This may be a hint for others who have similar trouble, but I should like to hear of a better way of tuning up. If one starts putting solder on a float, as I have seen recommended, it is ten chances to one that too much or too little is the result or the float is made lop-sided.

NOVICE.

Scottish Trials.—With regard to Mr. MacGregor's letter in the last issue, our representative informs us that, at the Edinburgh M.C.C. premises prior to the trials, he was handed three official lists of competitors, two by Mr. MacGregor himself. Two of them gave No. 74 as H. Berwick. In reference to the watch at Applecross there were quite a number of complaints from men who lost no marks on the section. He is quite prepared to believe the officials were correct, and the complainants wrong, but mentioned the matter as reported to him by men who had no personal bias in the affair.

A reader who was fined £8 11s. 5d. (or one month's imprisonment) for riding through Beeston at an alleged speed of 30 m.p.h. advises motor cyclists to be very careful in that neighbourhood.

Competitors in the A.C.U. Six Days Trials,

Giving Specifications of Machines, Gear Ratios, and Official Numbers.

DIVISION 1.—MOTOR BICYCLES.

CLASS A.—UP TO 250 c.c.

Armlet No.	Rider and Machine and Number of Cylinders.	Gear Ratios. Min.	Gear Ratios. Max.	Bore and Stroke.	Cubic Capacity.
				mm.	c.c.
31	Plint, Alec F. (1½ Dayton, 1)	6	13	57 × 63.5	162
53	Ayling, W. Godfrey (1½ Dayton, 1)	6	13	57 × 63.5	162
43	Heinzel, Max (2 N.S.U., 1)	6½	20	58 × 75	190
59	Hall, Neville (2 O.K., 1)	7.5	16	58 × 72	190

CLASS B.—UP TO 350 c.c.

5	May, Frank (2¾ A.J.S., 1)	5	12.5	70 × 91	348
68	Gibb, W. B. (2¾ Douglas, 2)	5.87	13.5	61 × 60	349
34	Phillips, P. (2¾ Douglas, 2)	5.87	13.5	61 × 60	349
73	Ball, F. G. (2¾ Douglas, 2)	5.87	13.5	61 × 60	349
29	Drysdale, J. D. (2½ Connaught, 1)	5	18	73 × 70	293
65	Drew, J. (2½ Imperial, 1)	6	14	70 × 76	292.4
58	Downs, N. T. (2½ New Imperial, 1)	6	14	70 × 76	292
10	Taylor, P. S. (2½ New Imperial, 1)	6	14	70 × 76	292
103	Cocks, A. G. (2¾ Clyno, 1)	5.25	9.3	76 × 70	319
56	Pearson, Rex (2¾ Clyno, 1)	5.25	9.3	76 × 70	319
32	Haddock, B. (2¾ A.J.S., 1)	5.5	15.5	74 × 81	350
100	Moffat, P. W. (2¾ Douglas, 2)	5.6	13.5	60.9 × 60	349
79	Fox, W. (3 Enfield, 2)	6	9	54 × 75	347
4	Wilkin, G. W. (2¾ Levis, 1)	5.75	12.5	75 × 79	349
135	Dodds, W. (2¾ Douglas)	5.87	13.5	61 × 60	349

CLASS C.—UP TO 500 c.c.

28	Applebee, F. W. (3½ Motosacoche, 2)	6.25	11.25	64 × 77	496
97	Oliphant, J. (3½ Premier, 1)	5	13	85 × 88	499
134	Holroyd, J. S. (3½ Blackburne, 1)	4	12	85 × 88	499
70	Lea, Norman (3½ Lea-Francis, 2)	6	12	60 × 76	430
104	Davenport, W. A. (3½ Lea-Francis, 2)	6	12	60 × 76	430
44	Francis, G. I. (3½ Lea-Francis, 2)	6	12	60 × 76	430
101	Sproston, A. J. (3½ Lea-Francis, 2)	6	10.6	70 × 64.5	496
8	Percy, William (3½ Wellington, 1)	3.5	12.5	85 × 85	484
67	Brown, D. M. (3½ Rover, 1)	4.75	11	85 × 88	499
106	Allday, James (3½ James, 2)	5	13	64 × 77	496
46	Henfrey, Charles O. (3½ Ariel, 1)	5.25	16	86.4 × 85	499
91	Kirk, Arthur (3½ Ariel, 1)	5.25	16	86.4 × 85	499
71	Hay, T. C. de la (3½ Sunbeam, 1)	4.9	13.7	85 × 88	499
107	Moffat, J. W. (3½ Sunbeam, 1)	4.9	13.7	85 × 88	499
35	Nokes, C. E. (3½ Sunbeam, 1)	4.9	13.7	85 × 88	499
98	Davy, R. M. (3½ Norton, 1)	4	16.5	79 × 100	490
88	Clark, K. H. (3½ James, 2)	5	13	64 × 77	496
112	Tippett, W. P. (3½ Humber, 1)	5	11	84 × 89	499
55	Littledale, E. H. (3½ Ariel, 1)	4.75	13	86.4 × 85	498
7	Walters, E. V. (3½ P. & M., 1)	5.4	10.5	84.5 × 88.9	498
115	Shaw, P. (3½ P. & M. 1)	5.4	10.5	84.5 × 88.9	498
130	Drake, Wm. C. (3½ P. & M., 1)	5.4	10.5	84.5 × 88.9	498
121	Russell, W. (3½ Quadrant, 1)	4	9.10	85 × 88	499
124	Roberts, A. G. (3½ Blackburne 1)	3.75	12.09	85 × 88	499

CLASS C.—UP TO 500 c.c. (*Continued*).

25	Kerr, J. H. (3½ N.S.U., 2)	5.5	13	63 × 80	499
64	Dixon, H. Graham (3½ James, 2)	5	13	64 × 77	496
19	Collier, O. P. C. (3½ Grandex-Precision, 2)	5.5	10	60 × 88	499
52	Little, W. B. (3½ Premier, 1)	5	13	85 × 88	499
83	White, H. Vivian (4 Wolf, 1)	—	—	85 × 88	494
119	Underhill, Vincent (3½ Overseas, 1)	5	10	85 × 88	499
128	Feoner, Guy N. (3½ Blackburne, 1)	4.5	11	85 × 88	499
116	Edmond, F. G. (3½ Humber, 1)	5	12.5	84 × 90	500
40	Tubb, S. (3½ Humber, 1)	5	12.5	84 × 90	500
89	Newey, L. (3½ Ariel, 1)	4.75	14.25	86.4 × 85	498
16	North, F. C. (3½ Ariel, 1)	5.25	15.5	86.4 × 85	498
62	Barnard, G. Gray (3½ Sunbeam, 1)	4.3	12.12	85 × 88	499
23	Hine, S. J. (3½ Burford, 1)	4.5	12	84 × 90	496
74	Birse, Oswald (3½ N.U.T., 2)	4.5	10.4	70 × 64.5	500
13	Robinson, Jas. (3½ N.U.T., 2)	4.5	10.4	70 × 64.5	500
109	Keel, G. Ernest (3½ N.U.T., 2)	4.5	10.4	70 × 64.5	500
22	Wasley, F. C. (4 Leader, 2)	5	10.5	60 × 88	499
11	Chinn, B. J. (4 Wolf, 1)	—	—	85 × 85	494

CLASS D.—UP TO 750 c.c.

17	Chapman, Fred W. (4 Triumph 1)	4.25	13	85 × 97	550
86	Price, Graham (5 Bat, 2)	4.5	10	76 × 82	744
110	Bees, L. A. (4 L.M.C., 1)	4.75	10	89 × 96	597
47	Gregson, G. A. (4½ Bat, 2)	4	9.2	70 × 85	654
122	Sims, B. J. (4½ Bat, 2)	3.25	9.5	70 × 85	656
20	Montgomery, W. J. (5 Montgomery, 2)	5.125	11.625	75 × 78	688
50	Boxer, R. C. (5 Bat, 2)	3.25	9.5	76 × 82	744
125	Cook, W. E. (5 A.S.L., 2)	4	10	70 × 80	616
37	Clayton, A. (4 Triumph, 1)	4.25	10.25	85 × 97	550
41	Westwood, W. (4 Triumph, 1)	4.25	10.25	85 × 97	550
127	Fenn, R. (4 Triumph, 1)	4.25	10.25	85 × 97	550
85	Don, Karl E. (5 Zenith, 2)	3.5	7.5	70 × 85	654
118	Smith, C. W. (4½ Bat, 2)	3.3	9.5	70 × 85	654
26	Vickers-Edwards, W. A. (5 Ariel, 2)	4.25	13.5	67 × 95	668
113	Guy, W. Leslie (3¾ Scott, 2)	5	9	73 × 63.5	532.5
7	Lovegrove, R. W. (3¾ Scott, 2)	5	9	73 × 63.5	532.5
80	Catt, Albert E. (4 Triumph, 1)	4.5	11	85 × 97	550
61	Beal, H. J. (4 L.M.C., 1)	4	10	89 × 92	572
95	Edwards, H. F. (5 Bat, 2)	4.5	10.5	76 × 82	750
49	Baker, Jesse (3¾ Scott, 2)	5	9	73 × 63.5	532
94	Ross, T. J. (4 Triumph, 1)	4.5	12.5	85 × 97	550
77	Turvey, F., jun. (4 Triumph, 1)	4.5	13.5	85 × 97	550
38	Richards, J. (5 Sun, 2)	4.5	10.9	70 × 85	654

CLASS E.—UP TO 1,000 c.c.

14	Woodhouse, Jack (7 Quadrant, 2)	4	9	85 × 85	988

DIVISION 2.—SIDECAR MACHINES.

CLASS G.—UP TO 500 c.c.

30	Finch, Harold (3½ Premier, 1)	5.5	14.3	85 × 88	499
123	Watson, Fred J. (3½ Ariel, 1)	5.5	17.5	86.4 × 85	498
114	Haslam, Jack (3½ Premier, 1)	5.5	14.2	85 × 88	499
3	Sawer, S. (3½ Premier, 1)	5.5	11	85 × 88	499

CLASS H.—UP TO 750 c.c.

9	Langton, Fred K. (5 Ariel, 2)	5	15	67 × 95	668
96	Norton, Jas. L. (4 Norton, 1)	5	11½	82 × 120	634
99	Gibson, Hugh (5-6 Clyno, 2)	5	15	76 × 82	744
18	Smith, Frank (5-6 Clyno, 2)	5	15	76 × 82	744
126	Williams, Eric (6 A.J.S., 2)	5	16.5	74 × 87	750
36	Stevens, Joseph (6 A.J.S., 2)	5	16.5	74 × 87	750
117	Wright, A. H. (6 A.J.S., 2)	4.75	16	74 × 81	696
15	Nott, George (5-6 Clyno, 2)	5	15	76 × 82	734
54	Platt, Percy (6 Bradbury, 2)	4.75	13	74.5 × 86	749
60	Teeton, H. W. (4½ James, 1)	5.5	14	86 × 103	598
42	Stevens, F. (4½ James, 1)	5.5	14	86 × 103	598

CLASS I.—UP TO 1,000 c.c.

1	Glissan, E. B. (6 Rex, 2)	4.3	12.6	80 × 95	940
6	Cross, W. E. (6 Sunbeam, 2)	4.5	10.5	76 × 85	770
33	Creak-Davis, R. (8 Chater-Lea, 2)	4.75	13.5	85 × 85	964
87	Longson, Norman (7 American Excelsior, 2)	4	10	—	—
51	White, P. W. (7-9 Premier, 2)	5	13	85 × 88	998
78	Egginton, W. H. (8 Enfield, 2)	5.125	12	85 × 85	964
75	Collier, C. R. (7 Matchless, 2)	4.6	11.1	82 × 94	996
131	Guest, R. E. (7 Matchless, 2)	4.6	11.1	82 × 94	996
124	Pilkington, A., jun. (8 Rex-Jap, 2)	4.9	14.35	85.5 × 85	998
84	Hunt, George (8 Campion, 2)	4.5	13	85 × 85	988
132	Clark, Eli (8 Leader, 2)	5.14	15.75	85 × 85	965
69	Hardee, G. D. (7 Matchless, 2)	5	12	82 × 94	994
111	Sidwell, Ernest (5-6 Excelsior, 1)	4.8	11.7	96 × 112	800
21	Parker, Stanley (8 Royal Enfield, 2)	5.5	13	85 × 87	998
105	Greaves, H. (8 Royal Enfield, 2)	5.5	13.1	85 × 87	998
48	Dewire, S. (6 Rex, 2)	4.3	14	80 × 95	941
102	Silver, T. (8 Quadrant, 2)	4	10.13	85 × 88	998
57	Garland, V. (8 Williamson, 2)	4.75	15	85 × 85	964
27	Edwards T. H. (6 Sparkbrook 2)	4.25	14	76 × 85	770

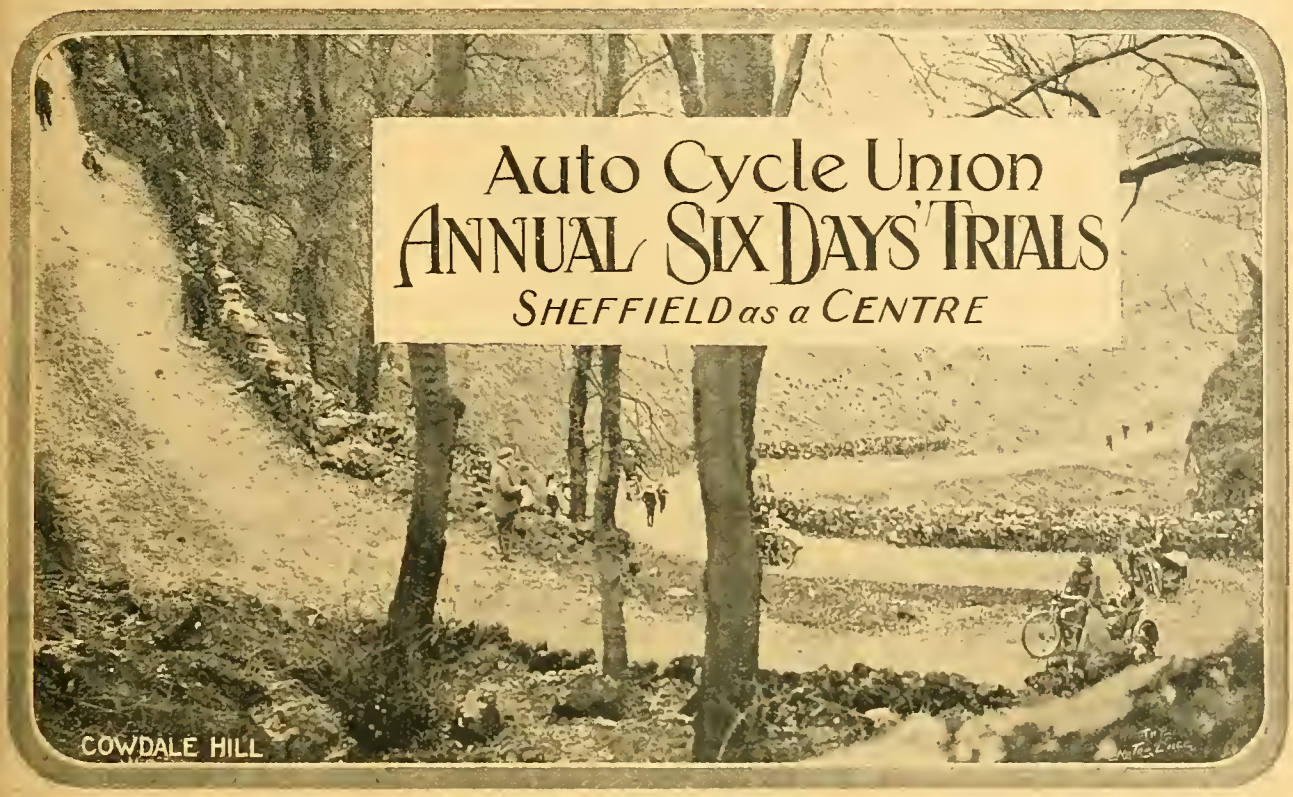
DIVISION 3.—CYCLE CARS.

CLASS K.—UP TO 1,100 c.c.

12	Brownsort, W. J. (10 A.C., 4)	4.16	13.5	59 × 100	1096
63	Scott, C. L. (10 A.C., 4)	4.16	13.5	59 × 100	1096
72	Newbold, P. (9.8 Warren-Lambert, 2)	4	16	88 × 90	1095
45	Millar, A. F. (8 Humberette, 2)	5.5	15.5	84 × 90	998
90	Slater, E. B. (10 J.B.S., 2)	4.25	14	88 × 90	1094
120	Morgan, H. F. S. (8 Morgan, 2)	4.5	11	85 × 85	964
108	Hawkes, W. Douglas (10 Victor-Precision, 2)	—	—	85 × 96	1090

CLASS K.—UP TO 1,100 c.c. (*Continued*).

93	Graham, M. D. (10 Morris-Oxford, 4)	4.6	15.8	60 × 90	1018
133	McMinnies, W. G. (8 Morgan, 2)	4	8	90 × 77½	996
129	——— (10 Calthorpe, 4)	4	13	62 × 90	1087
66	Ellis, R. (8 Morgan, 2)	5	11	90 × 77½	996
81	Armstrong, Gordon (8 Gordon, 2)	4.5	13	85 × 95	1074
39	James, W. (8 Morgan, 2)	4.5	12	85 × 85	975

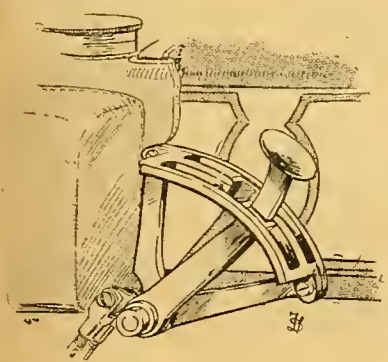


Auto Cycle Union ANNUAL SIX DAYS' TRIALS

SHEFFIELD as a CENTRE

A look round the Competing Machines. Sidecar Outfits the Most Improved. Detachable Wheels, Electric Lighting and Sidecar Brakes more common. Increased Number of Speeds.

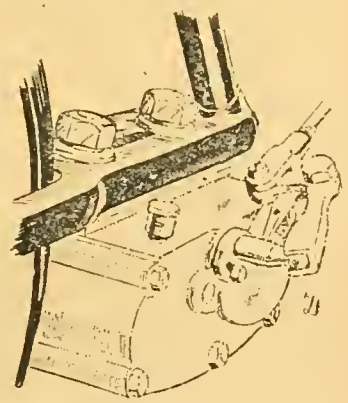
THE organisation of trials is becoming a fine art, and is an art in which Mr. T. W. Loughborough excels, as he thoroughly understands how to practise it to the best advantage. To criticise Sheffield as a centre at this early stage of the trial would be hardly fair, and it is not too early to say that it is a town which does possess certain excellent features. Being a city of no mean dimensions its hotels are good, and of these the official headquarters, which house not only the officials but a number of the competitors, are comfortable and well appointed. One official whom we are glad to see back again in England, and working for the A.C.U., is Major D. F. Nicholl, who, for the last two years, has been bewailing the paucity of motor cycles on Gibraltar's rocky heights. An innovation is the renting of a separate Auto Cycle Union office. This is situated in London Road, quite close to the storage depôt. It was an empty shop, before Mr. Loughborough furnished it, and in the windows thereof are displayed three handsome silver cups, one presented by the Sheffield motor cycle traders for the best performance by a solo rider, another given by the same body for the best performance by a sidecar rider, and the other presented by the well-known rider, Jack Haslam, for the best performance by a rider of any competing machine under 350 c.c. In the shop one of the A.C.U. staff is in attendance for the purpose of giving information, or even enrolling members, while behind there is an excellent Press room, where information is given out at the end of every day in a manner which is an improvement over last year's arrangements. Above is an office, the walls of which are covered with maps of the district, where the results are worked out.



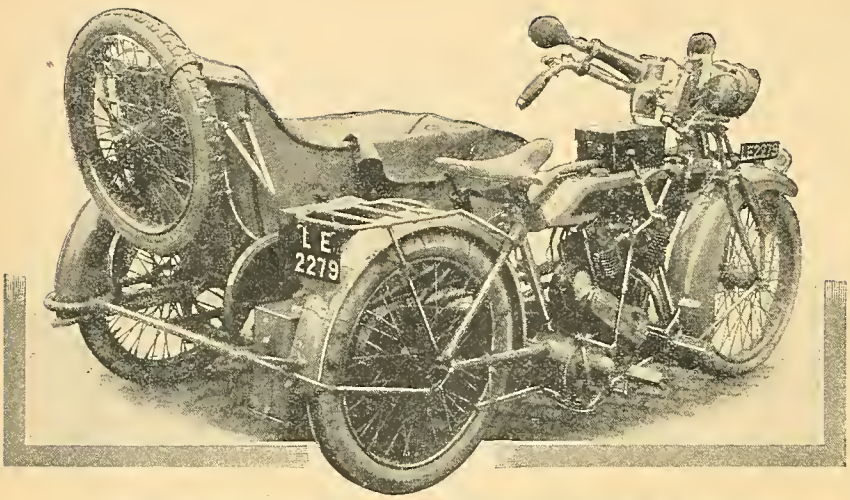
F. K. Langton's twin-cylinder Ariel is fitted with a new gate change control for the four-speed gear box

Examination and Sealing Operations.

On the morning of the 5th, as early as 9.30, there was a goodly crowd of competitors outside the Olympia skating rink in Bramall Lane. At 10 a.m. the competitors were led in a few at a time, their labels were issued and sealed on to the handle-bars. The machines were then pushed to the other end of the rink, filled up in a depot for petrol and accessories run by the Sheffield Motor Cycle Traders' Association, then taken to the Anchor brewery next door and weighed, then the drivers and passengers were weighed, and the machines were again taken to the storage depôt and placed opposite their numbers. Next the engines and gear boxes were sealed, the



Three-speed gear box and control on the O.K. Junior machines

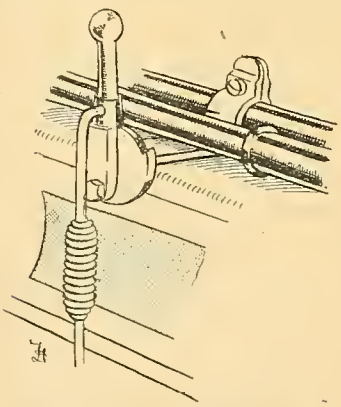


The Matchless sidecar, which is fitted with detachable and interchangeable wheels.

equipment verified, etc., and as each function was performed the official responsible placed his initial on the label, and when every duty had been carried out, one of the judges tore off the red tag at the bottom. The machines were ranged round the walls of the rink in numerical order, on thick sawdust, and a tray was placed under the crank case of each, while the twelve cycle cars and light cars were arranged in a single line down the centre of the hall.

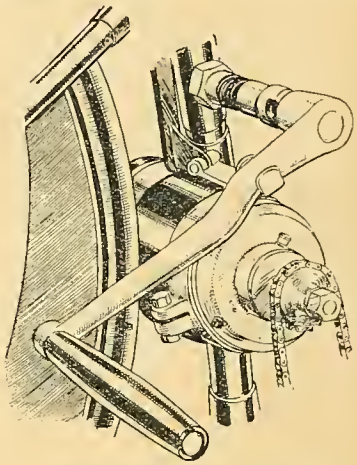
A Number of New Models.

By three o'clock there were very few absentees, and the work of the morning was almost completed. Despite the opposition to the trial raised by a section of the trade, the event is well supported, the entry is quite large enough, and most of the best makes are represented.

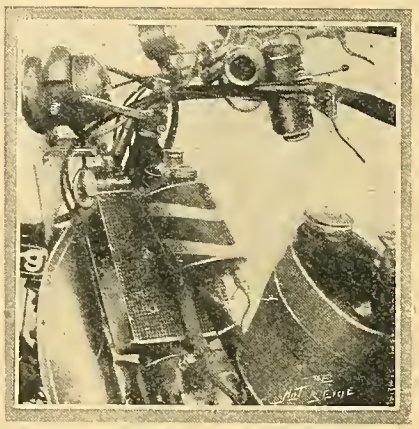


Spring control rod for the decompressor on the Overseas ridden by V. Underhill

At this stage of the industry startling features are not expected, but an examination of the machines in the Olympia rink revealed a good deal which was of interest. Langton's Ariel was fitted with a four-speed (sliding) gear box, operated by an oscillating lever working in a gate similar to that in use for many years on Daimler cars, while other noticeable features were the brake drum

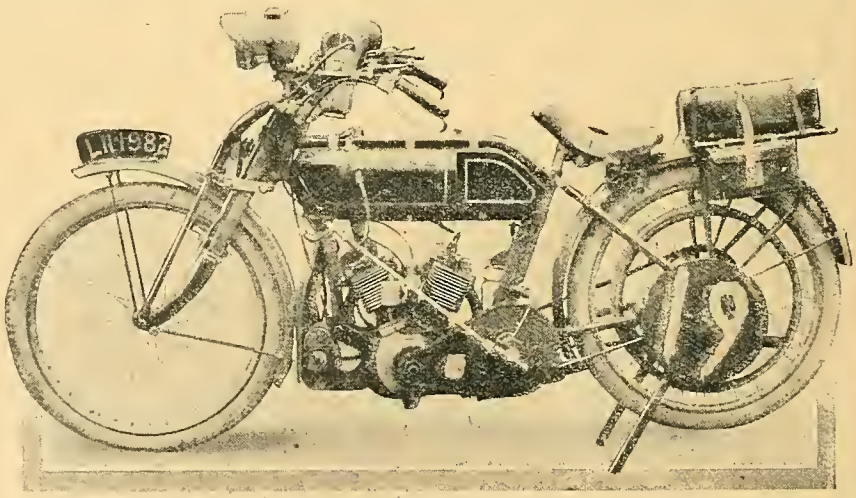


The dynamo carried on the saddle tube of the Enfields ridden by W. H. Eggington and H. Greaves.

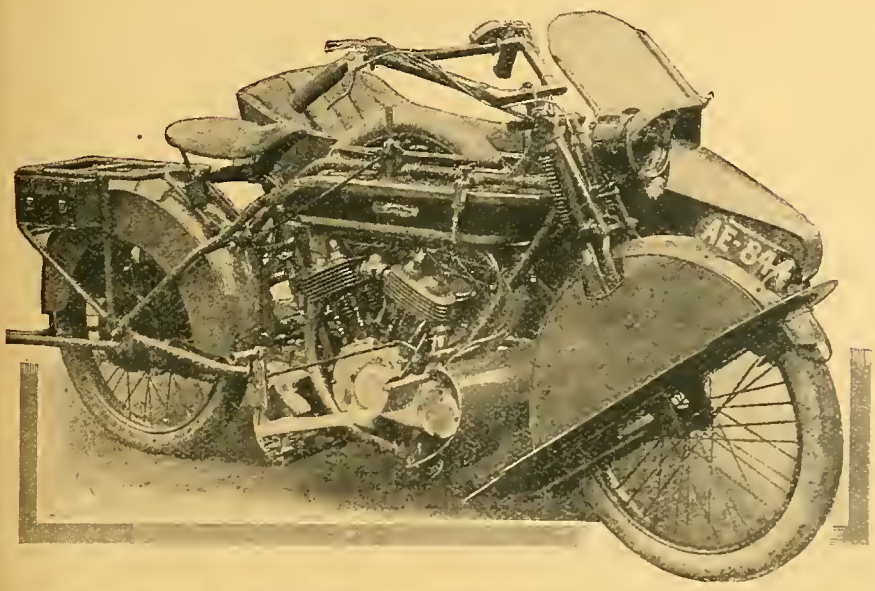


Extra tank at the front of the Scott machines.

forming part of the rear sprocket and the sensibly large filler cap on the gear box. Another machine which has not figured in many trials—at any rate in the North—was the Montgomery 5 h.p. horizontal twin. The machines in Class A (not exceeding 250 c.c.) are naturally fitted with low gears. Their makers have much confidence in the reliability of their machines to enter for such a severe test. The Dayton, the smallest engined machine, has three speeds. The N.S.U. machines in this class and in Class C are equipped with both their own two-speed engine shaft gear and the Armstrong three-speed hub, thus getting six different ratios. Motor cycles which stood out pre-eminently for their finish and general appearance were the P. and M.'s, which looked as if they were brand new, but were the same which had gone through the Scottish trials, the James, Scott, Matchless, Brown's Rover, Lea-Francis,



Gear side of the twin-cylinder Grandex Precision, fitted with Enfield two-speed counter-shaft gear and chain drive.



One of the most efficiently guarded machines in the whole of the trial is the 8h.p. Leader sidecar outfit, ridden by Eli Clark.

Clyno, Enfield, Ariel, Sunbeam, Bat, Triumph, Scott, Humber, and such well-known makes. Moffat was riding the identical machine ridden by Busby in the Tourist Trophy Race. It is fitted with an enormous petrol tank holding 2½ gallons, and had a tiny horn of the Klaxon type on the top tube, which is worth mentioning on account of its small size and nominal price. De la Hay, another Sunbeam driver, was complaining of the small size of his tank.

Praiseworthy Mudguarding.

Two machines were conspicuous owing to the pains taken to carry out the mudguarding in an adequate manner. These are Eli Clark's Leader sc. and Greaves's Enfield sc. The former is fitted with an enormous rear guard with ample side shields, so designed that by undoing the nuts securing the mudguard and carrier stays to the frame the whole can be swung back and the back tyre exposed. We saw this actually done and in a very short space of time. The front mudguard is fitted with light detachable valances, which cover half the wheel, and the front wheel and sidecar wheels are detachable and interchangeable. A large sized guard protects the magneto and transversely placed silencer, while it is interesting to note that the sidecar body is suspended on four quarter elliptical springs. Sidecars in several cases were very much on the light side, and were often dangerously near to being unsuitable for touring. The Canoelet hammock fitted to Stevens's James certainly does not look the 110 lb. it scales. From its design the passenger has always to assume a reclining position, and the same remarks apply to the sidecar on Cross's Sunbeam. Sawer's sidecar is attached to his 3½ Premier at five points, while Finch had fixed a heavy portmanteau strap to the sidecar frame and down tube as an additional precaution. Greaves's Enfield sidecar combination, to which we have alluded before this, is a most luxuriously appointed affair. The most striking feature is the front mudguard of excellent design. It is of ample dimensions, and more closely resembles a Frankonia guard than anything we have yet seen on a motor cycle.

Dynamo Lighting Sets on Sidecars.

A Lucas dynamo similar to that lately seen on Egginton's Enfield sidecar is carried in a circular bracket brazed to lugs fitted in the saddle tube. Slotted orifices allow for adjustment of the driving chain. The dynamo is driven off the gearshaft. A neat switch box is fitted to the top tube, and the equipment lights both the head and tail lamps. A sidecar brake, worked by a Bowden lever fitted to the diagonal sidecar stay, is applied to a dummy belt rim on the sidecar wheel, while the luggage grid is suspended on springs. The frame is of new design, the top tube being dropped, and so allowing a lower saddle position. Finally, a belt rim brake is fitted to the sidecar wheel.

Haslam's single-cylinder Premier possessed a light but comfortable wicker sidecar, purple in colour, and provided with a sidecar wheel brake.

A New Detachable Wheel.

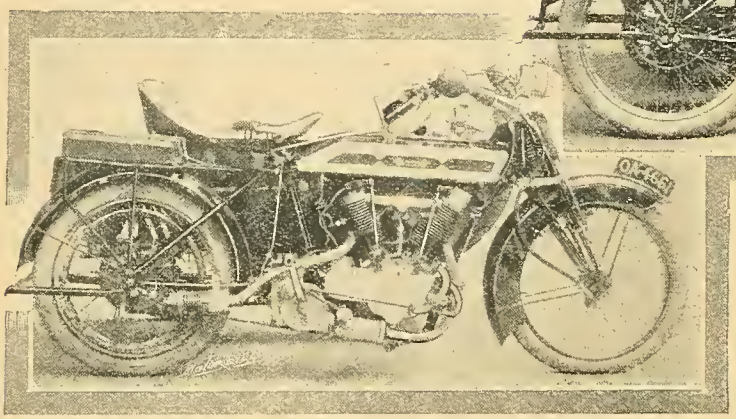
The chief innovation on the handsome and businesslike khaki coloured Matchless-M.A.G. sidecar machines is the new detachable wheel. All three wheels are interchangeable, and the chief improvement lies in the introduction of stuffing boxes to exclude grit and wet from the bearings, and the provision of a slotted distance piece in the back wheel, which allows the spindle to be inserted before the driving dogs are in engagement; this can be also inserted after the dogs have been engaged. Harcourt radiators are fitted in several cases, noticeably to Drysdale's Connaught and Chapman's 4 h.p. Triumph. White's Wolf possesses an ingenious form of gate, in which the change speed lever is disengaged by downward pressure of the hand. Cock's Clyno is provided with a large shield in front of the Senspray carburetter, while Frank Smith's sidecar combination has a neat internal expanding sidecar brake possessing compensating joints. This is the first appearance of this sidecar, but the Clyno is in other respects standard. A noteworthy feature of the spick and span P. and M.'s is the fitting of inspection doors to the chain cases, which are

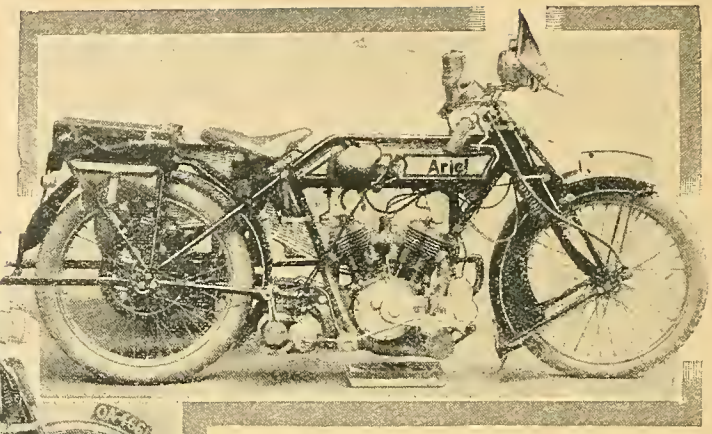
Scene in the Skating Rink, Bramall Lane, Sheffield, where the machines are stored after each day's run.

The A.C.U. Six Days Trial.—

made like the cover on a magneto contact breaker and kept in place in a similar manner. Phillips's Douglas has a metal plate attached to the front stand, so that the latter, when out of use, acts as a mud shield; an efficient belt guard is also fitted.

Tom Silver's 7-9 h.p. Quadrant sidecar outfit has a three-speed gear box in the counter-shaft, and a shield to the overhead valve gear. Among those who make





(1) Valve side of the 7-9 h.p. Quadrant.
(2) The three-speed twin-cylinder Ariel. Underneath will be seen a bath to catch any oil from the engine. One of these tins is supplied to each competitor.

their *début* in an A.C.U. trial are the American Excelsior sc., which has a two-speed-epicyclic gear and a Binks carburetter, and the Wellington and Burford solo machines, which present no striking departure from standard practice, while the latter is a sensibly designed mount. The large Best and Lloyd lubricator, first seen in the Isle of Man, is fitted to Collier's Grandex and to other machines in the trial.

The Cycle Cars.

There are thirteen cycle cars, ranging from W. D. Hawke's Victor-Precision (the only belt driver) to the miniature cars, such as the four-cylinder Morris-Oxford, Calthorpe, and the pair of A.C.'s with their polished aluminium wind-cutting bodies. Morgans are the most popular, H. F. S. Morgan's four-speeder having what appears to be an air-cooled motor, but which has the engine and radiator neatly covered in. The J.B.S. has four gears also, and is driven by a twin-cylinder Blumfield engine. On Millar's Humberette a car type Smith carburetter with warming jacket is fitted with a beneficial effect in consumption, we are told. The Gordon is the same that Armstrong, its maker, has used in several trials of late.

Altogether the machines—solo, sidecars, and cycle cars alike—present quite the most workmanlike and well-finished set of machines we can remember to have seen presented for competition in a Six Days Trial.

NOTES.

The Sheffield-Simplex car, which will lay dye along the course, left on Saturday. Arrows also are being used at doubtful corners.

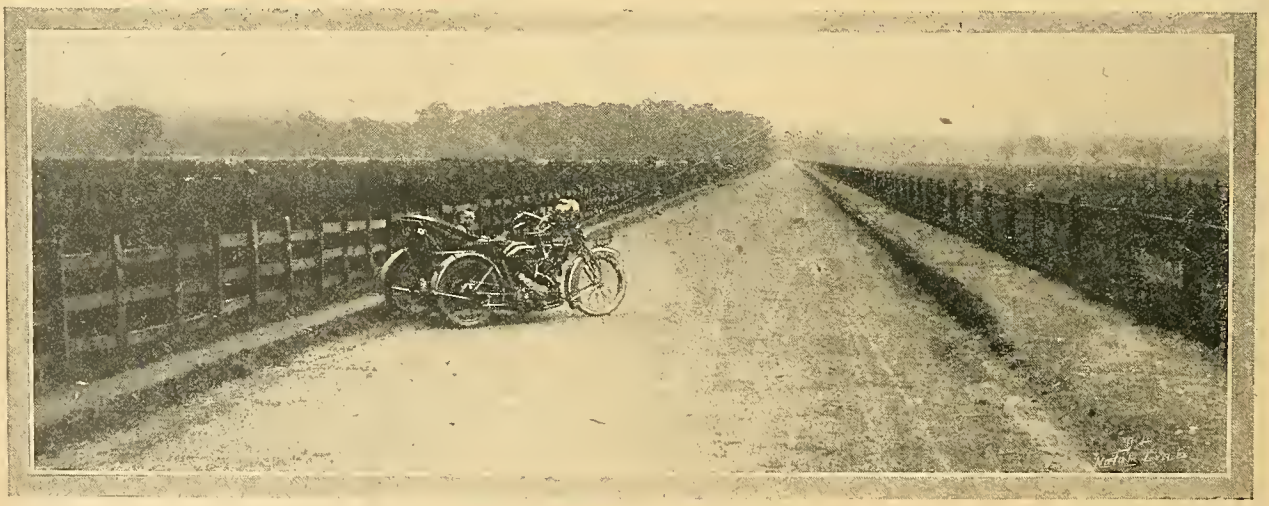
Five of the twenty-five paid observers appointed by the Auto-Cycle Union failed to report themselves at the appointed time on Sunday, which did not lessen the difficulties of the organising body. However, five substitutes were soon pressed into service.

J. S. Holroyd, who has been associated with the Motosacoche Company for some time, is riding a Blackburne in this week's event.

The Triumphs have a new tank finish in slate colour and stove enamelled. It looks, if anything, smarter than the aluminium formerly used, and should certainly be more lasting.

There are not many new designs in the trial, due probably to the fact of seven leading firms being unrepresented officially.

The O.K. Juniors are seen for the first time with three-speed counter-shaft gears.



The road on which the speed test was held on Wednesday. A lunch stop of three hours was made for this purpose

AN ADVENTUROUS FIRST DAY.

132 STARTERS—111 SURVIVORS.

MONDAY'S ROUTE: 137½ Miles. Sheffield, Stoney Middleton, Monsal Dale, Littonstack, Cowdale, Congleton, Biddulph, Rudyard (lunch), Leek, Wirksworth, Matlock, Bakewell, Curbar, Holmesfield, Sheffield.

THE sky was overcast on Monday when the competitors were allowed into the storage hall one by one to bring forth their machines for the official start. Prompt at 8 a.m. E. B. Glissan, on a 6 h.p. Rex sidette, who carried No. 1, and was incidentally taking part in his first competition, led off the ball, and one by one the others, numbering 132 all told, followed on what proved to be an adventurous day. First it rained, and in the very earliest stages a five mile stretch of moorland track was traversed which would put any section of similar length in Scotland in the shade; then followed a most tricky descent of Jacob's Ladder, where a cycle car overturned, then a hill, the surface of which was so loose and bad that the competitors thus early talked of "striking" once again, hairpins which no cycle car could negotiate without reversing, and a succession of appalling gradients and rock-strewn bye-roads, which must tell their tale before the week is out. Those competitors with Scottish Trials experience confess that they have never known so much in the way of hills and freakish surfaces crammed into one day, and on Monday evening many riders were complaining of stiffness and saddle-soreness.

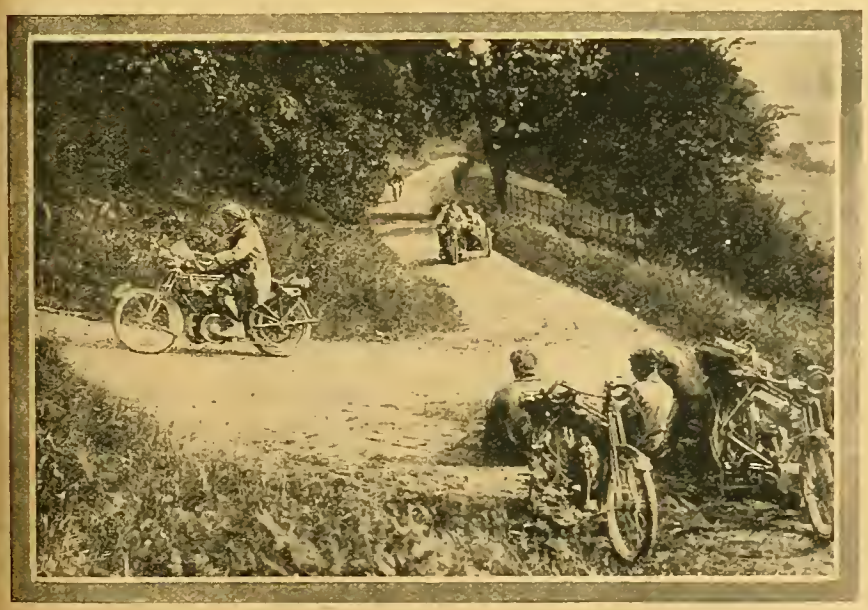
The Early Stages.

To revert to the start. F. J. Watson, who had returned to Birmingham by road on Sunday in order to get a new piston, succeeded, by dint of riding all through the night, in getting back to time, and his machine was duly weighed at 3 cwt. 2 qr. 22 lb., and on the starting line at the appointed time.

A general melee on Littonstack on Monday last. In the background may be seen the steep descent to the foot of the hill.

J. L. Norton had engine trouble on his way to Sheffield, and changed his engine for one owned by a local rider. Even before reaching the outskirts of Sheffield there was quite a useful climb, but this was nothing to what followed. Near Hathersage a score or so of competitors went astray, but soon regained the proper route. The upper portion of Sir William Hill proved a teaser, but Stoney Middleton tried the competitors more severely, and here several came to a standstill. G. W. Wilkin (2¾ Levis) came up the top part really fast, and Finch (3½ Premier sc.) made an extraordinarily fine climb for a 3½ sidecar outfit. Many suffered from rear wheel slip on the last of the bad bends, of which there were three, and the rough surface caused more than one failure. Glissan had had trouble with one cylinder and arrived late, but made a good ascent of the upper part. One of the features of the climb was the excellent show put up by the cycle cars, and Gordon Armstrong (8 Gordon) in particular made a fine, steady climb. The A.C.'s were as fast as any. R. Ellis (Morgan) came up with a roar. G. D. Hardee and C. R. Collier (7 Matchless sc.) performed well, but both suffered from rear wheel slip. N. G. Downs (2½ New Imperial) had a bad skid, but recovered finely, but F. G. Edmond (3½ Humber) hit a stone and came off, though he had plenty of power in hand. H. F. Edwards (Bat) was badly baulked, but saved himself by magnificent riding. Millar made a fine climb and did his best to avoid baulking, but the surface was so unpromising that he was forced on to the better part. K. E. Don (5 Zenith) made a fine climb, but broke his frame near the top of the hill and had to retire. Greaves on the 8 Enfield, did not seem so happy as he usually is on the 6 h.p., and joined the large band who received outside assistance. Most of the lightweights were in good form, and N. Hall (O.K.) shone in particular. Victor Garland (Williamson sc.) retired owing to the gear box bolts coming adrift.

Previous to this hill the descent of Jacob's Ladder was a nightmare. We followed a Morgan with its back wheel locked slithering down crabwise. The



R. G. Fenner (3½ h.p. Blackburne), J. Haslam (3½ h.p. Premier sidecar), and a Sunbeam rider rounding the foot of Station Hill, Bakewell

The A.C.U. Six Days' Trial.—

Morris-Oxford c.c. got out of hand, ran up the bank, and turned over, fortunately without damage. Hereabouts Longson, on the American Excelsior, retired with a broken sidecar connection.

Dropping down Monsal Dale Hill, a rather stiff climb followed on a stony and rutty surface, and we passed Gregson, whose hub gear had given out on his twin Bat, which otherwise was going excellently.

A Revival of Blea Tarn in Lakeland.

Further on, at Littonstack, which hill was not included in a non-stop section, there was a sight to be remembered, for competitors were literally strewn all the way up the road, and some of the machines were belching forth clouds of blue smoke. When Littonstack was selected the surface was passably good, though the gradient is really severe, approaching 1 in 3 at the top. But recent heavy rains rendered the surface almost impossible, and consequently the vast majority stopped, though it should be added that many failures were due to baulking on the narrow road, which is the worst feature of the whole affair. A number, however, did make clean climbs, including F. C. North (Ariel), Clayton and Westwood on Triumphs, Baker (Scott), Applebee, sen. (Motosacoche), Oliphant (Premier), and others. Ellis (Morgan) made an excellent ascent, but in turning into the narrow gateway at the top his front wheel lifted, and the machine charged the gatepost, smashing the screen to atoms and cutting the driver's hand, but he pluckily continued. Lower down the hill Sawer's Premier sidecar turned completely over without injury, and Stevens on the James sidecar did practically the same thing, the sidecar wheel being buckled. He sent for a new one, and continued rather late.

Major Lindsay Lloyd now appeared at the hill foot, and as soon as he saw what was going on decided there and then to allow those riders who preferred it to proceed by another route, so that those who had churned their back tyres and strained clutches and gears in getting over the hill are to be condoled with. Hugh Gibson elected to make an attempt, and with Gregson on the carrier made one of the best climbs. Heinzel, whose six-speed 2 h.p. N.S.U. is going magnificently, ran off the road, charged through a bunch of nettles, and was off down the hill in no time, to the amusement of the crowd.

A Troublesome Hairpin.

After joining the Buxton road the route suddenly doubled back upon itself up Kingsterndale, and the hairpin at the foot caused about twenty failures, none of the cycle cars we saw being able to negotiate the turn, and even motor cyclists charging the bank or having to foot-slog to keep going. Hereabouts Glissan (Rex Sidette) retired owing to bent tappets, and Edwards (Sparkbrook sc.) also gave up, as his low gear refused to engage. Other withdrawals were Chinn (Wolf), who experienced trouble with his gear, and Sproston, who broke a chain on his Lea-Francis.

Cloud, Mow Cop, and Barley's Hill were the only other ascents worthy of mention before the luncheon stop at Rudyard Lake. Here 118 competitors arrived. Tom Silver elected to retire, as his knee began to give him pain. It will be recalled that he suffered a bad fall in the Scottish Trials. J. W. Woodhouse took his place on the Quadrant sidecar, withdrawing the solo mount he had ridden up to that point. Sawer (Premier sc.) and Moston also retired at Rudyard, leaving 115 in the trial.

The afternoon trip promised to be quite as exciting, as there was a succession of steep climbs over surfaces which could not be described as good, bad, or indifferent; in most cases there were Colonial tracks, and evidently the A.C.U. was very little disturbed by the strike which was occasioned last year, for Monday's route surely was the most severe the A.C.U. has ever planned.

A good road out of Leek was followed for about four miles, but a sudden left-handed turn led to a long steep climb with a very stony surface. After the village of Ford an orchard with a mud surface had to be traversed on a fair up grade, and a long drop through a very narrow lane followed after leaving Grindon. At the foot of the hill lies a level crossing, and this marked the termination of the non-stop section. This was fortunate for many as the subsequent long climb up a grass-grown track, including three hairpins, caused the large majority of passenger machines to come to a standstill through rear wheel slip. The early arrivals had a great advantage, as the surface was passable until the sidecars and cycle cars arrived and churned deep ruts all over the road. Baulking was the rule rather than the exception, and the first hairpin became so congested that it was impossible to observe, and a clearance was only effected by the aid of much outside assistance, which was cheerfully given by a number of local sportsmen.

Hugh Gibson (Clyno sidecar), J. Drew (2½ h.p. New Imperial), W. G. Ayling (1½ h.p. Dayton), and A. F. Plint (1½ h.p. Dayton) at the hairpin bend on Littonstack.

Excellent Performances on Green Hill.

The villagers turned out in force to see the riders perform on Green Hill, Wirksworth, which ascent was in a much worse condition than we have ever seen it, due to heavy rains. But the performances here were very good indeed; even the lightweights making clean ascents of this 1 in 4 gradient. Wilkin on a Levis led, his engine emitting a fine healthy purr; Walters (P. and M.) simply toyed with the climb. May (2¾ A.J.S.) followed in good style, though he grazed the wall. Taylor (New

The terrific gradient and appalling surface of Littonstack—a road unfit for touring machines—caused a number of failures. Valuable assistance was rendered by the sporting onlookers in assisting competitors.

Imperial) helped with his foot, whilst Williams (Wellington) dismounted. Brownsort (A.C.), Kerr (N.S.U.), and Langton (Ariel sc.) went up in close company in excellent style, followed by Phillips (Douglas), Smith (Clyno sc.), Robinson (N.U.T.), Tubb (Humber), Noakes (Sunbeam), young Montgomery (on the horizontal twin), and Drysdale (Connaught), who made no mistake. Creak Davis stormed the gradient on his Chater-Lea sc. Dixon (James) was baulked by a boy, but restarted and went up well. Heinzel was applauded as he steadily picked his path to the summit on the diminutive N.S.U. Francis (Lea-Francis), Finch (3½ Premier sc.), and Stevens (6 A.J.S. sc.) were among the best.

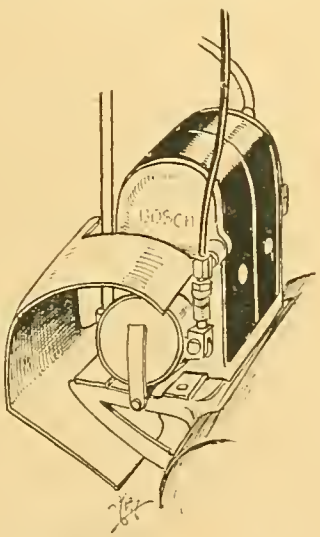
Matlock Bank Proves Easy.

Through Matlock Bath the famous bank was included, but the competitors paid little heed to 1 in 5 gradients of this kind after what they had already experienced. Scott (A.C. cycle car) passed us going well, though he had broken the lower leaf of his front spring.

A glimpse of Haddon Hall and Bakewell hove in sight, the moderately steep climb over the station bridge being included. We saw no failures here, but we noticed Pearson's two-stroke Clyno make yet another impressive ascent. Incidentally his companion, A. G. Cocks, had a bad fall near Buxton and retired. Curbar was more difficult owing to the loose and bumpy surface.

By this time the riders were saddle sore, and many a rim showed the effect of the gruelling it had received. The timekeeper was stationed on the outskirts of Sheffield, and just previously the competitors had descended at a crawl a hill which really has no surface, which was to form the first test on Tuesday. Entering the city, Applebee senior unfortunately knocked down a man who walked into his front wheel—and, incidentally, it is astonishing how the Sheffield folk wander aimlessly about the roads without a thought as to traffic.

One hundred and eleven competitors were duly checked into the garage on Monday night, so that if the average of twenty-one retirements is maintained throughout the week there will be few competitors left on Saturday. Many of those who did finish lost marks.

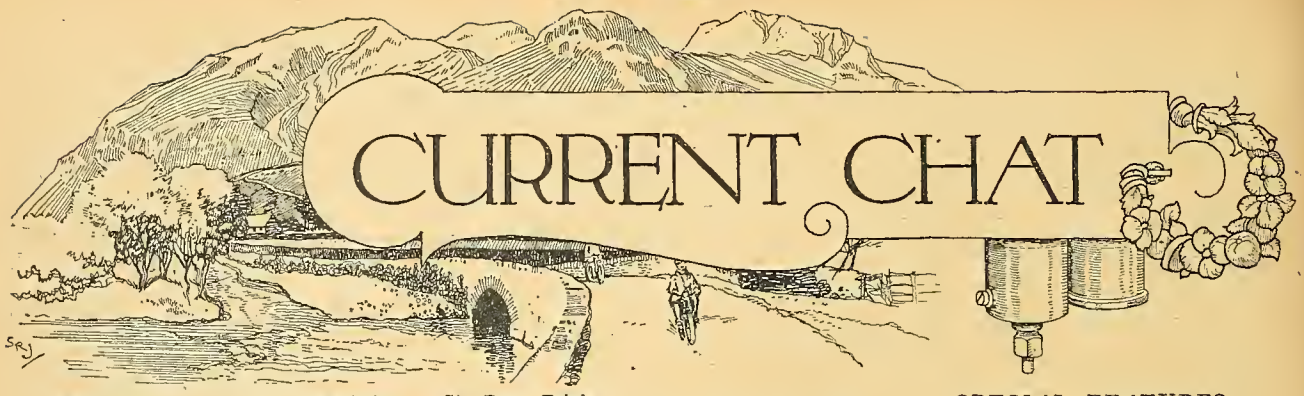


Shield over the Magneto on W. Westwood's, 4 h.p. Triumph

TUESDAY'S ROUTE: 126 Miles. Sheffield, Bakewell, Matlock, Wirksworth, Leek, Rudyard (lunch), Wincle, Cowdale, Stoney Middleton, Hathersage, Sheffield.

Tuesday opened fine, the roads being in excellent condition, and on the outskirts of Sheffield the first hill was encountered; it was short, steep, and rough, and accounted for quite a number of failures. Nott missed the moorland track, and had to scorch back. The road leading to Curbar was exceedingly bad, and the competitors preferred to ride on the grass at the roadside. The next incident was the precarious descent of Grindon, and on the corresponding ascent Walters (3½ P. and M.) led, making an easy climb, but Wilkin (2¾ Levis) nearly fell changing gear in a deep rut. Langton (5 Ariel) made a splendid climb, as did all the Ariels, but May (2¾ A.J.S.) missed gear on the corner, and restarted easily. He had previously charged a wall in a non-stop section, as Chapman had also done. Splendid ascents were achieved by Haddock (2¾ A.J.S.), Kerr (3½ N.S.U.), North (4 Triumph), Robinson (3½ N.U.T.), Davis Smith (4½ B.A.T.), Nott (5-6 Clyno sc.), Stevens (4¼ James sc.), Tubb (3½ Humber), Westwood (4 Triumph), Clayton (4 Triumph), Applebee (3½ Motosacoche), and Drysdale (2½ Connaught).

Flint made a wonderful climb, and Ball, Gibb, and Finch did well, as did C. R. Collier on the big Matchless sc., and Ellis Dixon. There were instances of poor cornering, but Morgan made no mistake, nor did Newey (3½ Ariel), Cook (5 A.S.L.), Allday (3½ James), Williams (6 A.J.S. sc.), Holroyd (3½ Blackburne), Haslam (3½ Premier), and Hawkes (10 Victor c.c.). Owing to pulling a cover off, Tecton was late, and Hardee stopped on the corner with a choked jet.



TIMES TO LIGHT LAMPS.

July	9	... ...	9.14 p.m.
,,	11	... ...	9.13 p.m.
,,	13	... ...	9.11 p.m.
,,	15	... ...	9.9 p.m.

Bank Holiday Races.

Two handicaps for motor cycles are included in the programme at Brooklands on August Bank Holiday. These are both for all classes of motor cycles, over 5¾ and 8½ miles respectively.

Stolen Motor Cycle and Sidecar.

A 4 h.p. 1914 Triumph, engine No. 30,472, and Gloria cane bodied sidecar, No. 590,619, was stolen by means of a worthless cheque from W. Nixon, Brampton, Cumberland, last week. Anyone meeting with this machine is requested to communicate with the Brampton police. Our deposit system is devised to prevent frauds of this kind.

A North-country Speed Test.

The class winners of the Westmorland Motor Cycle Club's speed trials at Underby were as follow: Lightweights, W. Heaton (2¾ A.J.S.) Machines up to 560 c.c., R. Bownass (3½ N.U.T.) Up to 1,000 c.c., R. Bownass (3½ N.U.T.) Sidecar machines (any capacity, on formula), H. Taylor (6 Bradbury sc.) Bownass's performance in the 1,000 c.c. class is worthy of special notice.

A Light Car Rally.

The Midland Light Car Club are organising an open rally for Saturday, July 11th. The meet is to be at the top of Fish Hill, Broadway, an almost ideal spot for the event, as it is situated in beautiful country with a wide selection of hills in the neighbourhood for those who wish to test the climbing powers of their machines, while the roads are good.

Speed and Consistency.

Very high speeds were attained at the Colwyn Bay Speed Trials last Saturday, C. R. Collier on the 7 h.p. eight-valve Matchless attaining a speed of 87.38 miles an hour for the flying half mile and winning seven first prizes. Amongst the sidecar classes Kenneth Holden won the kilometre standing start for passenger machines up to 500 c.c. and the same for 750 c.c. as well as the flying half mile for 750 c.c. and 500 c.c. passenger machines. The A.J.S. firm also take a large share of the credit, taking first, second, and third in three classes, in one case C. Williams on a 2¾ h.p. machine attained a speed of 63.38 miles an hour.

Six Days Trials.

As in the case of other important trials, *The Motor Cycle* provides its readers with the first details and illustrations of the early stages of the A.C.U. Six Days Trials which finish to-morrow (Friday) at Sheffield. A continuation of the report will appear in our next issue written by members of our staff who are following the competitors throughout the week on motor bicycles.

Error in Programmes.

That any mistakes occurred in the official programme of the Scottish Six Days Trials was due to the entrants themselves wrongly describing the fittings on their machines in the entry forms, and, therefore, no blame can attach to the Edinburgh and District M.C., writes Mr. Campbell McGregor.

Road Racing in Italy.

Motor cycle road racing is gaining a great hold on the Continent, and the latest important event was the Grand Prix of Turin just decided. There were thirty-seven entries, sixteen in the 350 c.c. class and twenty-one in the 500 c.c. class. The latter was won by Malvisi on a Motosacoche, Della Ferrera machines being second and third, while the winner in the smaller class was Musso on a Della Ferrera, B. Badino, on a Douglas, being second, and making the fastest lap in the 100 kilometre race, at an average speed for the lap of 50 m.p.h.

SPECIAL FEATURES.

THE A.C.U. SIX DAYS TRIALS.

Exclusive Illustrations and Descriptive Report.

STY HEAD PASS CONQUERED.

Shorter Trials Routes.

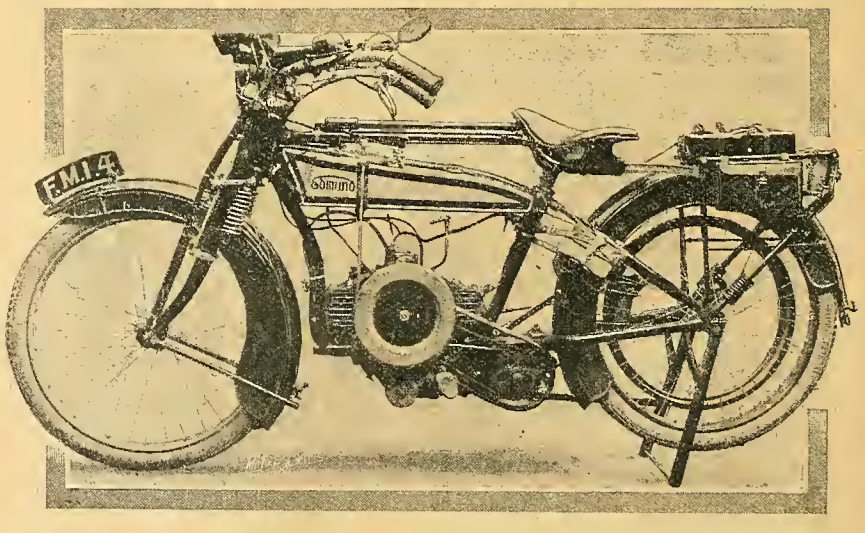
The daily routes for the A.C.U. Six Days Trials are much shorter this year, and competitors much appreciate the earlier return to the riding centre.

Military Motor Cyclists.

Several motor cyclists are required by the War Office to act as despatch riders on 28th July to 8th August next, and also on 3rd August to 8th August. Any riders desirous of serving in this capacity should communicate direct with the Secretary of the Auto-Cycle Union, 83, Pall Mall, London, S.W.

A Midland Trial for Cycle Cars.

A class for 1,000 c.c. cycle cars is included in the regulations for the Coventry and Warwickshire Motor Club's open trial for cycle cars and light cars to be held on Saturday, July 25th. Other classes are for vehicles with engines up to 750 c.c. to 1,100 c.c., no weight limit. Acceleration, easy engine starting, and ability to re-start on a gradient are the three tests included.



An Edmund spring frame machine fitted with 2¾ h.p. Douglas engine and two-speed gear

FUTURE EVENTS.

July 18.—Liverpool Amateur M.C.C. Open Trial.

July 18.—M.C.C. Members' Meeting at Brooklands.

July 18.—Midland Light Car Club Open Efficiency Trial.

July 25.—Streatham and District M.C.C Open Hill-climb.

July 25.—Coventry and Warwickshire M.C. Light Car and Cycle Car Open Trial.

July 25 B.M.C R.C. Race Meeting

Aug. 3-9.—F.I.C.M. INTERNATIONAL SIX DAYS TRIALS. Grenoble as a centre.

Aug. 15.—Essex M.C. Race Meeting at Brooklands.

Sept. 6-9.—ANGLO-DUTCH TRIAL IN HOLLAND

1,000 c.c. Cycle Cars in the Six Days Trial.

Five of the thirteen cycle cars in the Six Days Trials have engines under 1,000 c.c.

Next Week's Trials Report.

Next week's issue of *The Motor Cycle* will contain a detailed description of this week's Six Days Trials, written and illustrated by our own staff, who are accompanying the competitors daily on motor cycles.

Irish Trial Results.

W. J. Henderson (5-6 Rudge) proved the winner of the Rudge-Whitworth Cup and the Manthorpe Cup in the open twenty-four hours Irish trial described in last week's issue of this journal. Second and third prizes fell to riders of 3½ Rovers in the persons of G. Roche and J. Browne.

Two-stroke and Lightweight Number.

July 23rd is the date of the above special number of *The Motor Cycle*, which, as its name implies, will be devoted mainly to articles on the subject of two-stroke engines and lightweight machines of about 300 c.c. capacity. Well-known experienced writers will deal with the subject in articles appealing to all tastes.

Racing Comparison.

In comparing the results of the Johannesburg-Durban race, won by B. Adams on a Rudge-Multi at a speed of 37 m.p.h., with the T.T. race in the Isle of Man, a writer in the *Sunday Times* of Johannesburg actually gives it as his opinion that of the two performances he considers Adams's far and away the more remarkable. The distance of the Rand race was 415 miles.

A Daylight Saving Climb.

Quite a new note in hill-climbs will be struck by the Sutton Coldfield and Mid-Warwickshire A.C. on Monday, July 27th, when this club will hold a hill-climb open to motor cycles, sidecars, cycle cars, and cars, starting at 5 a.m.! Two club trophies will be run for, and, given a fine summer morning, we can imagine nothing more delightful than a climb such as this. It gives the man who cannot compete on a Saturday because his half-holiday is on a Thursday a chance of picking up one of those much sought after but elusive medals, and afterwards presenting himself at business with it on his watch chain—perhaps!

A World-wide Circulation.

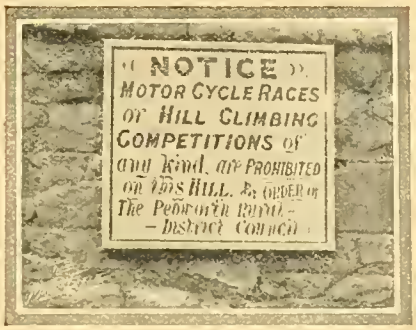
Letters from correspondents in such divergent places as Munich, Magui in Burmah, and Geneva appear in this week's "Letters to the Editor."

The International Six Days Trial.

Entries for the International Six Days Trial close on Saturday next at ordinary fees, and should be sent to M. le Secrétaire, Commission Sportive, Automobile Club de France, 8, Place de la Concorde, Paris. A strong English contingent is expected to go over to Grenoble, comprising such well-known riders as Frank Smith, C. R. Collier, F. May, W. F. Newsome, T. C. de la Hay, H. V. Colver, P. S. Brady, J. Gregson, F. Dover, F. L. Bassett, J. Wodehouse, etc. All those who intend to compete should at once communicate with the A.C.U. regarding their international passes and travelling arrangements.

The Grand Prix: A Contrast.

The contrast between the flourishing state of the motor cycle pastime in England as compared with France was shown up in a remarkable manner at Lyons on Saturday last on the occasion of the French Grand Prix car race. Never before in the whole history of the motor movement has such a tremendous collection of cars been gathered together so that their occupants might witness the race. On the other hand, only a dozen or two motor cyclists were observed, and the whole get up of both riders and machines contrasted most unfavourably with the spick and span outfits we are accustomed to see in this country. The race for the Grand Prix resulted in a sweeping victory for the German Mercédès cars, and our contemporary, *The Autocar*, in the issue for Saturday, July 11th (published to-morrow), will present to its readers what is undoubtedly the fullest, best written, and most completely illustrated report of this race to be obtained anywhere.



The notice board, which has recently been placed at the foot of Willersey Hill, prohibiting "motor cycle races or hill-climbing competitions of any kind." It will be interesting to see if this can strictly be enforced, provided the legal limit be adhered to.

The New Twin Rudge.

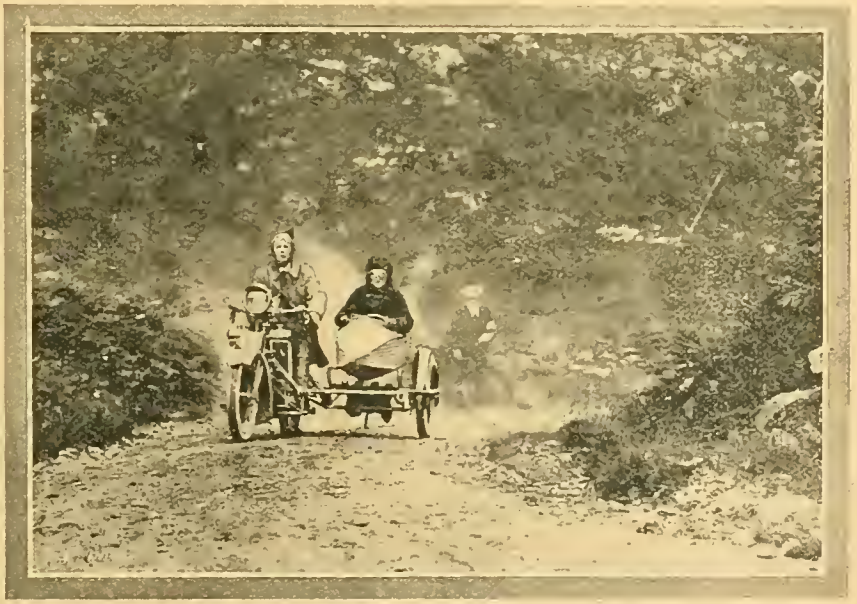
Five hundred twin-cylinder Rudge engines, similar to that described and illustrated exclusively in the last issue of this journal, have been put in hand.

Speed up Hill.

In accomplishing the fastest time of the day at the Caerphilly hill-climb, and beating all the cars in that event, C. T. Newsome averaged 39.14 m.p.h. on his Rover. The performance is all the more noteworthy as Newsome has made fastest time three years in succession.

Motor Cycles for Colonial Officials.

We learn from one of the P.W.D. officials in Nigeria, West Africa, that it is the intention of the Government to equip the Public Works Department officials in Nigeria with motor cycles and sidecars in 1915. It is evident that the authorities intend to undertake a vigorous campaign of road making, as at present they are very bad.



THE GLASGOW M.C.C. TWELVE HOURS TRIAL.
D. S. Alexander (8 h.p. Williamson sidecar) on one of the bends of Glen Finart.

SPEED TRIALS IN NORTH WALES.

High Speeds on the Promenade at Colwyn Bay at Mersey M.C. Trials.

Scene at the start, showing cars returning after the finish of their class, while motor cycle competitors are lined up for the next class. A white line will be noticed down the centre of the road to afford competitors a better chance of keeping to their own side of the road.

AN atmosphere laden with burnt gases and oil hung over the Colwyn Bay Promenade on Saturday last on the occasion of the Mersey Club's annual speed trials, which attracted an entry of 500, the greater portion being motor cycles. The track itself might well have been wider, but the surface was admirable for the racing. Competitors were despatched in half-minute intervals, the times being taken by means of synchronised watches.

C. R. Collier was riding a 3½ h.p. overhead valve Matchless, as well as the 7 h.p. eight-valve machine, on which he made fastest time of the day of 20⅗s. for the half mile (flying start)—speed, 83.8 m.p.h. The Campion sc. ridden to victory by S. Briggs in Classes 10 and 23 had a plated finish, which was quite dazzling.

An incident which marred the proceedings for a short time was a spill in Class 7 by W. J. MacConnachie (3½ Triumph). When nearing the finish the front tyre blew off, and the rider was thrown, but did not sustain any severe injuries. Confusion reigned, as the other competitors were coming up the course, and J. M. Ritchie (Rudge) fouled the footrest of Carryer's Royal Ruby, with the result that both were thrown clear of their machines, the former having later on to be taken to the hospital. However, next day Ritchie was reported to be progressing very favonrably.

H. Hall (Rudge) stopped near the finishing point in the same class with ignition trouble. In Class 10 F. C. Topham had the front cylinder head blown off his 8 h.p. J.A.P., but finished the course with one cylinder firing.

Timekeeper's Telephone Breakdown.

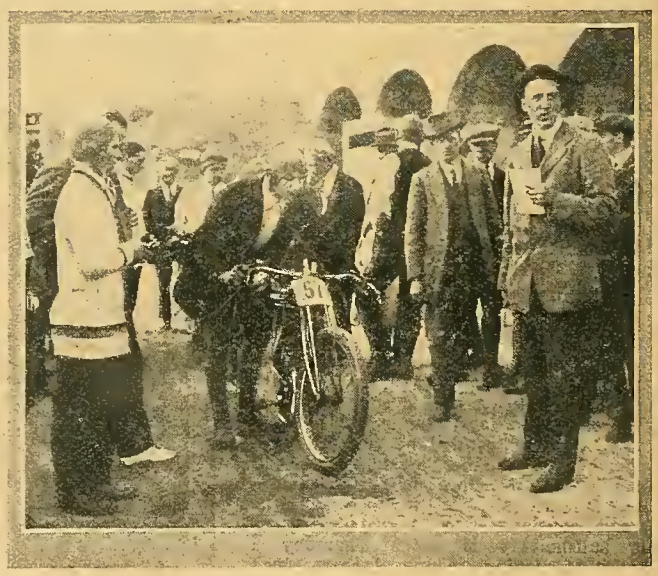
From now onwards no results were posted up on the board, as the telephone arrangements broke down, and so no times could be verified until later in the day. After each event one of the officials travelled down the course on a car announcing the end of the class and what class was to follow.

A protest was lodged in Classes 1 and 14 against the published dimensions of the New Imperial engine. This matter, however, is being handed over to the A.C.U. for the engine measurements to be officially checked.

The exhaust of the Sunbeams was noticeably quieter than any other machines.

Class 13, open to residents of twelve months or more in North Wales, for the North Wales Championship, was won by R. F. James, riding a 3½ N.S.U.

Just past the finishing line a foothridge had been erected over the course to allow the spectators to view the racing from either side of the road. Incidentally, the bridge itself proved a good point of vantage, as from here practically the whole course could be seen at once, as well as the pull up, which extended a distance of some 800 yards.



E. F. Baxter (8 h.p. Rex) on the starting line in Class 18 for solo machines up to 1000 c.c. capacity.

Speed Trials in North Wales.—

The provisional list of results, subject to confirmation by the Club Committee, is as follows :

CLASS II.—ONE KILOMETRE STANDING START (Solo Machines up to 350 c.c.)—1, W. Heaton (2¾ A.J.S.), 44s., speed 50.84 m.p.h. ; 2, C. Williams (2¾ A.J.S.), 44⅘s. ; 3, W. Stevens (2¾ A.J.S.), 45s. First amateur, T. N. Stubbs (Douglas), 48⅘s., speed 46.22 m.p.h.

CLASS A.—ONE KILOMETRE STANDING START (Solo Machines up to 200 c.c.)—1, B. Norris (2 O.K.), 62s., speed 36.08 m.p.h. ; 2, G. A. Radley (2 O.K.) 62⅕s. ; 3, W. H. Butterfield (2 Levis), 62⅘s.

CLASS III.—ONE KILOMETRE STANDING START (500 c.c.)—1, C. R. Collier (3½ Matchless), 39⅕s., speed 57.07 m.p.h. ; 2, H. V. Colver (3½ Matchless), 41⅘s. ; 3, H. Riddell (3½ Ivy), 42¼s. First amateur, V. E. Horsman (3 Singer), 44⅘s., speed 50.38 m.p.h.

CLASS I.—ONE KILOMETRE STANDING START (Solo Machines up to 275 c.c.)—1, O. Wade (2½ New Imperial), 57s., speed 39.24 m.p.h. ; 2, G. A. Radley (2 O.K.), 60⅕s. ; 3, R. E. Grice (2½ Ixion), 62s.

CLASS IV.—ONE KILOMETRE STANDING START (Solo Machines up to 750 c.c.)—1, C. R. Collier (3½ Matchless), 38⅘s., speed 58.25 m.p.h. ; 2, H. V. Colver (3½ Matchless), 40⅘s. ; 3, H. G. Dixon (3½ James), 41⅘s. First amateur, J. H. Fox (5 Matchless), 43⅘s., speed 51.54 m.p.h.

CLASS V.—ONE KILOMETRE STANDING START (Solo Machines up to 1,000 c.c.)—1, C. R. Collier (7 Matchless), 35⅘s., speed 62.84 m.p.h. ; 2, J. J. Cookson (7 Matchless), 38⅕s. ; 3, H. Reed (8 Dot) and *A. J. Brewin (8 Zenith), 38⅘s. *First amateur.

CLASS VI.—ONE KILOMETRE STANDING START (T.T. Machines up to 350 c.c.)—1, C. Williams (2¾ A.J.S.), 41⅕s., speed 53.52 m.p.h. ; 2, *E. Hart (2¾ A.J.S.) and W. Stevens (2¾ A.J.S.), 42⅘s. *First amateur.

CLASS VII.—ONE KILOMETRE STANDING START (T.T. Machines up to 500 c.c.)—1, C. R. Collier (3½ Matchless), 39⅕s., speed 56.20 m.p.h. ; 2, H. G. Dixon (3½ James), 41⅘s. ; 3, T. Harrison (3½ Triumph), 42⅕s. First amateur, E. Kickham (2¾ Douglas), 42⅘s., speed 52.51 m.p.h.

CLASS VIII.—ONE KILOMETRE STANDING START (Passenger Machines up to 500 c.c.)—1, K. Holden (3½ B.S.A), 50⅘s., speed 44.03 m.p.h. ; 2, *V. E. Horsman (3½ Singer), 51⅘s. ; 3, A. Wray (3½ A.B.C.), 54⅕s. *First amateur.

CLASS IX.—ONE KILOMETRE STANDING START (Passenger Machines up to 750 c.c.)—1, H. Bottoms (6 Bradbury) and K. Holden (B.S.A.), 48⅘s., speed 45.84 m.p.h. ; 3, *J. H. Fox (5 Matchless), 50⅘s. *First amateur.

CLASS XII.—SEALED HANDICAP (for Solo and Passenger Machines and Cycle Cars).—1, N. J. Hall (3½ N.U.T.), 46⅘s. ; 2, R. E. Grice (2¾ Sunbeam) 48⅕s. ; 3, H. Waterworth (3½ Triumph), 52s.

CLASS X.—ONE KILOMETRE STANDING START (Passenger Machines up to 1,000 c.c.)—1, S. B. Briggs (8 Campion), 42⅘s., speed 52.76 m.p.h. ; 2, A. J. Brewin (8 Zenith), 43⅕s. ; 3, E. Longden (8 Dot), 48s.

CLASS XIII.—ONE KILOMETRE STANDING START (Motor Cycles and Passenger Machines).—1, R. F. James (3½ N.S.U.), 44⅘s., speed 50.16 m.p.h. ; 2, W. Jones (2¾ A.J.S.), 45⅕s. ; 3, F. W. Browne (3½ Triumph), 46s.

CLASS XXI.—HALF-MILE FLYING START (Passenger Machines up to 500 c.c.)—1, K. Holden (3½ B.S.A.), 32⅘s., speed 55.21 m.p.h. ; 2, *V. E. Horsman (3½ Singer), 33⅘s. ; 3, A. Wray (3½ A.B.C.), 38⅕s. *First amateur.

CLASS XV.—HALF-MILE FLYING START (Solo Machines up to 350 c.c.)—1, C. Williams (2¾ A.J.S.), 28⅘s., speed 63.38 m.p.h ; 2, W. Stevens (2¾ A.J.S.), 29⅕s. ; 3, H. Newman (2¾ Ivy) and W. Heaton (2¾ A.J.S.), 30⅕s.

CLASS B.—HALF-MILE FLYING START (Solo Machines up to 200 c.c.)—1 H Newey (1.9 Levis), 41⅕s., speed 43.06 m.p.h. ; 2, B. Norris (2 O.K.), 42⅕s. ; 3, G. A. Radley (2 O.K.), 44s.

CLASS XXII.—HALF-MILE FLYING START (Passenger Machines up to 750 c.c.)—1, K. Holden (3½ B.S.A.), 33⅘s., speed 53.89 m.p.h. ; 2, *V. E. Horsman (3½ Singer) and H. Bottoms (6 Bradbury), 33⅕s. *First amateur

One of the sidecar competitors crossing the finishing line. On the left will be seen the large score board, and on the right the grand stand and officials' tents.

CLASS XIV.—HALF-MILE FLYING START (Solo Machines up to 275 c.c.)—1, O. Wade (2½ New Imperial), 38⅕s., speed 46.39 m.p.h. ; 2, G. A. Radley (2 O.K.), 42⅕s. ; 3, A. J. Jenkins (2½ Ivy), 43⅕s.

CLASS XXIII.—HALF-MILE FLYING START (Passenger Machines up to 1,000 c.c.—1, S. B. Briggs (8 Campion), 27⅘s., speed 65.69 m.p.h. ; 2, A. J. Brown (8 Zenith), 27⅕s. ; 3, E. Longden (8 Dot), 32s.

CLASS XVI.—HALF-MILE FLYING START (Solo Machines up to 500 c.c.—1, H. Riddell (3½ Ivy), 25s., speed 72 m.p.h. ; 2, C. R. Collier (3½ Matchless), 25⅕s. ; 3, J. Cocker (3½ Triumph), 25⅘s. First amateur, G. Kendall (3½ Norton), 25⅕s.

CLASS XVII.—HALF-MILE FLYING START (Solo Machines up to 750 c.c.)—1, C. R. Collier (3½ Matchless), 24⅘s., speed 73.77 m.p.h. ; 2, J. Cocker (3½ Triumph), 25⅕s. ; 3, H. Riddell (3½ Ivy), 25⅘s. First amateur, J. H. Fox (5 Matchless), 26s.

CLASS XIX.—HALF-MILE FLYING START (T.T. Machines up to 350 c.c.)—1, E. Kickham (2¾ Douglas), 27⅘s., speed 65.69 m.p.h. ; 2, C. Williams (2¾ A.J.S.), 27⅘s. ; 3, W. Heaton (2¾ A.J.S.), 28⅕s.

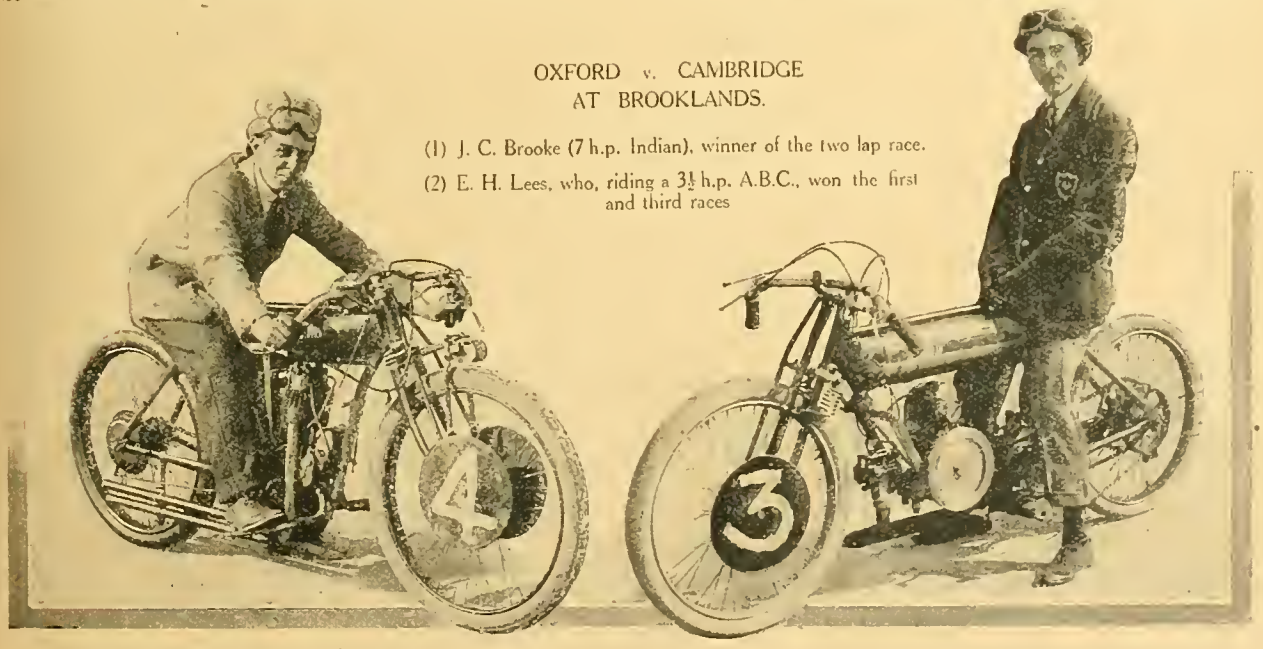
CLASS XVIII.—HALF-MILE FLYING START (Solo Machines up to 1,000 c.c.)—1, C. R. Collier (7 Matchless), 20⅕s., speed *87.38 m.p.h. ; 2, A. J. Brewin (8 Zenith), 21⅘s. ; 3, H. Reed (8 Dot), 21⅕s. First amateur, A. J. Brewin. *Fastest time of the day.

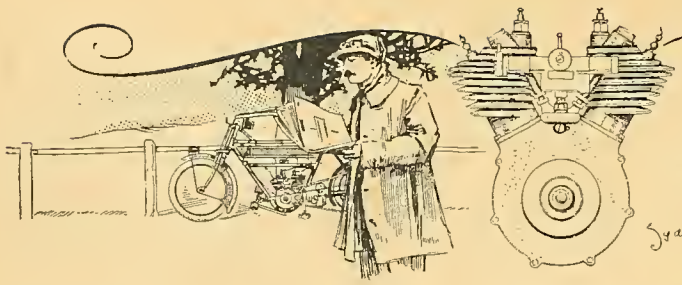
CLASS XX.—HALF-MILE FLYING START (T.T. Machines up to 500 c.c.)—1, C. R. Collier (3½ Matchless), 23⅕s., speed 77.59 m.p.h. ; 2, J. Cocker (3½ Triumph), 25s. ; 3, *G. Kendall (3½ Norton), 25⅕s. *First amateur.

OXFORD v. CAMBRIDGE AT BROOKLANDS.

(1) J. C. Brooke (7 h.p. Indian), winner of the two lap race.

(2) E. H. Lees, who, riding a 3½ h.p. A.B.C., won the first and third races





SEVERE SCOTTISH EVENT.

Glasgow M.C.C. One Day Trial.

THE conditions were all that could be desired on Saturday last when the Glasgow M.C.C. held their annual twelve hours reliability trial. Brilliant sunshine and an entire absence of wind, combined with the fact that the route chosen on this occasion passed through some of the most magnificent scenery in the West of Scotland, made the event one of the most enjoyable of the season. The route, in contrast to many of the twelve hours trials north of the border, was particularly severe, including several notorious Argyllshire hills, as well as the well-known Rest and be Thankful. The latter, it may here be stated, was, if anything, the easiest of the lot, and only the bad hairpin at the top caused any trouble. The following was the itinerary of the day's journey: Glasgow, Bearsden, Balloch, Arrochar, Rest and be Thankful, St. Catherine's, Otter Ferry, Dunoon (lunch stop), Ardentinny, Glen Finart, Whistlefield, St. Catherine's, Hell's Glen, Arrochar, Balloch, to Glasgow. The three observed hills were Rest and be Thankful (including the Little Rest), Glen Finart, and Alt Glinnie Mhoir. To obtain a gold medal competitors had to make a clean ascent of all these hills, and be at checks to time. There were forty-eight starters.

The ascent of Rest and be Thankful.

Very few experienced trouble to Arrochar. A. T. Downie (5-6 Ariel sc.), however, had tyre trouble near Bearsden, and W. Turpin (6 Sunbeam sc.) was forced to detach his sidecar owing to wheel bearing trouble. On "The Rest" A. McCulloch (2¾ A.J.S.) failed, as did T. F. Walkinshaw (3½ N.S.U.), the latter taking the hairpin too fast. W. Carlaw (6 Swift c.c.) had distinctly hard lines, as in changing into low gear the little vehicle slid back a few yards, stopped, and then got away. A. J. Griffiths, on an O.K. Junior, easily the smallest engine in the trial, made a good ascent, appearing to have plenty of power in hand. From the top of the hill to St. Catherine's was easy going, thereafter the road deteriorated, and between Otter Ferry and Dunoon was merely a track, the surface being vile and the road particularly twisty. So bad was this stretch that miniature machines and sidecars were allowed twenty minutes extra over the solo riders.

One or two were late at the lunch control. D. B. Stirling (6 h.p. Clyno sc.) took the wrong turn, and will probably be disqualified. A. F. Downie (5-6 h.p. Ariel sc.) had further tyre trouble, and did not finish. J. L. Smith (2½ h.p. Triumph) also had tyre and plug trouble and was very late.

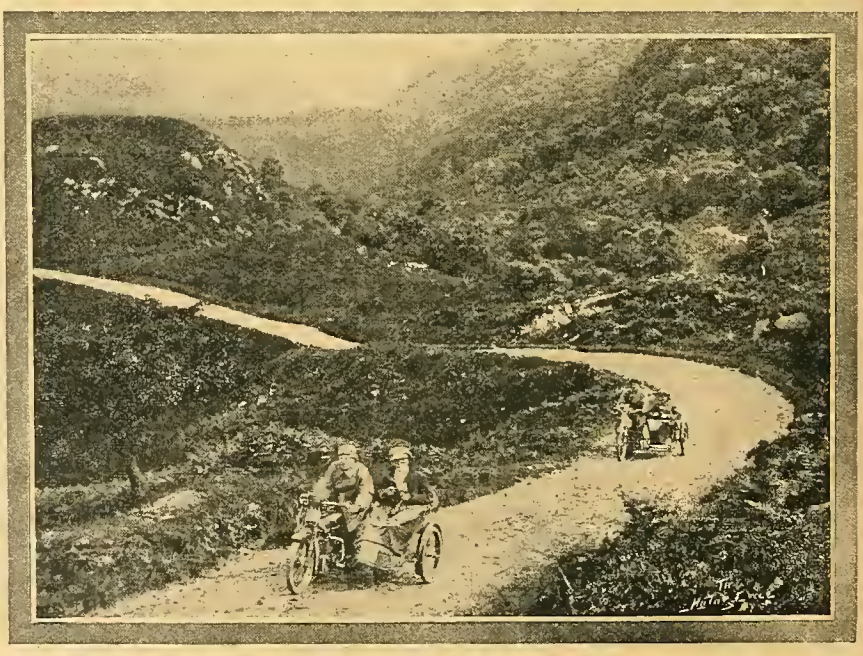
Climbing Glen Finart.

After lunch the very severe ascent through Glen Finart was tackled, and many of the competitors found the last hairpin too much for them. Morris (3½ h.p. Ariel) made quite a good ascent, as did W. Deans (3¼ h.p. Lea Francis). W. Carlaw (Swift c.c.) got round well, while D. Bell (6 h.p. A.J.S. sc.) also had little trouble in making the ascent. One of the best ascents of the day was that of D. S. Alexander (8 h.p. Williamson sc.) He took the corner at speed, and finished the climb very fast. The F.N.'s also made light of the ascent. A. J. C. Lindsay (3½ h.p. Rover sc.) just failed near the summit, as did R. G. McGibbon (3½ h.p. Edmund sc.) and A. J. Griffiths (O.K.) The following were the other failures: J. McMeekin (3½ h.p. Rudge); Murray Lang (3¼ h.p. Lea-Francis), who, however, really stopped when over the summit; Stoddart (3½ h.p. B.S.A. sc.), who was kept back by another sidecar combination; R. Holmes (6 h.p. Clyno sc.); J. L. Smith (2½ h.p. Triumph); J. Bell (6 h.p. A.J.S. sc.), who was baulked, and T. Findlay (3½ h.p. James).

List of the Survivors.

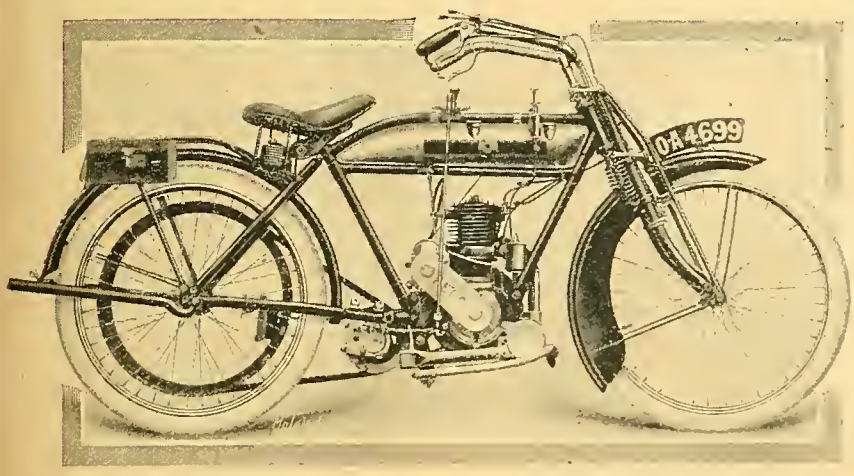
The last hill, Hell's Glen, was responsible for a few more failures, but the majority had little trouble in checking in at Arrochar to time. The following checked in during the evening at Blythswood Square:

W. Carlaw (6 h.p. Swift c.c.), T. S. V. Phillip (6 h.p. A.S. sc.), T. A. McCreadie (2¾ h.p. Sunbeam), A. U. R. Downie (2¾ h.p. A.J.S.), W. Morris (3½ h.p. Ariel), F. M. Lang (3¼ h.p. Lea-Francis), A. J. Griffiths (2 h.p. O.K. Junior), J. McMeekin (3½ h.p. Rudge), A. McCulloch (2¾ h.p. A.J.S.), H. W. Ballardie (5-6 h.p. Hazlewood), W. Bryson (6 h.p. A.J.S. sc.), W. Deans (3¼ h.p. Lea-Francis), D. S. Alexander (8 h.p. Williamson sc.), F. M. Stoddart (4 h.p. B.S.A. sc.), W. J. Gates (7 h.p. F.N.), W. Dickie (7 h.p. F.N.), J. S. Chisholm (3½ h.p. Ariel), A. J. C. Lindsay (3½ h.p. Rover sc.), J. S. Dallas (5-6 h.p. New Hudson sc.), T. Tennent (3½ h.p. Rudge), T. Shoda (3½ h.p. Douglas), H. E. Whittingham (4¼ h.p. James sc.), J. J. Whyte (7 h.p. F.N.), R. W. Reid (6 h.p. Bradbury sc.), F. C. Rayment (4 h.p. Triumph), D. B. Stirling (6 h.p. Clyno sc.), W. Alexander (7-9 h.p. Indian sc.), E. Mazella (3½ h.p. Triumph), R. Black (7 h.p. F.N.), J. Bell (6 h.p. A.J.S. sc.), J. Barclay (3½ h.p. Triumph), R. H. Jones (3½ h.p. Triumph), D. Bell (6 h.p. A.J.S. sc.), R. G. MacGibbon (3½ h.p. Edmund sc.), A. T. Brash (7 h.p. Harley Davidson), and T. Findlay (3½ h.p. James).



W. Bryson (6 h.p. A.J.S. sidecar), followed by another competitor in one of the many glens.

A Trump-Peco Two-stroke.



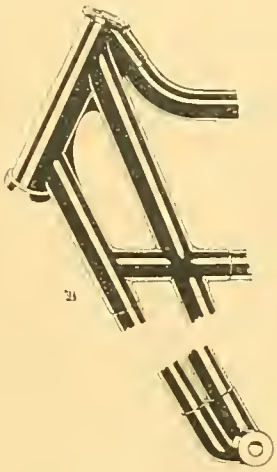
Right hand side of the new two-stroke Trump-Peco

ALMOST every week there are fresh additions to be noted to the two-stroke ranks, and one of the latest is the neat little mount to be marketed by Trump Motors, of Lombard Street, Birmingham. On a recent visit to the works we inspected the preliminary model, which will be altered in detail only, except for the frame construction described later. The 2¾ Peco engine, 75 × 79 mm. bore and stroke, is fitted, and carries a U.H. magneto, and either Amac or Senspray carburetter. The drive is either direct or by chain and belt with a two-speed counter-shaft gear, or through a three-speed hub, the same design of frame being utilised in each case. Lubrication is quite separate from the petrol supply, oil being passed through a Best and Lloyd sight-drip feed direct to the cylinder, whence it feeds the bearings in the usual Peco manner. The tank is a neat oval in section, and has a large capacity. Druid forks are fitted, and the front mudguard has full valances.

Unusual Frame Design.

The frame construction to be employed is unusual, and the patentees, Mr. W. A. Forster, of Trump Motors, and Mr. C. Pearson, of Peco Motors, claim that it is unbreakable. As was pointed out to us, the most common point of fracture is just below the head lug, and a reference to the appended sketch will show that the down tube is duplicated in the case new frame. This divides the strains both from the engine explosions and from the pivoting action of the forks, while in the latter case it is considerably assisted by the curve in the top tube, which is designed with that object. This head construction is most interesting and forms a novel and practical feature.

Originality in design is always interesting, especially when there is sound reason for the departures from standard, and we were much impressed by the new Trump-Peco frame.



Head lug and front down tubes on the two-stroke Trump-Peco

As showing the great interest taken in motor cycle events in South Africa, the above photograph was taken at the finish of the Johannesburg-Durban race, and shows the winner, B. Adams, on a 3½ h.p. Rudge (in white circle), finishing at Durban. Second place was taken by H. J. Thompson, who also rode a Rudge Multi

"THE MOTOR CYCLE" LIST OF WEEK-END CLUB EVENTS.

July 10th.—Ripon and District M.C.C. Reliability run for President's Cup.
„ 11th.—Middlesex M.C.C. Run to Digswell, 3.15 p.m.
„ 11th.—Tottenham and District M.C.C. Run to Harpenden.
„ 11th.—Cardiff and District M.C.C. Hill-climb.
„ 11th.—Middlesbrough and District M.C.C. Run to Rievaulx Abbey.
„ 11th.—Midland Light Car Club. Open rally at top of Fish Hill, Broadway.
„ 11th.—N.W. London M.C.C. Run to Walton-on-Thames Regatta.
July 13th.—Plymouth and District M.C.C. Evening run to Two Bridges, 7.30
„ 15th.—Surrey M.C.C. Speed trials.
„ 15th.—Folkestone and District M.C.C. Run to Canterbury.
„ 15th.—Castleford M.C. Reliability trial.
„ 18th.—Meet at Brooklands for M.C.C. races.
„ 18th.—Perth and District M.C.C. Team competition for the Waverley Cup, open to all Scottish motor cycle clubs.

Liverpool A.C.C.

In the reliability trial held on the 27th ult., G. B. Court (Douglas), L. Mogridge (Rudge), and J. Green (New Hudson) tied for the first prize, and no decision has yet been arrived at.

Harrogate and District M.C.C.

The annual two days reliability trial for some reason or another attracted only a moderate number of members for the trip, which went up into Lakeland, and included a run round Windermere, Rydal Water, Grasmere, Thirlmere, Derwentwater, and Ullswater. The chief hills were Red Bank, Dunmail Raise, Kirkstone Pass, and a bad and stony ascent from Nateby to Mnker, all of which were included in non-stop sections. Red Bank caused W. Hill (3¾ Scott sc.) and F. Wray (4 James sc.) to fail, and later on Wray retired. Near Sedbergh E. R. Davies (2¾ A.J.S.) tried conclusions with a car and came off second best, and at this point W. Hill, who was passing at the time, like the good sportsman he is, gave up his chances and took Davies home in his sidecar, and, despite its extra load, the Scott did splendidly. W. Fawcett (3½ P. and M.), after suffering from numerous punctures, tried to make up time on a flat tyre, with the result that he had a fall and retired. J. Charles (2¾ Douglas) had chain trouble, and G. Hill, on a similar machine, had a lot of tyre trouble.

Only the following finished with clean sheets, having climbed all hills, completed the non-stop sections, and clocked in to time at all checks: H. E. Ellis (2¾ A.J.S.); C. H. Charles (3½ Singer); C. Falkingbridge (3½ Rudge Multi); and G. H. Threlfall (3¾ Scott).

Folkestone and District M.C.C.

A hill-climb was held at Waterworks Hill on the 1st inst. Results:

Event 1.—For most weight propelled up the hill on least petrol consumption: 1, A. J. McLachlan (6 Royal Enfield), 965; 2, A. S. Burvill (6 Royal Enfield), 830; 3, A. E. Franks (6 Royal Enfield), 711.

Event 2.—For machines showing the greatest difference between fastest and slowest times up the hill: 1, R. Nichols (7 Indian), slow 241s., fast 45s.; 2, A. E. Franks (6 Royal Enfield), slow 207s., fast 52s.; 3, B. R. Billings (3½ P. and M.), slow 215s., fast 73.2s.

Newport Pagnell and North Bucks M.C.C., and Wellingborough, Rushden and District M.C.C.

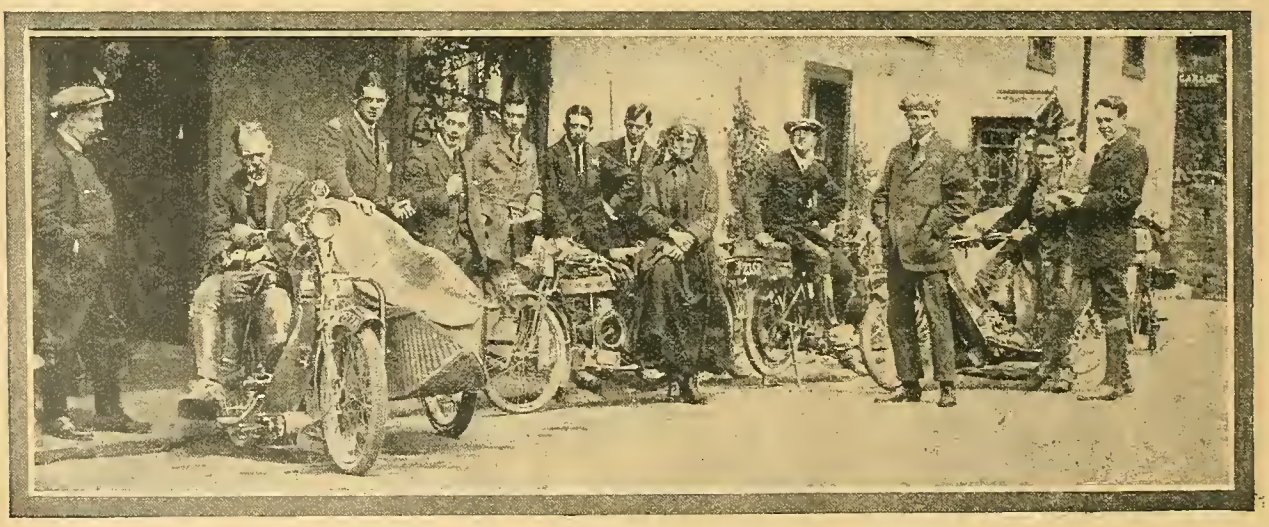
An inter-club trial was run off on the 27th ult. over a course of about 100 miles. Results:

Wellingborough.—A. J. Watts (3½ Triumph) and W. A. Perkins (3½ Triumph), 96 marks; F. Briggs (6 Rex and sc.), 93; H. Sanders (3½ Triumph), 91; H. Bennett (3½ Humber), 89; C. M. Newton (2¾ Douglas), 88; A. Shortland (3½ L.M.C.), 86; J. Walker (3½ Triumph), 85; E. G. Palmer (2¾ Douglas), 73.

Newport.—C. Webster (6 Bradbury and sc.), 95; G. F. Trimmer (6 Enfield and sc.), 86; J. V. Shaw (3½ Ariel), 85; C. M. Wilford (6 Enfield), 85; T. Bowden (3½ Triumph), 85.

Coventry and Warwickshire M.C.

The Coventry and Warwickshire M.C. will, on the 25th inst., hold an open trial for cycle cars and a closed event for light cars up to 1,500 c.c. There will be three classes: Class I., for vehicles with engines up to 750 c.c.; Class II., ditto from 750 to 1,000 c.c.; Class III., ditto from 1,000 to 1,100 c.c. The start will take place at 8 a.m. on the road between Gibbet Hill and Stoneleigh, and the course will be approximately 150 miles. Entries to Mr. H. Whiteman, Hertford Street, Coventry, close on the 18th inst.



HARROGATE AND DISTRICT M.C.C. TWO DAY RELIABILITY TRIAL.

A group of competitors at Pooley Bridge, at the north end of Ullswater, the lunch control on the second day's run.

Club News.

The Cyclecar Club.

A club hill-climb will be held at South Harting on July 18th, a feature of which will be a special class for lady drivers.

Tyldesley and District M.C.C.

The annual one day reliability trial was held recently, when about thirty members took part. There were two non-stop sections and one secret check. Results: 1, Mr. Clare (3½ Triumph sc.); 2, Mr. Cowburn (4 Triumph); 3, Mr. Greenhalgh (4¼ B.S.A.).

Cape Peninsula M.C.C.

An open rally for motor cyclists took place on June 6th, the venue chosen being some twenty miles away from Cape-town amongst most picturesque surroundings. From near and far solo and sidecar riders turned up, and soon a hundred outfits were lined up in the grounds of the Royal Hotel. A public vote decided to which owner of the smartest outfit the special prize would be awarded. This ultimately went to W. J. Houghton, who was riding his two-year-old Triumph, which was in the most perfect condition imaginable. The big crowd of motor cyclists were entertained to tea by the C.P.M.C.C.

Herefordshire M.C.C.

The members of the Herefordshire Club held a picnic at Speech House in the Forest of Dean, where they were met by the Cheltenham, Gloucester, and Abergavenny Clubs on June 28th. The captain, Mr. W. A. Smith, gave some surprise prizes, which were won by the following: Mr. Southgate (6 h.p. Rex sc.) for being No. 13 to get there, as that number is generally considered unlucky; Mr. W. B. Gibb, of Gloucester, was given the prize for having the most attractive, clean, and comfortable passenger machine (a Douglas cycle car); Mr. Brain, riding a Sunbeam, was awarded for same as above, but solo. About 3.30 the party dispersed in various directions for tea, some going to Ross, others to Symond's Yat, and most of the Herefordshire men (twenty-two in number) went on to Chepstow.

Showing how the four-cylinder Henderson attracts attention, even on its native soil. It is seen outside one of the principal hotels in Detroit, U.S.A.

OXFORD v. CAMBRIDGE AT BROOKLANDS.

Start of the three lap race for solo machines.

On the starting line in the sidecar and cycle car two-lap race.

The first time the Oxford and Cambridge Clubs attempted this year to run their race meeting at Brooklands, which was in the springtime, it rained so heavily that the affair had to be postponed. On Tuesday, June 30th, however, when the fixture was held, the weather was glorious. Unfortunately, owing to poor advertising, very few people knew of the meeting, and so the attendance was small. Results:

Two Lap (about 5½ Miles) Handicap (for Motor Cycles not exceeding 500 c.c.)—1, E. H. Lees (A.B.C.), 16s.; 2, T. C. McKenna (Norton), scratch; 3, L. Bostoo (N.U.T.), 68s. Time 5m. 57⅘s. Speed 64.71 m.p.h.

Two Lap Handicap (for Cycle Cars and Sidecars).—1, L. Martin (10 Singer), scratch; 2, B. Sandeman (8 Matbis), 92s.; 3, T. M. McKenna (3½ Norton sc.), 92s. Time 7m. 3⅕s. Speed 46.14 m.p.h.

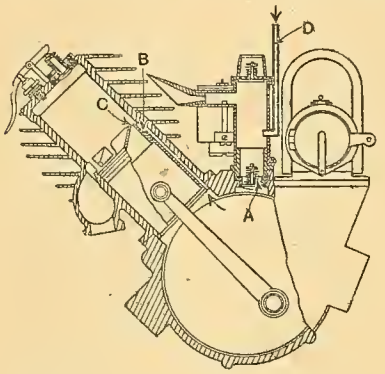
Three Lap (about 8½ Miles) Handicap (for Motor Cycles not exceeding 500 c.c.)—1, E. H. Lees (A.B.C.), 12s.; 2, J. R. Purvis (Singer), 33s.; 3, L. P. Openstaw (N.U.T.), 102s. Time 9m. 12s. Speed 63.44 m.p.h.

Two Lap Handicap (for Motor Cycles exceeding 500 c.c. and not exceeding 1,000 c.c.)—1, J. C. Brooke (2 Indian), scratch; 2, T. E. Lauder (4 Henderson), 8s. Time 5m. 31⅖s. Speed 61.61 m.p.h.

Three Lap Handicap (for Motor Cycles exceeding 500 c.c. and not exceeding 1,000 c.c.)—1, E. L. Gibbons (2 Matchless), scratch; 2 I C Brooke (2 Indian), 30s. Time 7m. 27⅗s. Speed 68.80 m.p.h.

A Two-stroke Engine.

This engine is of the two-port crank case compression type, drawing gas into the crank chamber through an inlet valve B arranged just beneath the carburetter. The invention in this particular case consists in making the end B of the transfer passage at right angles to the length of the cylinder and

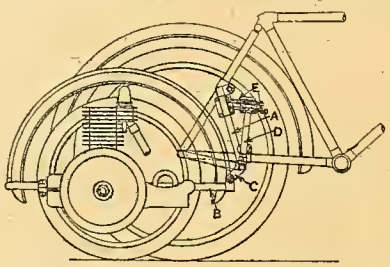


providing the piston with a lip C of particular shape, so that directly the transfer port at B is uncovered the gas is delivered to the top of the cylinder. As the piston approaches its outer limit of travel the gas is delivered more and more across the cylinder. Oil is admitted by the pipe D.—D. Ruva, No. 11,588, 1913.

PATENTS by Eric W. Walford

An Auto-wheel Attachment.

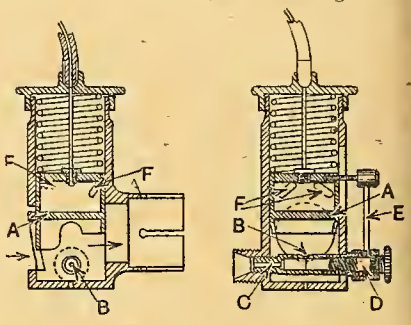
This particular arrangement is provided to insulate the cycle from the impulses of the engine. To the cycle is attached a triangular frame A, and the horizontal frame B of the auto-wheel attachment, instead of being secured directly to the frame A, is pivoted to a link C, to which is attached an arm D lying between opposed springs E



attached to the frame. Thus the thrust of the engine is transmitted to the machine through the springs E.—R. O. Clark, No. 5,324, 1913.

A Simple Carburetter.

This carburetter is of the kind in which movement of the throttle alters the jet opening. It will be noticed that the carburetter is very small, comprising merely a vertical sliding valve A actuated by a Bowden wire, and arranged to control the passage of air through the carburetter in the direction of the arrows. At B is a fuel outlet receiving fuel



through a needle valve C. The stem D of this valve is connected by a crank and a link E to the throttle, so that as the throttle is raised the needle valve is unscrewed, and more petrol is allowed to pass to the jet. The connection between the needle valve and the throttle is adjustable. At F are holes in the throttle valve, which, when the throttle is completely closed, allow pure air to pass to the engine.—D. McGregor, No. 5,496, 1913.

Sidecars for Rough Countries.

A notable feature of the Scottish Six Days Trials was the number of breakages of sidecar chassis. It is interesting to note, in view of this, that every Montgomery sidecar engaged in these trials emerged in excellent condition.

A Good Record.

In the recently concluded Scottish Trials, the six P. and M.'s entered were awarded five gold medals and one silver medal, the silver medal going to the only lady rider who completed the trial. The new P. and M. chain cases proved most successful in every way.

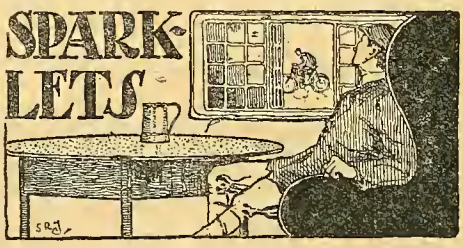
For Tourists in Scotland.

Messrs. Gall and Inglis have recently published a new and excellent series of road maps know as the Gradient Road Maps. The section sent to us is that of Inverness, Speyside, and the Caledonian Canal. The quality of the roads is shown by means of colours, and the hills are indicated by triangles of varying thickness denoting their steepness. The superior roads are marked in bright yellow, the good roads in dark yellow, the inferior roads in pink, and the rough roads in blue. If a road is not coloured at all it is a sure indication of its badness.

TWO STROKES AND LIGHTWEIGHT MACHINES

will form the main topic in a special issue of *THE MOTOR CYCLE* to be published on THURSDAY, JULY 23rd.

SPARKLETS



A Powerful Lightweight Engine.

In the recent trial for the Calthorpe Cup the O.K. Junior machines performed remarkably consistently, and their speeds up Edge Hill were wonderful for so small an engine. This engine is specially constructed for Messrs. Humphries and Dawes, and is known as the O.K. engine.

A Severe Gear Test.

On another page of this issue Mr. G. D. Abrahams gives a graphic description of the conquest of Sty Head Pass by Mr. W. B. Little on his Premier. It is interesting to note that the indispensable change speed gear on this journey was an Armstrong hub, which went through the tremendous test without any trouble or attention.

Royal Ruby Extensions.

The growth of the Royal Ruby business has necessitated the acquirement of greatly extended premises, and the works of the company at Canal Street, Ancoats, Manchester, are now being more than doubled in size. It is hoped with these extensions to cope with the very rapidly growing demand for Royal Ruby motor cycles.

Hutchinsons in Scotland.

In the recent Scottish Six Days trials Hutchinson tyres scored many successes. Of the eight competitors who started on these tyres seven finished and secured gold medals, the other competitor having the misfortune to fall over the cliffs at Applecross and thus place himself *hors de combat.*

A London-Edinburgh Echo.

We are informed by the Competition Secretary of the M.C.C. London-Edinburgh Run that a gold medal for the single journey has been award to T. Silver (4 Quadrant sc.). Silver was originally disqualified for being fifteen minutes ahead of time, but this was found to be an error on the part of a checker.

Belts and Speed Trials.

The Lycett "Reliable" belt was in great demand at the Birmingham M.C.C. speed trials on June 27th. C. R. Collier used this belt on his new 7 h.p. Matchless racer, which made fastest time of the day, and several other winners pinned their faith in the Lycett belt for transmission purposes.

The Hutchinson trophy awarded to the B.S.A. team for regularity of running in the Circuit de l'Eure.

motor cycle manu-
he world fit
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A LETTER FROM

The Triumph Cycle Co., Ltd., one of the oldest and most successful manufacturers in the world.

Dear Sirs, *June 29th*, 1914.

You will no doubt be interested to hear that we have obtained the utmost satisfaction from the Bosch Magneto. We believe that we were one of the first — if not the first — Manufacturers to adopt magneto ignition on Motor Cycles as standard. This was as far back as 1905, and the many thousands that we have fitted since that year have given splendid service.

As you are aware, we have a very high conception as to what the quality and workmanship of a Motor Cycle should be, and we have no hesitation in saying that the standard you have set, and consistently worked to, in the manufacture of your Magnetos, deserves the highest praise.

We are convinced that the revival of motor cycling was to a very large extent due to the magneto, and in particular to the Bosch Company, who were the first to supply in necessary quantities, and at the same time a really reliable article.

Yours faithfully,
TRIUMPH CYCLE CO., LIMITED.
M. J. SCHULTE
(*Managing Director*).

'UST AS GOOD"—

THE BOSCH MAGNETO CO., LTD.,
204, Tottenham Court Road, London, W.
Telegrams: "Bomag, London." Telephone: Gerrard 430 (5 lines).

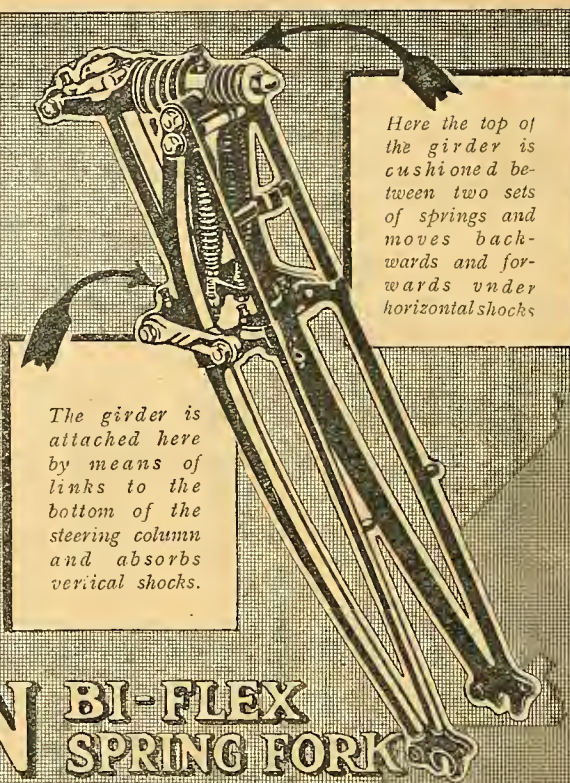
The Brampton way of absorbing shock

is the simple, the thorough, and the most effective way. Look at the illustration and notes and you will observe that *both* vertical and horizontal shocks are absorbed by the Brampton Bi-flex spring fork. Other makes take up only one direction shock — the other is transmitted through the frame to the rider with uncomfortable and sometimes disastrous results.

Bearing surfaces are large and provision is made for taking up wear in links.

Why not write to-day for our fully descriptive pamphlet? Post free.

BRAMPTON BROS., LTD.,
OLIVER STREET WORKS BIRMINGHAM

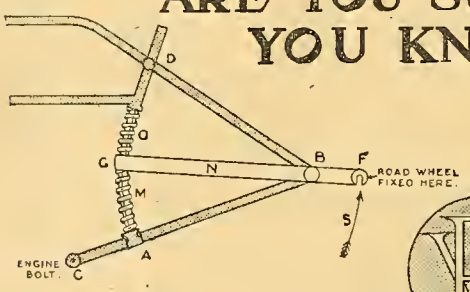


Here the top of the girder is cushioned between two sets of springs and moves backwards and forwards under horizontal shocks

The girder is attached here by means of links to the bottom of the steering column and absorbs vertical shocks.

BRAMPTON BI-FLEX SPRING FORK

ARE YOU SURE YOU KNOW



IT'S SO SIMPLE.

the working of the **P.V. SPRING FRAME?**

If not, read this.

It does not hinge at **A**, this point being absolutely rigid, as are the points **C** to **A**, **A** to **B**, **D** to **B**, and **D** to **A**—in fact, the whole of the shaded part is in one piece. **B** is the point where the road wheel is fitted on rigid machines. This shows that the P.V. has all the advantages of the rigid type frame as regards stability.

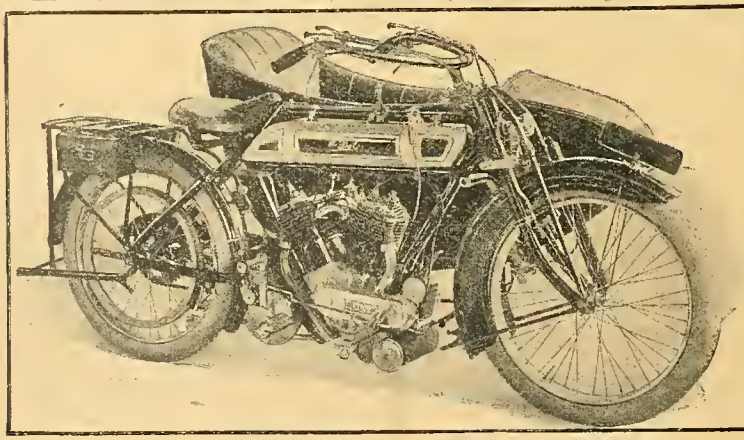
At the point **B** the only working bearing is situated. On this bearing point oscillates the springing arm **N**, which extends from **F** to **G**, at which point it encircles the radius tube of frame, back again to **F** on the opposite side. A shock spring **M** and a recoil spring **O** also encircle this tube as shown.

It can now be clearly seen that all shock (road unevenness) as directed at ⇨ **S** is absorbed by spring **M**, counteracted by **O**, and damped at **G**.

This explains the principle of the P.V. Spring Frame, which four years' road test and its constant successes in Trials proves far ahead of all others.

Booklet from Makers:

ELLISTON & FELL,
P.V. WORKS, FOREST HILL, LONDON, S.E.



DOT MOTORS

The **Wins** given below are not gained by the use of Special Racing Engines, but are made on **Standard Overhead Machines**, which can be bought direct from us **or through any of our Agents.**

Doncaster Speed Trials. Class 14, H. Reed **FIRST.**
Also FASTEST TIME of the day.

Essex Speed Trials, Events 57 & 60, H. Reed **FIRST.**

Also FASTEST TIME of the day, **BEATING the FASTEST CAR.**

Sole Manufacturers of this Famous Machine:

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The BRITISH MADE Watford Speedometers

The First MOTOR CYCLE SPEEDOMETER
to enter and pass an officially observed
AUTO CYCLE UNION 3,000 MILES TEST

Newcastle-on-Tyne, May 14th, 1914.
Dear Sirs,—I am well pleased with the speedometer and find it very accurate and steady. Both my nephews have got **WATFORDS** since, and are equally pleased.
Yours truly,
(Signed) DAVID MACKEE.

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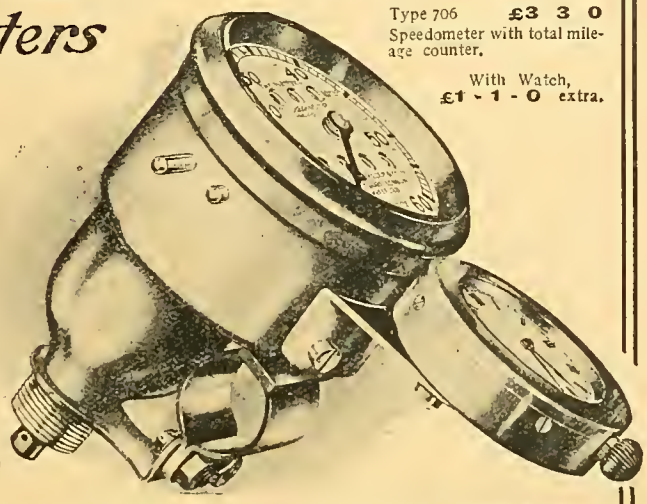

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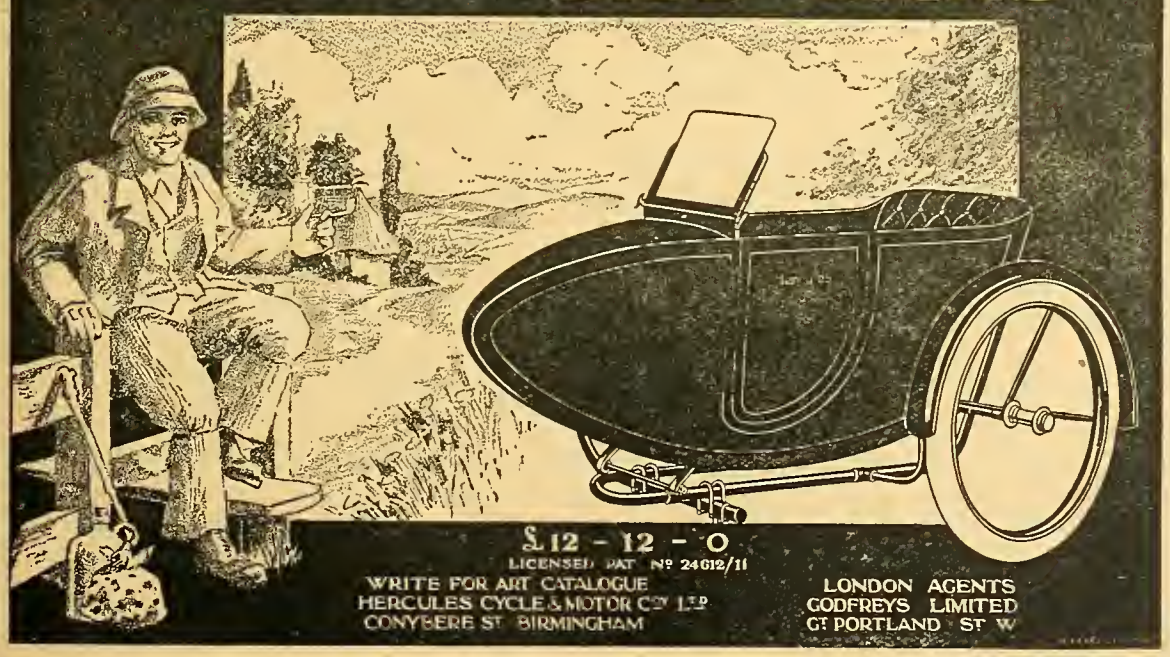

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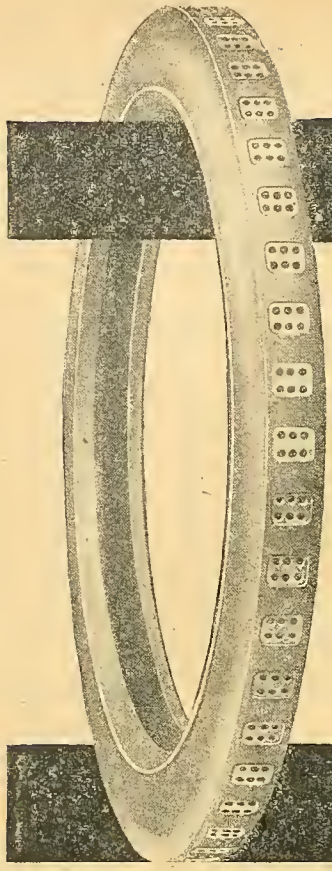

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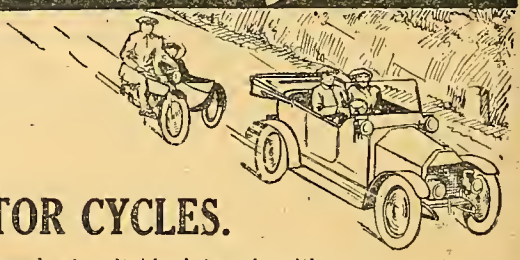

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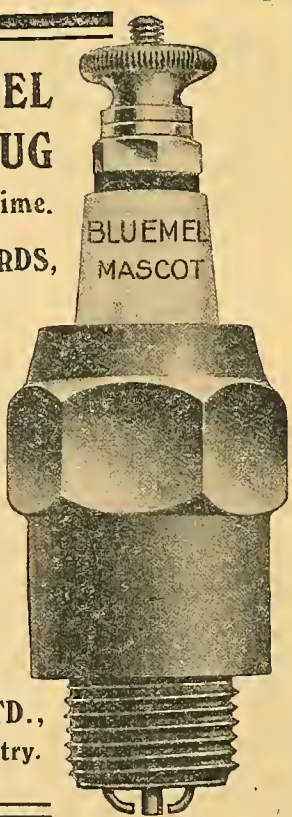

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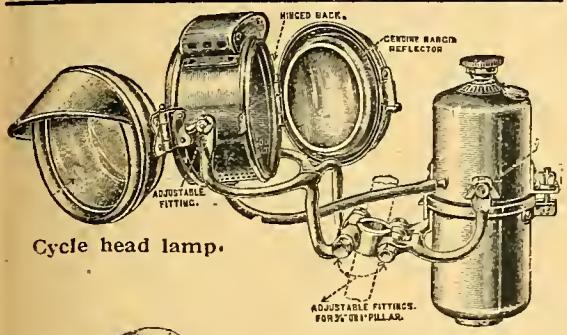
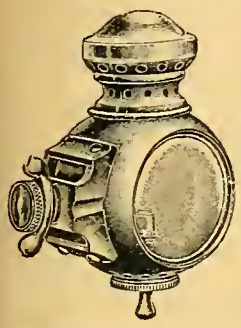


Cycle head lamp.



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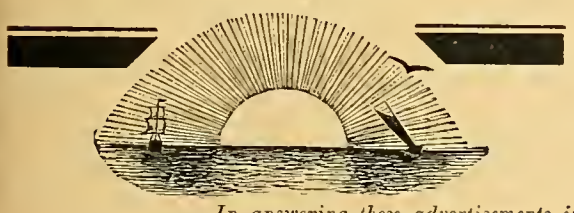

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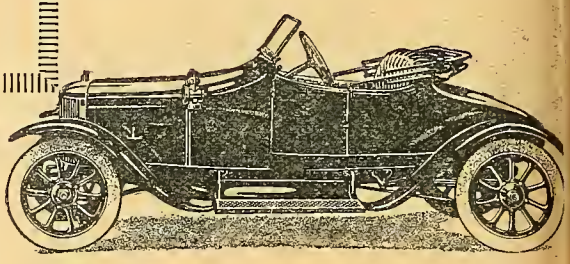

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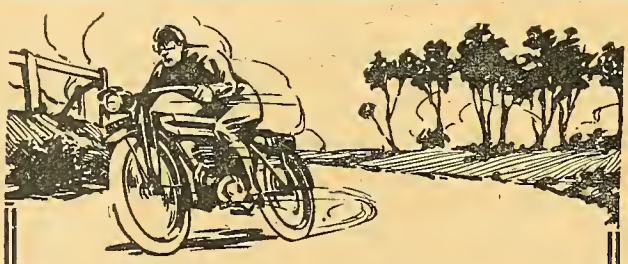

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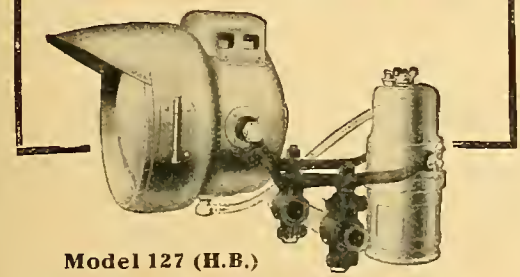

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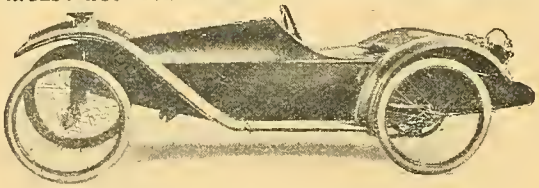

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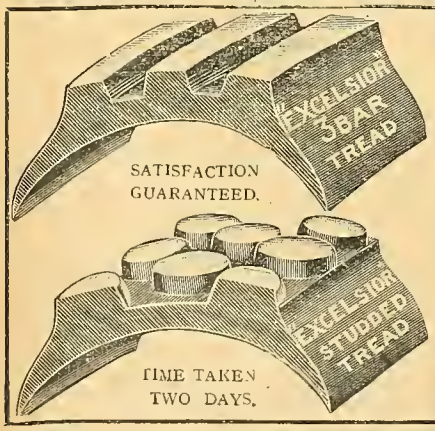

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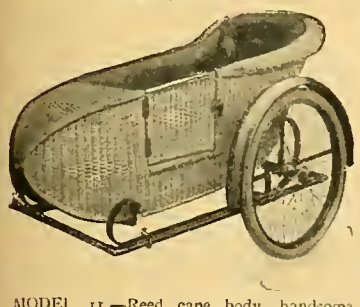

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3½ h.p. **TRIUMPH,** 1908, free engine	£20 0
3½ h.p. **HUMBER,** 1911, with new £11 coach Sidecar, 2 speeds	£32 0
3½ h.p. **PREMIER,** 3-speed, nearly new	£35 0
3½ h.p. **QUADRANT,** magneto	£12 10
Two 1914 **A.C. SOCIABLES,** each	75 Gns.
3½ h.p. **HUMBER,** 1914, 3-speed model, nearly new, with £11 coach Sidecar	£52 10
3½ h.p. **QUADRANT,** new, 1912 model	£25 15
2¾ h.p. **MINERVA,** M.O.V.	£7 10
1913 **REX** Sidette; cost £80	£45 0
3½ h.p. **KERRY,** 1910½ model	£18 10
3½ h.p. **REX,** 1911 model	£19 10
4-cylinder **F.N.,** magneto	£16 10
3½ h.p. **REX,** splendid 1910 model	£17 10
1914 **A.C.,** only run 200 miles	£68 10
3½ h.p. **REX,** 1909 model, magneto	£14 10
1914 **MORGAN** Runabout, sporting	£91 0
3½ h.p. **PREMIER,** 1913, 3-speed model, with £11 coach Sidecar	£45 0
3½ h.p. **ROVER,** smart machine	£16 10
2¾ h.p. **WERNER,** low built machine	£6 15
6 h.p. **CLYNO,** 1912, with £11 Sidecar	£49 10

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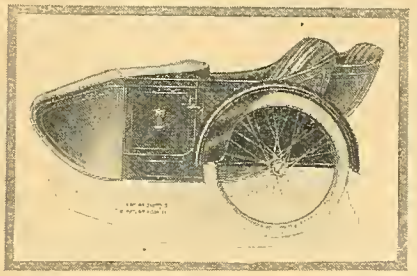

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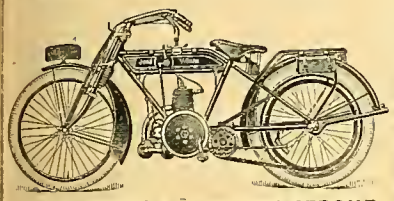

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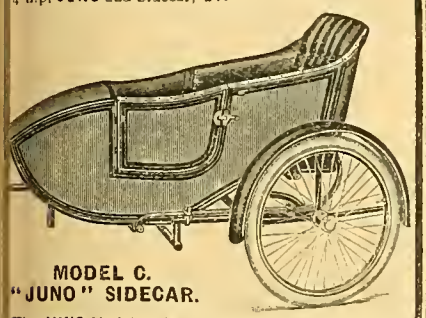

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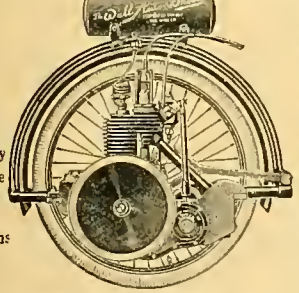

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ROYAL Enfield 1914 6h.p. Combination, very little used; £75.—Reeves, Garage, Purley [4929

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1911 2-speed 8 h.p. **BAT-J.A.P.,** and Sidecar	£39 10
1912 3½ h.p. 2-speed **BRADBURY** and Sidecar	£39 10
1911 3½ h.p. 2-speed **HUMBER**	£23 10
1911 3½ h.p. 2-speed **HUMBER**	£27 10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar	£29 15
1911 7-9 h.p. 2-speed **REX** de Luxe	£32 10
1911 5-6 h.p. 2-speed **REX** de Luxe	£29 10
1911 3½ h.p. 2-speed **REX** 84 × 89	£27 10
1911 3½ h.p. **BRADBURY** and new Sidecar	£27 10
1911 3½ h.p. Tourist **REX,** spring forks	£23 10
1911 3½ h.p. Tourist **ARIEL**	£24 10
1911 2½ h.p. 2-speed **A.J.S.**	£26 10
1911 T.T. **TRIUMPH,** Brampton gear	£29 10
1911 3½ h.p. **BRADBURY**	£22 10
1910 5-6 h.p. 2-speed **REX** de Luxe	£27 10
1910-11 5-6 h.p. 2-speed Twin **REX**	£28 10
HUMBER, 3½ h.p., 2-speed, F.E.	£22 10
MATCHLESS, 3½ h.p., magneto, Druid forks	£16 10
MINERVA, 3½ h.p., magneto	£15 10
N.S.U., 3 h.p., 2-speed, as new	£27 10
N.S.U., 3½ h.p., 2-speed, spring forks	£19 10
N.S.U., 3 h.p., 2-speed, spring forks	£16 10
EXCELSIOR, 3½ h.p., 3-speed, free engine	£24 10
ROC, 4 h.p., M.O.V., handle starting	£15 0
REX, 5½ h.p., 2-speed, magneto	£24 10
REX, 3½ h.p., 1909 Tourist	£19 10
REX, 3½ h.p., 1908 Tourist, spring forks	£17 10
REX 3½ h.p., 1908, Roc clutch	£19 10
REX, 5½ h.p., twin, magneto	£16 10
ANTOINE, 4 h.p., 2-speed, and Sidecar	£12 10
DE DION, 3½ h.p., battery ignition	£7 10
CORONET, 4 h.p., battery ignition	£7 10
DOUGLAS, 2¾ h.p., magneto	£16 10

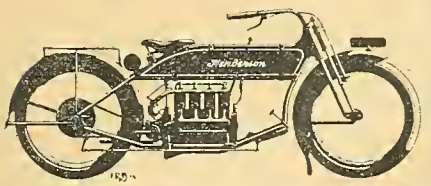
EASY PAYMENTS AND EXCHANGES QUOTED.

PERFECTION Sidecars .....from £5 5s.
List on application.

All letters relating to advertisements should quote the number at the end of each advertisement, and the date of the issue. A41

:: IN THE :: SCOTTISH SIX DAYS TRIAL

The Henderson



ECLIPSED ALL OTHERS

THE MOTOR CYCLE

REFERRING TO ITS PERFORMANCE ON VARIOUS HILLS, SAID:—

. . . . The four-cylinder Henderson made a LOVELY CLIMB, purring silently, and steering to a hair with absolute steadiness. . . . . The Henderson again did the prettiest climb of the ENTIRE ENTRY. . . . . Robertson Brown has had cruel luck with his Henderson. He lost his way on Monday, and, misunderstanding the rules, mistimed his riding schedule, and forfeited a few marks, to which, under the curious E.D.M.C.C. rules, a "first time" penalty of fifty extra marks is added. Since then he has been going great guns, and has ECLIPSED THE ENTIRE ENTRY on more than one hill. To-day he roared up Glendoe only to sustain a dry skid at a loose corner a few miles on, and crashing into a deep ditch, broke the frame.

OUR ONLY EXCUSE FOR THIS ABRUPT FINISH IS THAT AFTER FIVE DAYS OF BUCK JUMPING AND PRECIPICE CLIMBING ONE IS APT TO TREAT WITH INDIFFERENCE SUCH DETAILS AS CULVERTS, LOOSE STONES, HAIRPIN CORNERS, ETC., ETC.

WE LOST A MEDAL BUT GAINED A REPUTATION THAT CANNOT BE ASSAILED.

ROBERTSONS

Telephone: Mayfair, 5767.

157, GREAT PORTLAND STREET, W

MOTOR CYCLES FOR SALE.

Enfield.

6 h.p. Royal Enfield Combination, with 2-speed gear and coachbuilt sidecar; special price for quick sale; Triumph taken in exchange.—Robbins Garage, Rugby. [X4074

ROYAL Enfield Sidecar Combination, late 1913, splendid condition throughout; seen at any time.—Rigby, 35, Heathfield Rd., South Croydon, Surrey. [4977

1914 6h.p. Enfield Combination, also 3h.p. twins, for immediate delivery from stock; cash, exchange, or easy terms.—Wauchope's, 9, Shoe Lane, London. [X4050

ENFIELDS, Enfields.—6h.p. combination, £84; and 3h.p., the solo mount, £52/10; immediate delivery; exchanges or easy terms.—Cordingley, Hasling-den. Tel.: 102. [X3419

ENFIELDS.—1914 2¾h.p., 3h.p., and 6h.p. models; delivery ex-stock; best exchanges and instalment terms. Trade supplied.—Maudes, 136, Gt. Portland St., London, W. [8364

ENFIELD, 1914, 6h.p., with coachbuilt sidecar and luggage grid, the finest combination made; just arrived from the works; £84 cash; our easy payments are the very lowest, try us.—Wilkins, Simpson and Co., 11, Hammersmith Rd., London [6408

1913 6h.p Enfield Coach Combination, Sept. design, 1914 mudguards, hood, with extension screen, Lucas horn, 2 large lamps, electric rear, spare tubes, valves, plugs, all accessories, new 3in Palatine on back; £60.—411, Green St., Upton Park. [5007

ENFIELD, 6h.p., coachbuilt sidecar, luggage grid, 3 splendid lamps, watch, speedometer, horn, mirror, new tyres, spare tubes, valves, and tyres, powerful electric horn, etc.; cost over £105; perfect condition, done 3,000 miles; price £65.—Field House, Windsor Rd., Maidenhead. [X4177

Fearnought.

1914 Fearnought, 2¾h.p., mag., free engine; £28.—152, Boundary Rd., Walthamstow. [X4183

F.N.

F.N., 4-cyl., 1912, guaranteed perfect order; £25/10.—73, Church St., Camberwell. [4998

F.N., 4-cyl., mag., fast, good condition; bargain, £13/10.—Broadbent, Duke St., Elland. [X4124

F.N., 7h.p., 4-cyl., 3-speed gear, latest type, early deliveries.—F.N Agency, 95, Aston Rd., Birmingham [0463

F.N., 4-cyl., good condition, Bosch, just overhauled, Brooks, Roms; £16.—99, Ashleigh Rd., Mortlake. [5010

1913 2-speed 2¼h.p. F.N., complete, tyres unpunctured; £28.—John Aldrich and Co., Diss. [4897

F.N. Motor Cycle, 4-cyl., 5h.p., B. and B. variable jet carburetter; £18.—Apply, Brooke, R.M.A., Woolwich. [X3922

F.N., 1914, 2½h.p., 2-speed, new condition, only done few miles, lamp, horn, speedometer; £42.—Jenner, Battle. [4815

F.N., 2½h.p., late model, 2 speeds, free engine, shaft drive; £17.—Speechley, 45, Church Rd., Acton. [5046

F.N., 7h.p., 4-cyl., 3-speed; immediate deliveries from stock.—R. O. Clark, F.N. specialist, Upper King St., Norwich. [4959

1914 7h.p. 3-speed F.N.'s; £78; immediate deliveries.—Purcells, 78, Charlotte St., Tottenham Court Rd. W

1913 2½h.p. F.N., 2 speeds, plate clutch, almost new; £25.—Purcells, above.

5 h.p. 4-cyl. F.N., 2 speeds, torpedo sidecar; £25.—Purcells, above.

1914 7h.p. 3-speed F.N., luxurious cane sidecar, horn, speedometer, numerous spares, run few miles, magnificent combination, faultless; £85, no offers.—Hutchings, c/o Purcells, above. [3759

F.N. Lightweight, shaft-driven, 2-speed, clutch, Amac carburetter, in good order; bargain, £14.—Earl, 5, Heath St., Hampstead. [X4232

F.N. 2½h.p. Lightweight, 1913, ridden 2,000 miles, splendid order, lamp, horn; £27/10.—Schafer, Old Hall Farm, Gatley, Cheshire. [X3289

HERE'S a Snip.—1911 F.N., 5-6h.p., condition and order guaranteed; nearest to £15 accepted.—Reg. Hopwood, 47, Seymour St., Hanley. [X4188

F.N. Lightweight, 2¼h.p., mag., 1914 B.B. carburetter, very low, good tyres and lamp; accept reasonable offer.—E., 208, Camberwell Rd., S.E. [4989

F.N., 5-6h.p., 1912½, clutch, 2-speed, Xl'all saddle, with Mills-Fulford sidecar, wind screen, and luggage carrier; £35.—36, Cannon Hill Lane, Merton. [X4192

1914 7h.p. 3-speed F.N., luxurious sidecar, lamp, horn, speedometer, small mileage, faultless; owner buying cycle car; £83.—Brighouse Motor Agency, Bailiffe Bridge. [X4224

7 h.p. 4-cyl. New 1914 F.N.'s for immediate delivery from stock, with or without F.N. coachbuilt sidecar; single machine £78, sidecar extra; easy payments or exchange.—Wauchope's, 9, Shoe Lane, London. [X4064

Hobart.

1908 2¾h.p. Hobart, tyres, belt, etc., in good condition; to clear £12/12.—Carnforth Motor Co., Carnforth. [4857

ROBERTSONS MOTORS LIMITED

NEW 1914 MOTOR CYCLE

HENDERSON, 8 h.p., 4-cyl., 2-speed £81
HARLEY-DAVIDSON, 8 h.p., 2-speed £65
B.S.A., 3½ h.p., 3-speed, chain drive £63
EDMUND-M.A.G., 3½ h.p., twin-cyl., 2-speed, spring frame £63
TRIUMPH, 4 h.p., 3-speed £60
DOUGLAS, Model W £52
ZENITH, 6 h.p., clutch model £75
DOUGLAS, Model V £58
NORTON, 3½ h.p., T.T. Roadster £50
BRAMBLE, IVY, MILLFORD, DALTON, and SIDET

SIDECARS.

NEW 1913 MOTOR CYCLES

ALCYON, 2 h.p. ..... Reduced to £
ALCYON, 2¾ h.p. ..... " £
ZENITH, 3½ h.p., clutch model ..... " £
ZENITH-GREEN, 3½ h.p., water-cooled .. " £

SECOND-HAND

1914

1569. **ROYAL ENFIELD** and Sidecar, large lamp and horn, spares, etc. ..... £

1913

1563. **CHATER LEA** and Sidecar, 8 h.p., 3-speed, special tyres, lamps, horn, mirror, speedometer, etc., etc. ..... £
1533. **B.S.A.**, 3½ h.p., 2-speed ..... £
1541. **HENDERSON**, 8-10 h.p., 4-cylinder ..... £
1553. **INDIAN**, 7 h.p., 2-speed ..... £
1433. **REGAL**, 4½ h.p., 1912 frame, 2-speed ..... £
1542. **ZENITH**, 6 h.p. ..... £
1547. **ZENITH**, 6 h.p. ..... £
1566. **B.S.A.**, 1913-14, Special, fitted with Armstrong 3-speed gear, and large tanks ..... £
1570. **HENDERSON** and Sidecar ..... £
Or if fitted with 2-speed gear, new ..... £
1572. **ZENITH**, 8 h.p., kick starter, Sidecar, and accessories ..... £

1912

1560. **ARNO**, 3½ h.p., 3-speed, and Sidecar ..... £
1575. **BRADBURY**, 3½ h.p. ..... £
1430. **F.N.**, 5-6 h.p., 4-cylinder, 2-speed, and Sidecar £
1412. **HOBART**, 2½ h.p. ..... £
1573. **RUDGE**, 3½ h.p., T.T. roadster ..... £
1453. **ZENITH**, 8 h.p., and Sidecar ..... £
1542. **ZENITH** 6 h.p. ..... £
1567. **ZENITH**, 6 h.p., T.T. roadster ..... £
1568. T.T. **TRIUMPH**, very fast ..... £

1911

1545. **CHATER-J.A.P.**, 2½ h.p. ..... £
1478. **ZENITH**, 3½ h.p. ..... £
— ALSO —
1571. 1910 **DOUGLAS**, 2¾ h.p. ..... £

MOTOR CYCLES AND SIDECARS FOR HIRE

FINE MACHINES. MODERATE TERMS. NO DEPOSIT.

TELEPHONE: MAYFAIR, 5767.

157, GREAT PORTLAND STREET

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND NINETIETH CONSECUTIVE ISSUE.
Subscription Rates: Home 6s. 6d.: Canada, 8s. 8d.: Foreign, 17s. 4d. per annum.

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Telephone: 2848 *City (five lines.)* ADDRESS: 20, TUDOR STREET, LONDON, E.C. *Telegrams:* "*Cyclist, Fleet, London.*"
An index to advertisements will be found on the page facing the back cover.

Last Week's 'Colonial" Trial.

THE A.C.U. Six Days Trials last week developed into a Colonial trial pure and simple, and now we see little excuse for the A.C.U. to organise a Colonial or Overseas test in the autumn, as we recommended them to do some months ago, for the road surfaces over which the trial was held positively equalled any surfaces motor cyclists encounter in the Colonial and Overseas dominions. This must be the case, as motor cycling under the conditions which obtained last week was no pleasure at all; indeed, it became an anxious strain for all the competitors.

The surfaces were indescribably rough, the hills steep, long, and frequent, and the pot-holes and gulleys so deep and freakish that riding became positively a danger. As our readers well know, we have always encouraged the severest tests for motor cycles, sidecars, and cycle cars, as this is agreed to be the quickest and surest method of improving the breed, but having covered practically the whole of the course on a motor bicycle, we do think that the A.C.U. overstepped the mark in this instance.

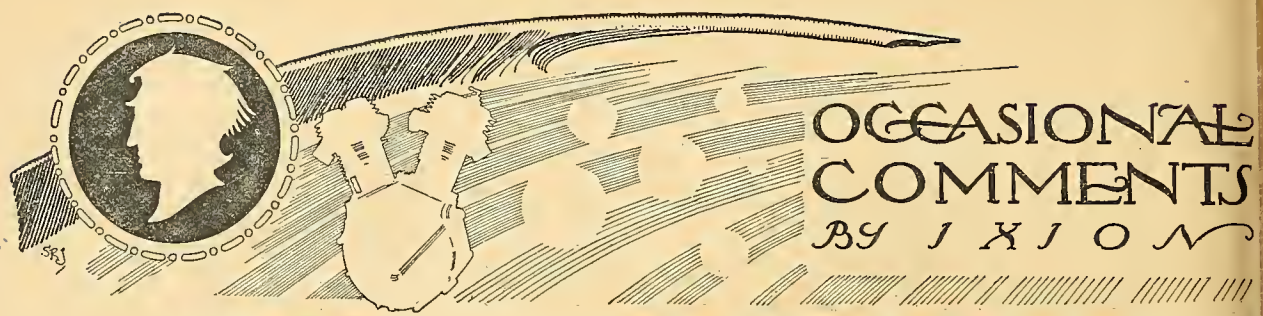
There was not so much to grumble at in the course generally as in the high average speed set. Twenty m.p.h. is a good touring average at any time on a long day's run, but when one considers that there were dozens of hairpins and precipitous hills smothered in loose stones, which competitors could do no more than crawl down or up, time had to be made up somewhere, and consequently speeding, which was both risky to competitors and other road users, became the order. This we consider the worst feature of the whole trial, and quite a number of retirements were due to hitting gulleys and deep holes unawares at speeds in excess of the legal limit.

Now, as we have previously pointed out, everything that can be urged against such a severe course and difficult conditions being arranged helps to bring out in bold relief the performances of those who were successful in satisfying all the conditions throughout the week. It says much for the modern motor cycle, sidecar, and cycle car that so many were able to comply with the rules in every particular. We do, however, sympathise with those who by an unfortunate piece of luck cannoned a huge stone on one or other of the test hills and were brought down, and thus deprived of marks. In this connection the hindermost competitors unquestionably had the most difficult task, as after the first forty had passed the loose roads were usually badly cut up by the driving wheels of the passenger machines.

Lessons from the Results.

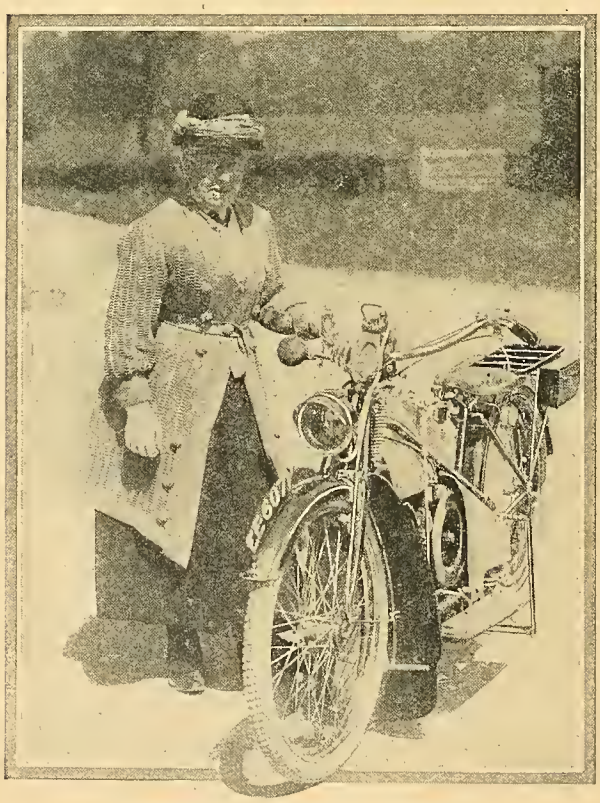
THE A.C.U. certainly have the support of the results of the trial to back up their policy of arranging freak courses, for it will be seen that over fifty gain gold medals. It has often been pointed out that the maximum award in a trial in which but few such awards are gained is far more valuable to a maker than an award which is so common that practically every competitor is placed on the same footing at the finish. Again, referring to the results, we observe that in every instance without exception the special awards have been gained on three-speed mounts, which significant fact will not escape the observant. It is more than a coincidence that three-speeders should have scored so decisively, as the special tests included this year, such as acceleration, speed, and ease of restarting on a gradient, were all in favour of a multiplicity of speeds. The more gears incorporated naturally the wider is the range of ratios, the top being higher and the bottom gear lower.

The passenger machines in the trial, both sidecars and cycle cars, were hard put to it to conform to the conditions and speed, and it must be confessed that they performed very creditably indeed in view of the nature of the course. Another year we hope to see them finish the trial in larger numbers, and, above all, in better condition.



More Waste Labour!

Speedometers are rather a sore subject with me, ever since a certain howler. However, trusting that readers' memories are short, I will timidly return to the dangerous topic. I have just spent a hot, angry, and grimy hour and a half grovelling on the garage floor, fitting a speedometer to one of my 1914 machines. I took out the front wheel pretty easily; the sole defect of design encountered in that job was the fact that the brake nuts were obviously planned to be removed with a miniature tube spanner, and such a tube spanner was not contained in the kit, nor did one of the required size figure in the very large collection of such tools that graces my walls. As a consequence I got the nuts off with an open-ended spanner, and scratched the fork enamel in the process. Then I screwed the large gear wheel on to the spokes. Having no lathe, I could not spin it for truth; I took its radius with a pair of dividers, and got it as true as I could. Back went the wheel, and next I faced the far more formidable job of fitting the gear box. Theoretically, of course, these brackets are specially made for each brand of machine, and go on like an old glove. Actually, I began by filing out the arm which fits over the wheel spindle: ten minutes with a rat tail got it in place. Then I screwed the nut home, and found the small gear wheel was too close up to the spindle to mesh with its big sister. I managed to loosen the many small, tight and inaccessible nuts which hold the various odds and ends of the gear box bracket together, and finally demonstrated that the bracket, as delivered, prevented the gears from meshing under any circumstances. Off came the whole affair, and the party removed to the vice, where the long-enduring rat tail was requisitioned to reamer out all the holes on the bracket. Just as dusk came on we got the gear box *in situ*, and apparently the wheels were well and truly meshed. Some idiot spun the front wheel of the bicycle, and an irregular grinding noise proved that something was still out of truth. We tossed up whether we should work longer by acetylene, or go in and prime ourselves with liquor to write to the makers of the speedometer. The fall of the coin was in favour of liquor and curses, and the rest of the sad story may be continued in my next. The firm who sold me that machine are making at least a hundred machines a week. I don't say they ought to fit speedometers as part of the *modèle de luxe* equipment, though there's a lot to be said for the Hendee policy. But they might make a jig, fit a flange or other type of gear wheel carrier to the off-side of their front hubs, and let a speedometer concern have a duplicate jig whereby to make their gear box brackets. Who'll be the first?



NEVER TOO LATE TO MEND!

One of the latest recruits to motor cycling is Miss E. Morris, of Lincolnshire, who, though sixty years of age, soon mastered a 2½ h.p. Douglas.

A Curious Incident.

When one of our representatives strikes trouble with his machine while engaged in reporting a trial, he is welcomed back to the office by a storm of chaff. One of our staff contrived to seize up his engine during the Scottish week, and submitted to the inevitable "roasting" on his return with rather an ill grace.

When I got the facts out of him later, it struck me he had been the victim of rather a curious mishap. He was engaging in his first real "blind" of the week, and after five or six miles pretty well "all out," his engine began to smell rather warm. He did the right thing in overlubricating pretty furiously until he saw a trail of blue smoke behind him, and as the engine got no cooler, he maintained the over-lubrication until a plug sooted, and he stopped to clean it. Whilst cleaning the plug, he noticed an oil leak under the engine, and found that the crank case drain plug was missing. Mystery No. 1. Why did the engine

Occasional Comments.—

smoke when there was practically no oil in the crank case? His oil pipe opens on to the near side flywheel at about 10.30 o'clock; apparently some oil was carried round on to the outside edge of the flywheels, and flung into the cylinders; but, as subsequent events showed, whatever oil was not carried round on the flywheel fell on the road almost at once. He progressed, still leaving blue smoke astern, for twenty-five miles to his hotel. Next morning he disliked the sound of his engine, and continued to over-lubricate, dismounting occasionally to clean a sparking plug. He was pretty sure that a big end bearing had got badly scraped during the leakage period, and hoped to keep it going over the final day by pumping in plenty of oil; but after another fifteen miles the big end seized, and the engine stopped quietly on a hill. Mystery No. 2. Why did not the over-lubrication during forty miles of running with a rich blue exhaust cause sufficient oil to enter the big end to prevent further trouble? Oil was entering the bearing during the whole of the forty miles, or the engine must have seized miles sooner than it actually did; yet the oil was powerless to prevent the "scrape" from developing into a "seize." Bearings are often so far damaged in dismounting an engine that it is sometimes difficult to say precisely what has happened; but from his story I should opine that the friction in the scraped brass was so great that a short distance of *continuous* running, say ten miles, was bound to lead to a seizure. Had he been content to cover the last day's run in seven-mile instalments, with frequent stoppages for cooling, he might have got his engine through to the finish, but to run ten miles in one piece was fatal.

The incident shows that an instantaneous dismount is the only safe plan when an engine gets unduly hot, for a weary pressman may be pardoned for taking risks at the end of a hard day. I have never sustained a parallel mishap myself. I remember two occasions on which I actually seized up big ends, and in each case I used paraffin flushings and plenteous lubrication to such good purpose that I covered 300 miles in one case and nearly 500 in the other without a repetition of the trouble.

Delivery Tune Again.

This time the wail refers to an engine equipped with an automatic lubrication system based on crank case suction. The engine was a twin-cylinder, and a defect in the crank case resulted in the oil supply being grossly uneven, one cylinder being starved, while the other sooted its plugs. The overlooking of the defect by the testers was simply unpardonable; it must have revealed itself at a glance to a practised eye, and the novice who received the machine traced the symptom (though not the cause) on his first ride, which shows how superficial the factory tests had been. The makers doubtless imagined they were being tolerably generous in offering to set matters right gratis if the machine were brought to their works, and further promised to get the job done in the day if the machine arrived by 9 a.m. The machine was returned to the waiting customer at 11 p.m., the time and parts not being charged for. He waited for daybreak, and after riding a few miles found that various bulky components began to drop off. When the two silencers were housed in his pockets, and the machine rendered slumber impossible for all residents near the road along which he was travelling, he began a thorough investigation. He discovered that the engine was supported by but one sound bolt; the fitters had replaced the old bolts in the new crank case, which was drilled for bolts of larger diameter, and the bolts had either dropped out or sheared or shed their nuts. On reaching home the indignant owner addressed a six page letter to the managing director.

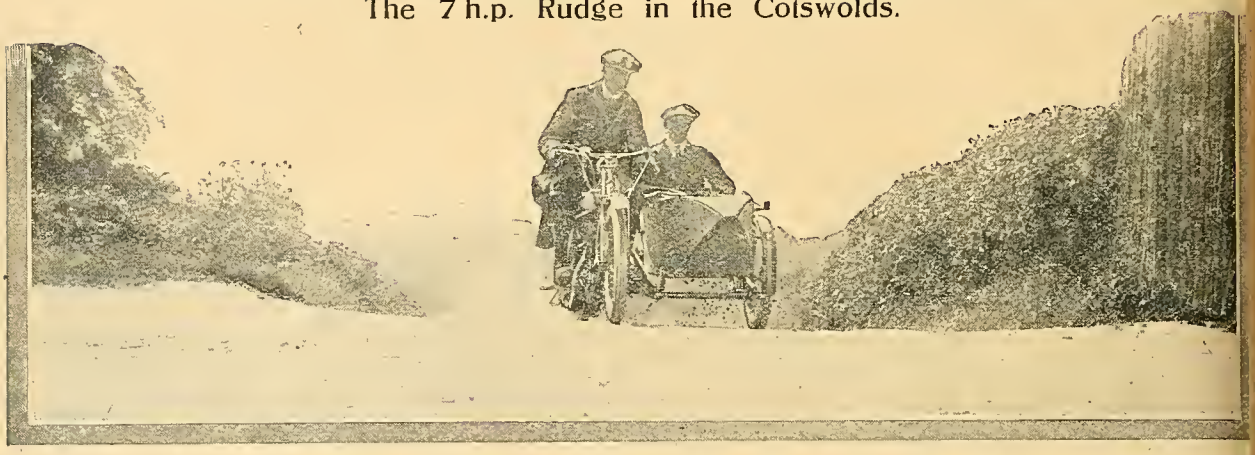
I don't know whether readers are growing tired of my "delivery tune revelations," but I deem it my duty to keep pegging away at the point until certain recalcitrant concerns set their testing shops in order. The whole sport and industry will suffer so long as one or two badly managed factories persist in treating their clients with such appalling callousness.

A SEARCH FOR OVERSEAS TRACKS IN THE ISLE OF MAN.

(1) A by-road near Kirk Michael. (2) A by-road on the way to Ballaugh. (3) Mr. and Mrs. R. Lord, with a 6 h.p. Rex sidecar. (4) A tortuous piece of road.

ROAD TESTS OF NEW MODELS.

The 7 h.p. Rudge in the Cotswolds.



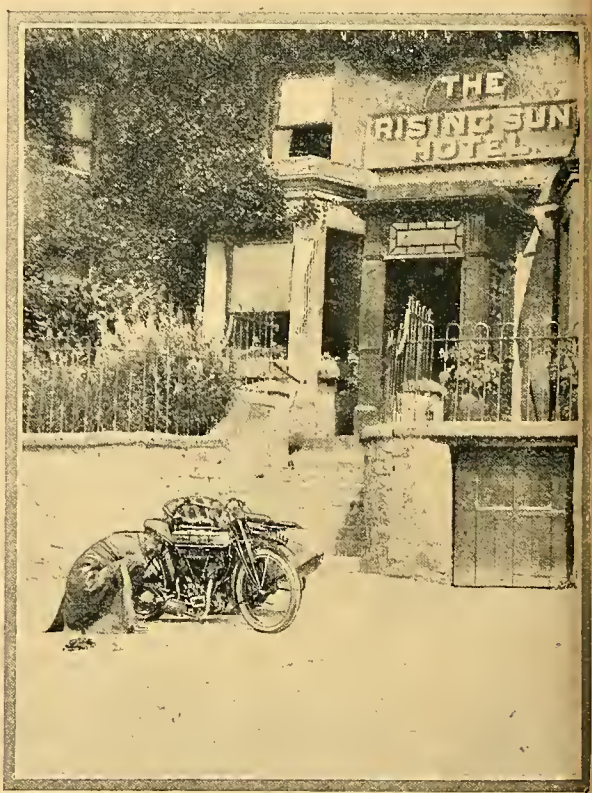
Coming over the brow of Gambles Lane, known to motor cyclists as "Rising Sun."

FOLLOWING on our inspection of the new twin Rudge, we had the pleasure of a day's trial in the Cotswolds. It was our intention thoroughly to "try out" the big twin on the severe hills in which the neighbourhood abounds, for, from the excellent reports we had heard, we judged the standard Edge Hill course too easy. In spite of the fact that the experimental machine had not a kick starter, there was no difficulty in effecting a push start, for the engine fired at once, and the weight of the sidecar outfit was easily overcome, even on a gradient, with the passenger's assistance. While on the subject of weight, it is interesting to remember that the Rudge twin sidecar outfit weighs but a few pounds more than the single, as the two types are identical except for the engine.

Leaving the Rudge works, we made for Warwick, *viâ* Stoneleigh Hill, the gradient of which was just sufficient to show us that the engine would pull well on a high gear. On the long straight stretches of road after passing through Stratford-on-Avon the 3¾ to 1 top gear came in useful, and the machine spun along at a good pace with the engine turning over comfortably. The speed indicator showed that the maximum pace was well up to the average of sidecar machines, while, owing to the multi-gear, by means of which just the right ratio can be employed, and the fine cool running of the engine, a high average can be put up with comfort.

Saintbury Climbed Easily.

On reaching Saintbury we turned to the left and up the long twisty hill. This was our first real chance of opening up, and it was at once evident that there was plenty of power to spare, and we toured up the hill at a good speed with the throttle half shut and the gear lever several notches from the lowest position. Just after the bad part of the hill had been surmounted a flock of sheep was encountered, which necessitated a long stop, but on restarting the engine picked up on the gradient in great style. Willersey was in fine order, and we decided to include this climb on the return journey, and in the meantime we pushed on to Winchcombe and Sudeley Hill. The gradient held no terrors for the big Rudge, but the deep ruts an loose stones caused us to bless the firm for thei excellent foot oiler, which left both hands free to pilo the machine between the worst patches of road. Th long pull up Cleeve Hill towards Cheltenham wa accomplished on the 3¾ to 1 top gear, which is n



THE RISING SUN HOTEL AT THE TOP OF GAMBLES LANE.

The hill was christened "Rising Sun" after the hotel, when it was included in a trial some few years ago, and this name has clung to it ever since.

oad Tests of New Models.—

nean performance for a standard touring machine fitted vith a strong sidecar and a passenger of fully average veight.

Lunch was partaken of at the Rising Sun Hotel, situated at the top of Gambles Lane, or "Rising Sun Hill" as it is sometimes called. After lunch the nachine was closely inspected all over, but beyond ightening a slack oil union we could ind no possible excuse for tinker- ng. Gambles Lane was climbed with ease, but as the engine had had ime to cool down the machine was un part way down, turned on a sharp gradient and restarted on the clutch. This was a ine test of engine and transmission, and both stood the strain in the best possible manner, the clutch engaging sweetly but firmly, and the engine picking up gamely n spite of its load, and coming over the top of the hill as fast as at the first attempt. While in the neighbourhood it was decided to have a look at Post Office Hill, which lies a little on the Winchcombe side of Rising Sun.

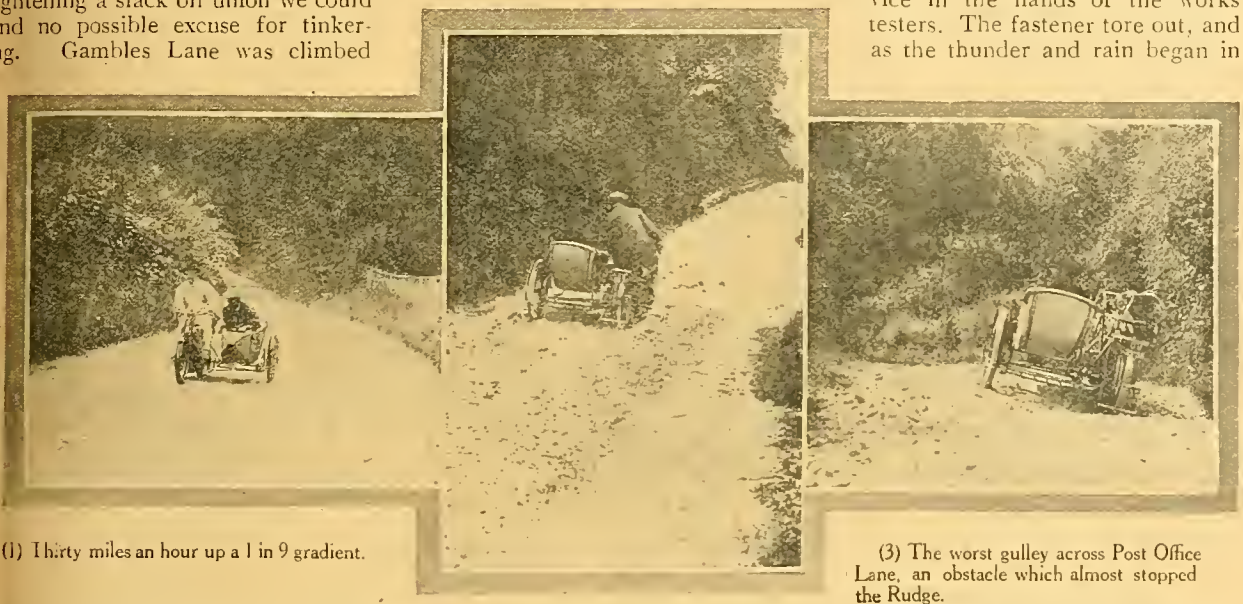
Post Office Hill.

Accordingly we dropped down the hill, the surface getting gradually worse and worse until on the steepest part the loose stones were so deep and the cross gulleys so awful that it really seemed hardly fair to drive the machine over it. However, having come so far the trip had to be made, and the Rudge was turned and the climb essayed. Ample power was there, but pace was impossible; in spite of this it climbed steadily upwards with the front wheel all over the road in consequence of the appalling surface, and the engine plugged away with no sign of a knock in spite of the comparatively high bottom gear ratio. Suddenly a stone jammed in the belt rim and threw off the belt and so spoiled a fine climb. However, the worst of the hill had been conquered, and the photographer seized the opportunity to obtain some views illustrating the surface. While thus employed a descent to the bottom was made, and after slithering upwards till the better surface was reached, we picked him up and restarted on the clutch. The test was about as severe a gruelling as a motor cycle could reasonably have in one day, so the homeward route was taken. At Broadway a heavy storm came over the hills, and this we raced to Willersey.

A Simple Adjustment.

The sudden opening of the throttle proved to be too much for the belt, which had seen hard service in the hands of the works testers. The fastener tore out, and as the thunder and rain began in earnest a move was made to the inn to refit the fastener and await the passing of the storm. As soon as the rain ceased we made for the hill again, and slipped up with greatest ease. By the by, a large notice is now posted at the foot of the hill prohibiting its use for competition purposes. The day's work was over, but one more instance of clever Rudge design showed itself, for after the heavy rainstorms the roads in places were a series of pools, and in consequence a certain amount of belt slip was experienced. Fortunately when this occurred the neat little belt tension adjuster situated at the end of the rear spindle was remembered, and a turn of the little lever, which was done without stopping the machine, made an immediate improvement. A wet run into Coventry concluded an interesting day and a severe test from which the Rudge emerged with flying colours.

A new model Rudge is bound to attract considerable attention, and, from our experiences, the twin is as fine an example of a big machine as can be found, and it has given no trouble since it was first designed, a point which helps to prove that the firm's wide experience has been of great value in the new design.



(1) Thirty miles an hour up a 1 in 9 gradient.

(2) Ascending Post Office Hill, near Cheltenham, the surface of which is atrocious as may be seen from the photograph.

(3) The worst gulley across Post Office Lane, an obstacle which almost stopped the Rudge.

A SPECIAL
TWO-STROKE & LIGHTWEIGHT NUMBER
OF
THE MOTOR CYCLE
WILL BE ISSUED ON THURSDAY JULY 23RD

MILITARY MOTOR CYCLISTS.

Two Exercises in Hampshire Shortly Described.

ON June 8th and 9th Staff exercises were held in Hampshire, in which the Signal Service, with the now indispensable motor cyclists, were employed. The following makes of machine were represented—Blackburne, Bradbury, Triumph, Ariel, Matchless, and Douglas.

The actual scheme of operations was rather complicated, and would be of little interest to the reader. Roughly, after an advance to Alton, on the 8th, the force was driven back on the 9th to Winchester.

Late in the afternoon of the 8th rain, which had been threatening all day, made its unwelcome appearance. Very soon the weak places in the telegraph cable were found, consequently main lines were "out of action" for some considerable time. It was at this juncture that the motor cyclists again proved their

(1) A group of despatch riders at East Tisted.

(2) Riders at the headquarters, West Meon (3) Entering West Meon, with despatches from East Tisted.

(4) A few of the cars and motor cycles used in the manœuvres.

Military Motor Cyclists.—

worth. Orders for the night, and "operation orders" for the following day were sent out almost entirely by motor cyclists, many valuable hours being saved, and weary officers and men being enabled to obtain an early and well deserved rest.

The Cavalry Conk Out.

As on previous occasions, large sections of troops were represented by groups of officers in motor cars. *Apropos* of this, a rather amusing incident occurred. The writer was situated on the top of a rather long hill with a wireless office awaiting the arrival of a somewhat decrepit car representing the cavalry. A motor cyclist arrived, saluted, and said—"The cavalry have conked out on the hill, sir, but hope to be up shortly."

The operations were brought to a successful conclusion early in the afternoon of the 9th inst.

The motor cyclists under the writer's charge suffered from no mechanical derangements, the only troubles experienced being punctures; some dozen machines were employed.

On June 11th and 12th a "scheme" was again held in Hampshire under the direction of the War Office Staff. Some forty motor cyclists took part, a number of men joining on the evening of the 10th. The majority of the men were Special Reserve or Territorial motor cyclists with a sprinkling of civilians. The makes of machines represented were Triumph, 8 h.p. Matchless, Humber, Rover, Douglas, Pride of the Exe, Bradbury, and the ubiquitous Blackburne. The last-mentioned machines attracted considerable attention, and the slow running, flexibility, and appearance were generally admired.

The motor cyclists were divided into groups and attached to general headquarters, Army headquarters, and the four divisions. All motor cyclists, however, were under the direction of two officers of the Special Reserve Royal Engineers, motor cyclist section.

Although operations began at an early hour, the "traffic" was not very heavy until about 2 p.m. The driver of a Clyno and sidecar experienced a broken mudguard stay, and a Humber rider had to effect a tyre repair, the only mishaps in the early stages. It is probable that sidecar outfits will not in future be permitted, too much space is taken up in narrow lanes, and the machines are somewhat awkward to manœuvre among horses.

About 3 p.m. a move was made by nearly all the troops. In such cases an office is left until another "office" at the next position is "through," motor cyclist groups being sub-divided, some accompanying the party establishing the new office, the remainder stopping with the old office until the line is clear and then joining their comrades. An experiment was carried out which proved successful, thanks to the motor cyclists' ability to read maps accurately. A despatch rider was sent forward to receive instructions as to the exact position of the new office, returning to guide the officer in charge to the spot.

Despatch Riding.

A number of changes of position were made during the afternoon and early evening; there was a considerable amount of riding in consequence; later, affairs settled down, although a certain amount of work was done during the night.

Steady riding is the order of the day on these occasions; as a result there were practically no mechanical troubles. Motor cyclists of the Army headquarters did well, they had a large shed for the accommodation of their machines and a large shed adjoining for sleeping. One breakdown was reported during the night, a broken valve, the spare being rather a tight fit in the guide; this, however, was soon remedied. The enemy was steadily retiring and the majority of motor cyclists enjoyed a peaceful night. By 9 a.m. on the 12th the enemy had been finally repulsed. All returned to the Royal Engineer camp at Cheriton; here the array of machines was most imposing and attracted considerable attention. The men had a look round the camp while their mileages were being checked; one and all declared that they had enjoyed themselves thoroughly and were anxious to know the next occasion on which their services would be required.

The work performed was excellent. The motor cyclist is slowly but surely proving himself and his machine invaluable. The staff officers were full of praise for the indefatigable band and their trusty machines.

R.E.S.R.

THE A.C.U. SIX DAYS TRIALS.

General view of the machines lined up at Doncaster racecourse during the luncheon stop on the third day.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

From the West to Margate.

I am shortly riding from Bristol to Margate. I want to avoid London, but at the same time pass sufficiently near to be able to stop a night at some place whence I can run up to town for the evening and get back again so as to make an early morning start for Margate. Where would you suggest as a good spot for this purpose, and which road would you advise me to follow from Bristol to Margate?—H.N.

We should recommend you to stay the night at Croydon, which is within easy reach of London. Your best route would then be Bristol, Marshfield, Chippenham, Calne, Marlborough, Hungerford, Newbury, Reading, Twyford, Windsor, Staines, Kingston, Sutton, Croydon. Then continue through Farnborough, Sevenoaks, Wrotham, Maidstone, Charing, Canterbury, Sarre, Margate.

The Drawbacks of Paraffin as a Fuel.

Will you kindly inform me if it is practicable to run a modern 3½ h.p single-cylinder motor cycle on a mixture of petrol and petroleum, and, if so, what percentage of petroleum would be most practicable?—F.W.J.

It is quite practicable to run a motor cycle on a mixture of petroleum and petrol; in fact, a machine could be run on petroleum alone. It would not be worth running on a mixture of less than 50% of petrol, and then you would find it extremely difficult to start. In all probability it would be an impossibility to start on the mixture itself, and you would have to carry a reserve tank of petrol for this purpose. The drawbacks of using such a fuel are many. To begin with, violent sooting up would be experienced in the engine, also you would find the running to be very sluggish, and the engine would probably knock badly on hills. With an ordinary carburetter—that is, one not designed specifically for running on petroleum, it is almost an impossibility to deliver a mixture which does not cause violent smoking, but a mixture of 1 petroleum to 5 petrol increases the power of some engines. Another fault which is common to petroleum is its power of "creeping," and it is impossible to prevent it from getting all over the machine.

The Timing of Twin-cylinders.

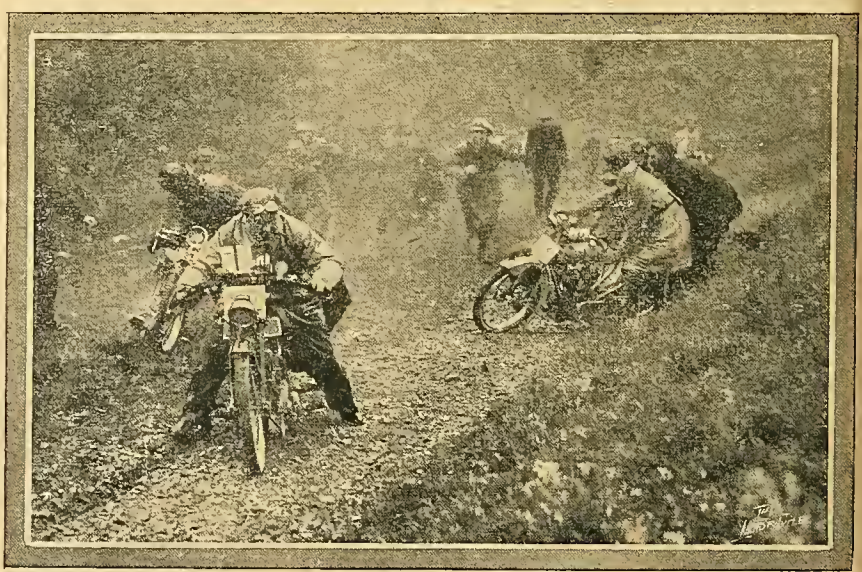
I have had the cover plate off the timing case of my twin 6 h.p. machine, intending to pack it owing to oil coming out on the top of the crank case. In doing so I have disturbed the timing wheels. There are two wheels with a cam on each which lift the tappets, and I take it that if I get one right the other must be right. I have reset them for the exhaust valve in both cylinders to close dead on top of the inlet stroke, but find that the valve opens sooner in the back cylinder than in the front one. If I reset it to open at the same time it does not close when the inlet stroke commences. Would you let me know which is right?—E.B.

Several V-twin engines have slightly different timings in each cylinder, and in this particular case we should advise you to get the most suitable timing from the makers. It is quite a usual thing to have a certain amount of overlap on the valves; that is, the inlet and exhaust being open at the same time for a short period. The usual timing for a cylinder is for the exhaust valve to open forty-five degrees before bottom dead centre and close on top dead centre, and the inlet valve to open five degrees after top dead centre and close twenty degrees after bottom dead centre.

Lighting and the Law.

I am purchasing a cycle car. Will it be legally necessary for me to have three lamps in front, or will one head light be sufficient? I am in the habit of leaving my motor cycle outside my club, and I never light my lamp at night when leaving it there. Will it be necessary for me to light the lamps on the cycle car while leaving it outside?—INTERESTED.

You must have two lamps in front to show the width of the vehicle. If you leave your car outside your club you must keep the offside lamp and the tail lamp alight. It is illegal to omit to do this.



THE A.C.U. SIX DAYS' TRIALS.

J. W. Moffat (3½ h.p. Sunbeam), Graham Price (5-6 h.p. Bat), and another in difficulties on Littonstack Hill.

Ignition Cut-out.

? I am desirous of fitting a cut-out to the ignition of my machine, and as the magneto does not possess an additional terminal for this purpose, I propose carrying a wire from the sparking plug, up under the knee grips, to the top tube of frame, on which I would have a neat switch of the "permanent" on or off variety, thus doing away with the necessity of keeping one's finger on the switch all the time. Do you see any objection to this arrangement, and does the use of cut-out in any way harm the magneto? Also, is it likely to save exhaust valve from pitting when it is lifted by cutting out the spark?—J.H.L.

We should not recommend a high tension cut-out. It may result in your getting a shock whenever you touched the frame and the current was earthed. It is quite easy to get a special contact breaker cover with a terminal from the magneto people. A low tension cut-out does not harm the magneto in the slightest degree. It would not affect the exhaust valve in any way, but when the switch is off it has the result of polishing up the magneto points if you are descending a long hill, as no sparking takes place.

A Tour in Ireland.

? I propose making a tour of a week to ten days' duration in Ireland, but as I have had no previous experience of motor cycle touring, or of Ireland, before venturing I should be glad to have some advice from you on the subject. My machine is a 3½ h.p. single-cylinder, built in 1908, but was recently at the makers, where it was overhauled and modernised by the fitting of a two-speed gear and free engine. I am taking a friend (about 10 stone) as passenger on a seat rigged on the carrier. I intend starting from Cardiff and running to Fishguard, crossing from Fishguard to Rosslare, touring for about 400 miles, and returning *viâ* the same sea passage or *viâ* Dublin and Holyhead. Is this scheme practicable, and what route would you advise in this part of Ireland? What sort of roads would I encounter, and what distance should I cover per day comfortably without rushing it and being too hard on the mount? How shall I be placed for obtaining spares, accessories, and necessities, and what spares should I carry to start with?—W.C.A.

The touring scheme suggested in your letter is quite practicable. The Irish roads are rough in places, but, generally speaking, have been much improved of late years. But you must not expect to find much good going. You could very comfortably cover up to 100 or 120 miles per day. For hints on spares, see "Motor Cycles and How to Manage Them" (obtainable from these offices, price 1s. 2d., post free), where a list of spares for touring is mentioned. If you write to the Auto Cycle Union, 89, Pall Mall, S.W., or the A.A. and M.U., Whitcomb Street, W., they would map out a good route for you to take, and give you very full information. We fear you may find it difficult to steer on a bad road with a passenger on the carrier, and would advise a sidecar if possible.

Exhaust Valve Trouble

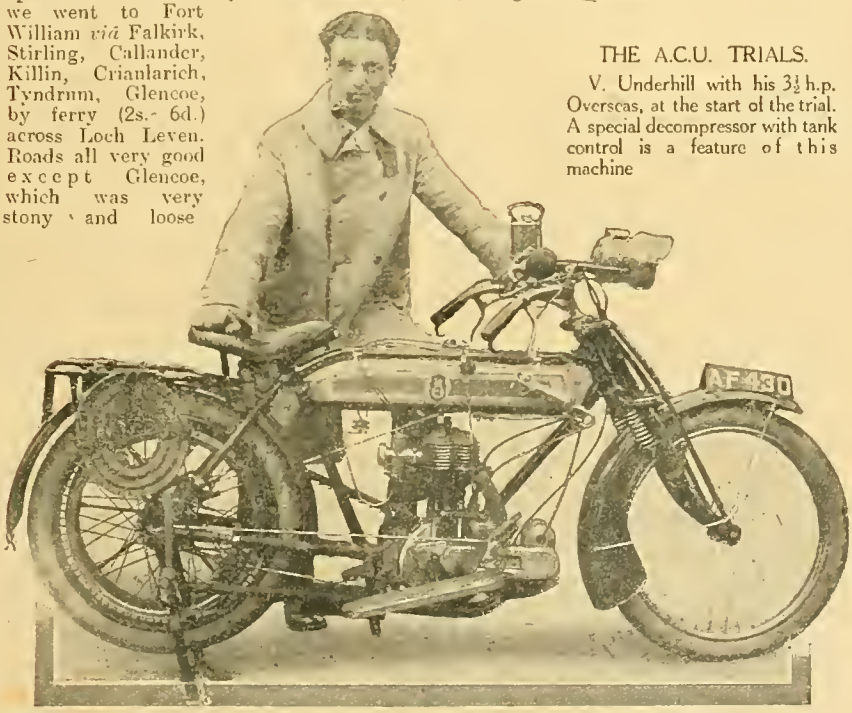
? I ride a 1913 3½ h.p. single-cylinder, two-speed geared machine, which I use solely for sidecar work. I find the engine very severe on the exhaust valve—indeed, I have only had the outfit a few months and I have burnt out four valves already. If I do 100 miles or so it is all I can manage without having to take the valve out, and lately there has developed a habit of the exhaust valve bending. I give as much air as possible without misfiring, and have tried smaller jets without any improvement, and I should be glad if you would give me your opinion as to what is wrong.—F.C.S.

It is probably a matter of rather stronger exhaust valve springs being required. A weak spring would allow the valve to bounce on its seating and thus to get burnt, and probably bent and broken as well. It would be a good plan to verify the valve material and see if this is of a sufficiently high quality; in fact, you might query the makers of your machine on this point, and tell them your troubles, when doubtless they will help you. In addition to driving with as much air as possible, also see that the spark is as far advanced as may be without causing the engine to "knock."

READER'S REPLY

Swindon to the Highlands.

Your correspondent, "A.L.M.," in *The Motor Cycle*, July 2nd, may be interested to hear of a trip carried out by myself and a friend last year to Scotland. Leaving Birmingham at 2 a.m. on the Saturday before August Bank Holiday, we reached Edinburgh by 7.30 p.m. The route taken was *viâ* Derby, Doncaster, Wetherby, Newcastle, Otterburn, Carter Bar and Galashiels. We stopped about 1½ hours at Wetherby. The next day we went to Fort William *viâ* Falkirk, Stirling, Callander, Killin, Crianlarich, Tyndrum, Glencoe, by ferry (2s. 6d.) across Loch Leven. Roads all very good except Glencoe, which was very stony and loose but not stones to do any harm. Next day *viâ* Loch Laggan, almost to Kingussie, but turning right-handed and going down Glen Garry, through Blair Atholl, Perth, Inverkeithing, Edinburgh, to Otterburn, and home next day. The run from Fort William to Blair Atholl was rather rough. Distance, 986 miles. Machines, both single-geared Triumphs, geared 4-1. One puncture between us. Magnificent scenery. Actual riding speed averaged about 21 m.p.h., and only on the first day and the last did we light our lamps. If your correspondent cares to communicate with me through the editor I shall be pleased to write him further.—A.M.S.



THE A.C.U. TRIALS.

V. Underhill with his 3½ h.p. Overseas, at the start of the trial. A special decompressor with tank control is a feature of this machine

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor

"J.S.C." (London).—Binks carburetter on Scott. Economy and assistance in slow running

"J.A." (Derby).—26 × 2¼in. Stelastic tyres for use on the back wheel of a 3½ h.p. single.

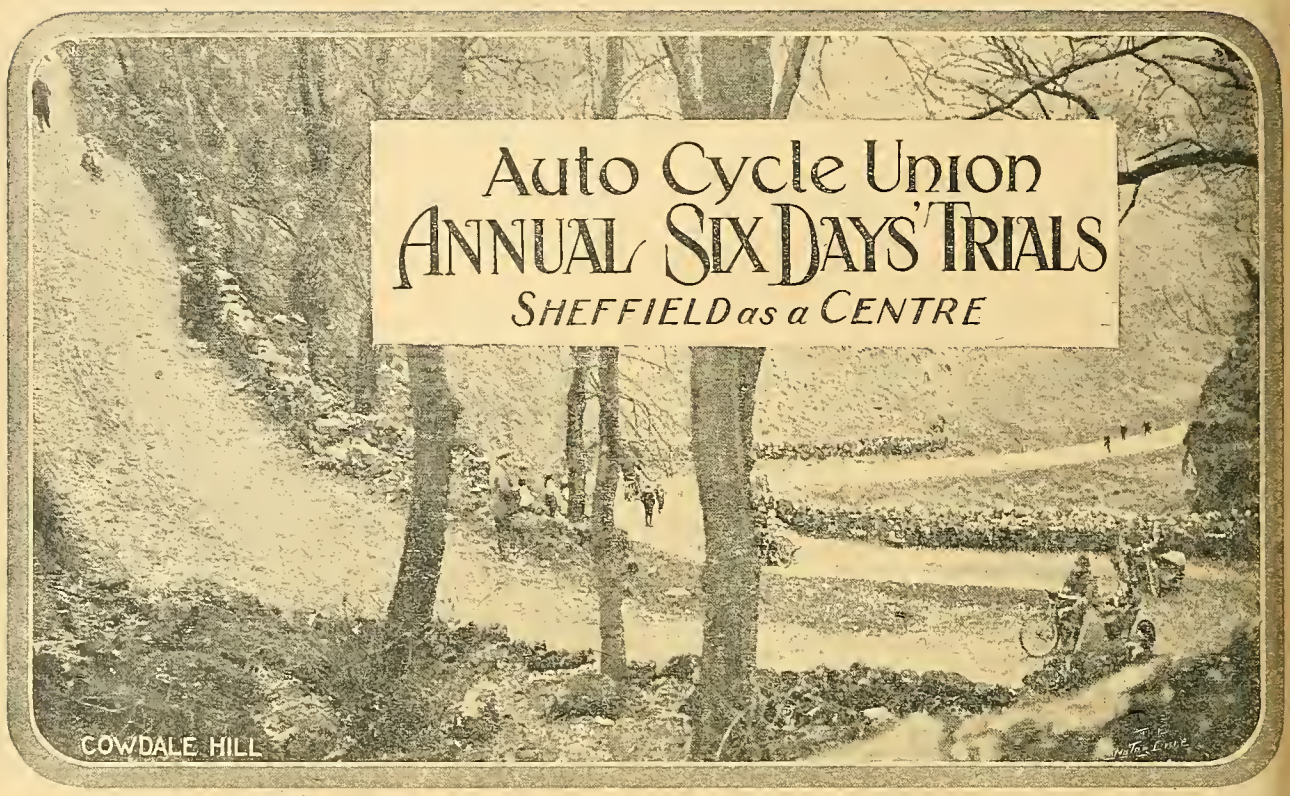
"E.L.R." (Upper Tooting).—2½ h.p. light tourist New Imperial. Reliability, petrol consumption, and vibration.

"P.T." (Chester).—Single-geared Levis, Connaught, and Peco. Reliability, hill-climbing and petrol consumption.

"J.G.K." (Nigeria). — P.V. spring frame. 180° Brough engine. Any defects. Simple counter-shaft gear suitable for this combination.

"B.D." (Hampstead). — Suitability of lightweight for India, with special reference to two-strokes. Liability to overheating.

"S.A.M." (Newbridge).—Scott. Reliability, petrol consumption, spring forks, loss of compression in crank case, two-speed gear and lubrication.



Auto Cycle Union Annual Six Days' Trials

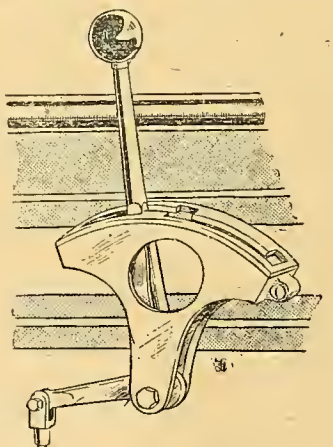
Sheffield as a Centre

TUESDAY'S ROUTE: 126 Miles. Sheffield, Bakewell, Matlock, Wirksworth, Leek, Rudyard (lunch), Wincle, Cowdale, Stoney Middleton, Hathersage, Sheffield.

OUR last week's report of this eventful trial left the competitors at the midday halt on Tuesday, Rudyard Lake being visited a second time. Here we learned from W. H. Egginton that the rear spindle of his 8 h.p. Enfield sidecar had broken, but he decided to continue so long as the wheel would stand up. Others who did not arrive at the luncheon control were Hugh Gibson, the frame of whose Clyno sidecar outfit had broken due to hurrying over very rough roads in order to catch up time, and W. A. Davenport (Lea-Francis), who reported having been run into on a hairpin bend by R. M. Davy (Norton), whose machine was undamaged, but not so the Lea-Francis, which sustained a buckled front wheel. Haslam (Premier sc.) and Watson (Ariel sc.) were in high spirits, as they were the only competitors to have piloted successfully 3½ h.p. sidecar combinations round the course, and their performances are indeed the wonder of the other riders—some of whom are not slow to grumble at the undue severity of the test.

Tuesday's run generally was far easier than that of Monday, which may sound paradoxical, seeing that the competitors followed practically the same route but in a reverse direction. But the state of the roads mainly accounted for the severity of the first day's trip. The narrow and twisty course, however, caused the competitors a good deal of trouble to average the necessary 20 m.p.h., and especially does this remark apply to the passenger machines.

The first point of interest after Buxton was that winding but not very steep ascent known as Cowdale, which was negotiated during the Spring One Day Trial. Its surface looked fairly good, but it was in reality of a treacherous nature, and many of the competitors, especially those who drove sidecar combinations and three or four-wheeled vehicles, had great difficulty owing to wheel slip. Now this trouble was due to a variety of causes, apart from the greasy nature of the surface. In the case of the four-wheeled cars weight distribution was an important factor, while the single driving wheels of the sidecars and three-wheelers, also coupled with weight distribution, mitigated against efficient road grip. We feel confident, however, that certain patterns of tyres would in similar circumstances be more effective than others. Quite a large crowd was present to witness the competitors ascending this well-known hill and negotiating the two bad corners, and there was indeed plenty to see.



The three-speed gear quadrant on the Rex-Jap.

Observations on Cowdale.

After Wilkin (2¾ Levis) and Walters (P. and M.), who led the procession, had made really excellent climbs, Brownsort (A.C.) came to a standstill through back-wheel slip. F. Smith (Clyno sc.) and S. Parker (Enfield sc.) both made sensational ascents in quick succession. First the front wheels refused to steer, then the complete machines swung from side to side; but both drivers, with consummate skill and daring, went up in fine form. Chapman (Triumph) was badly baulked. The 5 h.p. Montgomery came up well, but skidded about a good deal. R. C. Davis (Chater-Lea sc.) climbed well, but, like the other sidecarists, he could not steer in a straight course. W. James (Morgan) suffered badly from wheel slip, while Scott's A.C. came to a standstill for the same reason, whereupon F. Dover (on this occasion a steward, and for the first time in nine years not a competitor)

A sidecar competitor at the bad corner on Rowsley Hill.

leaped upon the tail of the body, with the result that the extra weight in the right place allowed him to restart. B. G. Gray (Sunbeam) made an excellent ascent, but was hindered by the A.C. Haddock (A.J.S.) had to dismount. C. O. Henfrey (Ariel) skidded right round in the reverse direction to that in which he was travelling, but saved himself from a fall. P. Pratt (6 Bradbury sc.) almost came to a standstill, but saved the situation by getting the passenger to bump on the carrier and so obtaining momentary adhesion with each bump. Plint (Dayton) dismounted and ran; Hardee (7 Matchless sc.) came to a stop through wheel slip; while Ellis (Morgan) was in a similar predicament. Hunt (Campion sc.) was hampered by the aforementioned competitor.

The crowd was both enthusiastic and appreciative, and heartily cheered the excellent climbs made by North (Ariel), Pilkington (Rex-Jap sc.), and Richards (5 Sun). R. Pearson (2½ Clyno) got up all right, but indulged in a small amount of foot-slogging. Kerr (3½ N.S.U.) took the hill well and without apparent effort, and fine exhibitions of driving were made by Drysdale (2½ Connaught), Francis (Lea-Francis), H. G. Dixon (3½ James), Lea (Lea-Francis), and C. R. Collier (Matchless sc.). Cook's twin A.S.L. skidded from under him on the bend while going splendidly. This was his first involuntary stop. The fact that the men are started in the same order every day tells hardly on those who leave late, as they have always to take the hills after the surface has been cut up by their more fortunate *confrères*.

Contrasts on Jacob's Ladder.

Dropping down Kingsterndale, the negotiation of the acute hairpin on to the Buxton-Derby road caused much trouble once again. F. W. Applebee, whose Motosacoche has been going so well, failed to pick up, so that he will lose marks, as this point is in a non-stop section. At the foot of the hill leading out of Miller's Dale we passed R. C. Davies on the Chater-Lea sidecar, who was making a second attempt, though certainly not on account of lack of power, as his big engine has played with most of the test hills up to the present.

After descending Stoney Middleton the riders were confronted with Jacob's Ladder, where many were expected to meet their Waterloo, but, surprising to relate, what seemed next to impossible on Monday in the grease was rendered comparatively easy when the surface was practically dry. The passenger machines, by the way, were diverted to the left through Eyam, as Jacob's Ladder is almost too narrow even for solo climbs. There were several failures, the lower powered machines not showing up so well on this occasion. We observed all the A.J.S.'s, Sunbeams, Triumphs, Douglases, Lea-Francises, P. and M.'s, Humbers, Scotts, and Blackburnes make clean ascents. Drysdale (Connaught) almost collided with the wall. The easiest and best climbs were made by Dixon (James), Jesse Baker (Scott), Pearson (two-stroke Clyno), Nokes (Sunbeam), and Gibb (Douglas). Hall (O.K.) was the first to dismount; Drew, on the New Imperial, had bad luck owing to the gear jumping out of engagement when going well; Ayling (Dayton) footed vigorously, but got his lilliputian engine to the top; Allday (James) was good; and Brown (Rover) excellent.

Novel Way of Climbing.

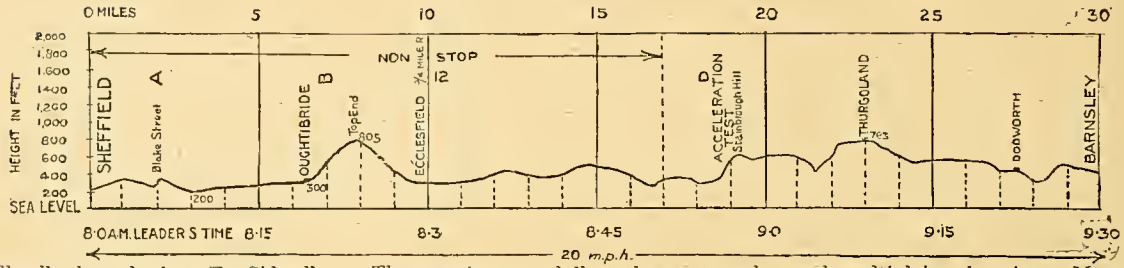
Roberts's Blackburne got up well, but seemed to have a ringing noise in the engine; Davy (Norton) wobbled about the road, and Heinzel (2 N.S.U.) once again got his six-speed mount up in good form; Ross (Triumph) had to crawl behind him nearly all the way. Plint (Dayton) caused the yokels amusement by walking with his machine between his legs, the little two-stroke engine tugging away manfully on the 1 in 4·5 gradient. B. J. Simms (4½ Bat) stopped with gear trouble and was obliged to withdraw. This is the second Bat rider to experience gear trouble, which is distinctly hard luck as the Bats have performed exceedingly well as a bunch and bear no outward sign of the severe work they have already undergone.

At the top of this hill there was another left hand hairpin to catch the unwary, and thereafter the route was through Hathersage over a stretch of third rate "Colonial" road, the machines in places bouncing from one half submerged boulder to another; they then made their way home.

E. B. Glissan (6 h.p. Rex sidecar) rounding one of the sharp bends on Stoney Middleton

SECTIONS OF THE PRINCIPAL PORTIONS INCLUDED IN EACH DAY'S ROUTE.

WEDNESDAY MORNING



The roll-call showed that E. Sidwell was an absentee, this rider having misjudged the speed of his Excelsior sidecar at the hairpin on Station Hill, Bakewell, and run off the road, bending the front forks.

WEDNESDAY'S ROUTE: 116½ Miles. Sheffield, Stainbrough Hill (acceleration test), Barnsley, Marr, Doncaster (speed and brake test. Lunch. Quick starting test), Maltby, Chesterfield, Stack Hill (re-starting test), Dronfield, Sheffield.

Wednesday's run was easy, and included nothing in the shape of a hill which caused the competitors any anxiety, but it was full of interest, as such useful tests as those of acceleration, speed, brakes, starting from cold, and restarting on a gradient formed part of the programme.

Not a mile and a half from the starting point, and right in the city, is a hill known as Blake Street, reputed to possess a gradient of 1 in 4 for a mile. This, however, was a gross exaggeration, as we doubt if the hill is steeper than 1 in 5, and it is certainly not much over a quarter of a mile in length. The surface consists of rough cobbles. A huge crowd witnessed the climb, and when tackling the hill with no start, after negotiating a right angle bend, the men had to face a mass of people which parted as they approached. Two sporting Sheffield policemen did their best, but they were not of much avail. We waited to see a few climb the hill, and as all took it easily we did not delay long.

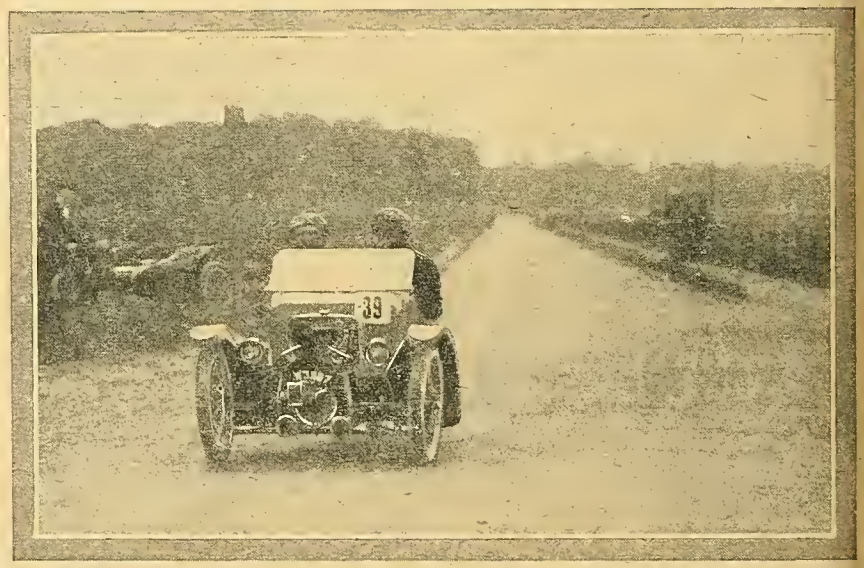
Excellent ascents were made by Wilkin (Levis), May (A.J.S.), Langton (Ariel), and Taylor (Imperial), who cleverly hugged the offside gutter, thereby taking the smoothest course and, incidentally, sweeping the erring spectators on to the pavement. Brownsort (A.C.), Robinson (N.U.T.), Nott and F. Smith (Clyno sc.), North (Ariel), and Chapman (Triumph) all made light work of the hill. Walters (P. and M.), who led the way with Wilkins, stopped with an air lock, but restarted and got up with ease.

The morning was dull at the start, and as we left Sheffield, which took a long time on this occasion, it began to rain slightly, causing the dust to adhere to one's goggles in an unpleasant manner. Not long after the tramlines had been left behind a level crossing of a fearfully bumpy nature had to be negotiated, which was immediately followed by a terribly rough road ascending over the moors, but afterwards the surface became better, and finally near the summit of a long average hill known as Stainbrough the acceleration test was being held.

The Acceleration Test.

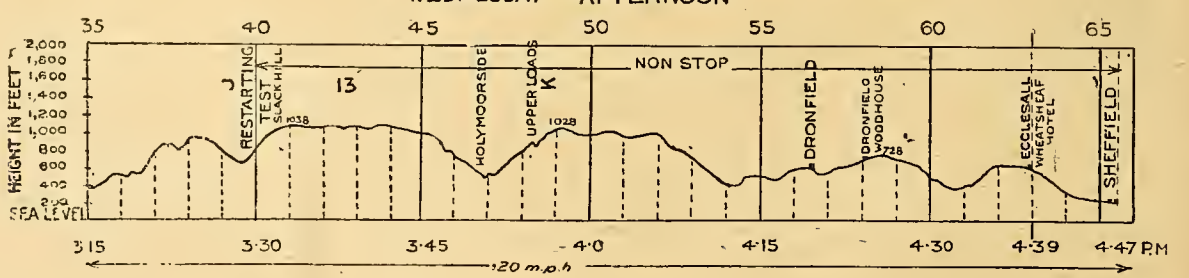
Fifty yards of the hill had to be taken slowly, and 200 yards fast, the speeds being not less than 5 m.p.h. nor faster than 25 m.p.h. Marks were calculated by dividing the fast speed by the slow speed and multiplying by six. Many of the motor cycles travelled very slowly indeed over the whole fifty yards, but those riders who knew the ropes travelled slowly for twenty-one seconds and then accelerated, thus entering the fast portion with a flying start.

It was surprising to see the number of men who spoiled their fast ascent by changing up too early, and those who kept in their second speed for the low portion and got away on it for the fast stretch scored, as no speed over 25 m.p.h. was of any advantage. Frank Smith (Clyno sc.) and North (Ariel) were doing the test as we arrived, and performed well. Chapman (Triumph) kept his second speed in engagement and made quite a pretty performance. Kerr (N.S.U.) came through the slow test well enough, and was getting away well



W. James (8 h.p. Morgan) at the finish of the speed test on Wednesday of last week.

WEDNESDAY AFTERNOON



The A.C.U. Six Days Trials.—

in the fast portion when his machine stopped with a jerk, and it was found that his pulley gear had jammed owing to a bent operating rod. He thus lost his three lower speeds, and was consequently left with the three higher speeds of his hub gear. Finch (Premier) changed up rather too early. Phillip (Douglas) performed well on both portions. Nokes (Sunbeam), J. Stevens (6 A.J.S.), and Clayton (Triumph) were well among the best. Heinzel's tiny N.S.U. did the slow test well, but the engine appeared too small for getting away in the fast portion. Star performances were made by Baker (Scott) and Leslie, who was riding a similar machine. Pratt (Bradbury), who was using one of the latest Binks carburetters, came up at a very slow speed, with the engine firing perfectly, and got away well after crossing the line. Pearson (two-stroke Clyno) kept his engine turning fast and the clutch slipping, and made a remarkably fine performance. Gray (Sunbeam), on beginning the slow test, said, "Do I go straight on?"—a remark which caused some amusement, as there was certainly nowhere else to go.

The Finesse of Timing.

Excellent powers of acceleration were shown by the Matchless sidecar combinations driven by Hardee, C. R. Collier, and Guest. Lovegrove (Scott) appeared to improve his slow speed climbing by application of the front brake. Turvey (Triumph), who made quite a "star" performance, was one of the wily ones, and took his own time by the aid of a wrist watch; Hunt (Campion) did well; Slater (J.B.S.) was timed by his passenger, while another passenger counted the seconds one to twenty-one, and then the driver opened up his engine.

As a matter of fact the exact time calculated by a mathematically minded spectator was 20.4 seconds. Good exhibitions were made by Roberts and Holroyd (Blackburnes), E. Williams (A.J.S.), the Calthorpe, and Eli Clark (Leader sc.).

The Speed and Brake Test.

Through Barnsley and Hickleton the route actually lay over main roads for once in a way, but the black dust in this Yorkshire coalfield district made one's eyes smart uncomfortably. Near Marr we overtook A. F. Plint on the little 1½ h.p. two-stroke Dayton with the cylinder off. This rider had actually been able to get ahead of time in order to remove the cylinder and scrape it and the piston clear of carbon in order to gain extra benefit in the speed test.

On arrival at Doncaster the riders were diverted to the left in order to enter the race course from the far end and run towards the grandstand. The track was exactly the same as that used in the Doncaster Speed Trials a month ago. Some excellent speeds were accomplished, but the standards set up were very ambitious indeed. For instance, the cycle cars were expected to average 40 m.p.h., which is asking too much from all of them, notwithstanding the fact that most are semi-racers stripped of all unnecessary impedimenta. An unfortunate accident happened to J. Richards, who has been showing up so well on a 6 h.p. Sun-Jap. This rider had complained of feeling unwell at the start, and in the speed test he was noticed to wobble badly; he allowed his engine to keep running, the wobble increased, and finally the rider was thrown at nearly 50 m.p.h. in the centre of the track, though, fortunately, escaping with cuts and bruises. His front tyre was wrenched off, and every spoke in the back wheel broken. Francis (Lea-Francis) accelerated in good form, but his gear jumped out of engagement and he was timed again.

The brake test which immediately followed was an unnecessary complication. Few understood what to do, and instead of approaching the test at the requisite 20 m.p.h. crawled in at varying speeds. Most stopped in ten to twenty yards, but some did better than this. As a matter of fact, the idea of a brake test at all on level ground seems farcical when one considers that on Monday and Tuesday the competitors were descending 1 in 4 gradients continually, and if their brakes had not been efficient it is questionable if they would have survived to tell the tale!

Hawkes, on the Victor cycle car, broke a belt pulley in pulling up suddenly, but replaced it and continued.

The Starting from Cold Test.

The arrangements at Doncaster generally were splendid, and after an excellent lunch at the racecourse and a welcome rest, which the competitors much appreciated, the machines, which were ranged in double line and in crescent formation, engaged in the starting test. This was carried out by extending a line fifty yards in length from the machine which was being tested, the watches being held by Mr. F. T. Bidlake (start) and Major Lloyd (finish). Solo machines had to cover the distance from the word "go" to the end of the line in forty seconds, sidecar machinists sixty seconds, and cycle cars in three minutes. Passengers were allowed to take their seats before the start, but the drivers had to stand clear of their machines till permission was given. Most of the motor cycles got away with ease, but several drivers started with their stands trailing, which did not, as it should have done, involve penalisation. Wilkin (Levis) got his engine to fire in twenty-five yards. Walters (P. and M.) did not shine in this test. Brownsort started up his A.C. at the third pull up of the handle. Nott's Clyno fired on the first stroke of

F. C. North (3½ h.p. Ariel) in the quick starting test.

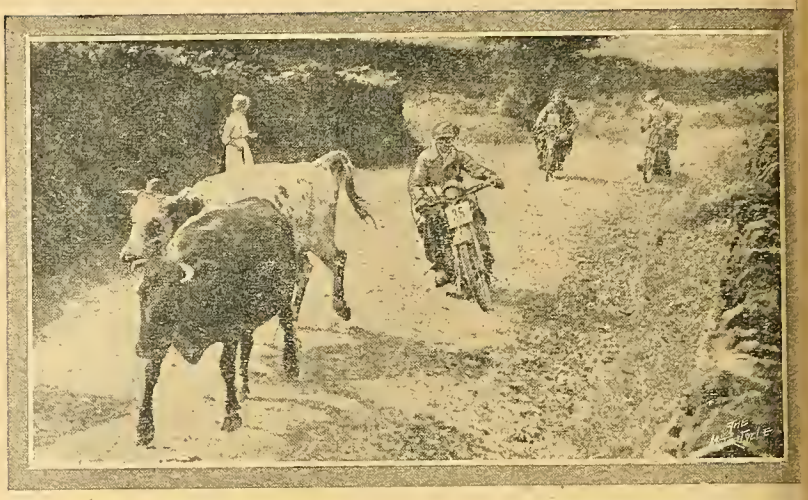
The A.C.U. Six Days Trials.—

the kick starter, while Pratt (Bradbury) was the only other out of forty-five or so who succeeded in doing so. Here we noticed that the back wheel of Chapman's Triumph had three bad dents in the rim. Parker (Enfield sc.) had to be pushed off. Kerr (N.S.U.) injected petrol. Applebee did likewise, but made a rather poor start; but when the engine did fire the machine almost left him behind. Plint (Dayton) got away very smartly. Davis (Chater-Lea sc.) started his engine on the second kick, and got going very promptly. Baker (Scott) started his engine on the second kick, went off smoothly and quickly, and put in his top with such energy that the back wheel raised a cloud of red dust as it spun round. Some amusement was provided for the waiting competitors by a piano organ, at the grinding of which some took a turn.

Soon after Doncaster, Woodhouse, who, it will be recalled, was driving Silver's Quadrant sidecar, stopped with a burst rear tyre and a repair was beyond hope. Woodhouse ascribed the burst to his quick stop in the brake test. The other competitors continued to run most regularly over much improved road surfaces, only an occasional puncture causing delay, Kerr (N.S.U.) being particularly unfortunate in this respect.

The next item of interest was the restarting test on the single figure gradient of Slack Hill between Chesterfield and Matlock.

The performances here were generally very good. Some had no free engines and had to resort to pushing on the low gear. Taylor (New Imperial) was one of these unfortunates, and, furthermore, failed to get his engine to fire. Chapman (Triumph) restarted nicely at the second attempt, but Robinson (N.U.T.) overshot the mark.

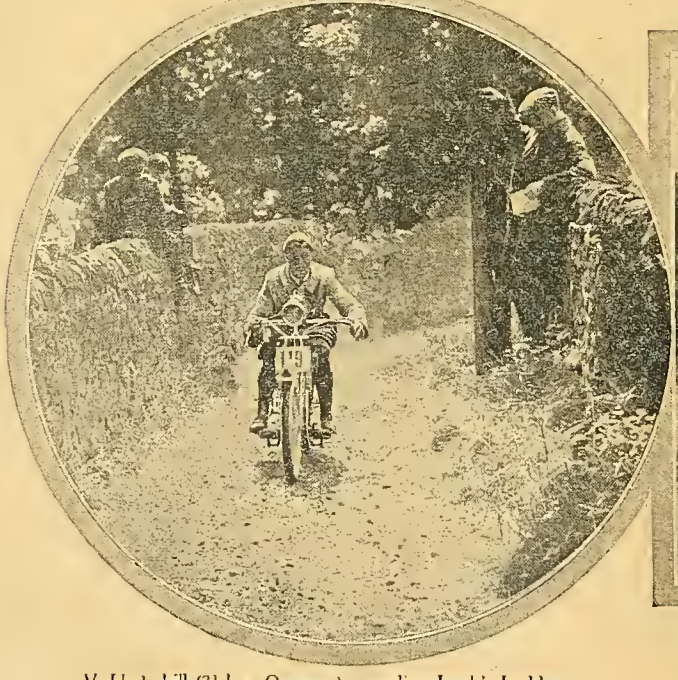


A scene on Thursday's run. C. R. Nokes (3½ h.p. Sunbeam) and S. Phillips (2¾ h.p. Douglas) baulked by two non-competitors.

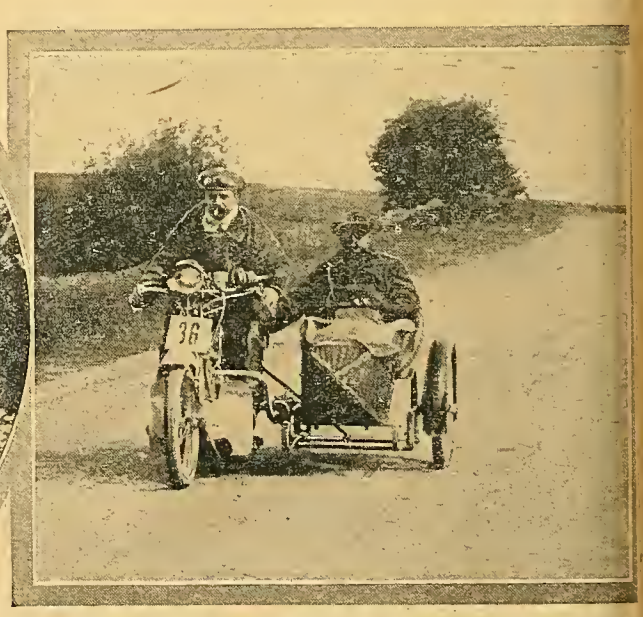
There was a good crowd of spectators, and when Frank Smith let the clutch in rather hurriedly and caused the front wheel to lift up, the spectators scattered in all directions.

Too Fast for the Timekeeper!

The P. and M.'s and the Sunbeams (Nokes in particular) made fine restarts, also the Lea-Francis pair. Boxer (Bat) got off the mark like a shot—so fast, indeed, that he knocked over the timekeeper, Mr. A. V. Ebblewhite. The tests among the later arrivals were carried out in the rain, but the leaders of the string now on the moors near home were experiencing a memorable soaking. The rain came down so suddenly and so fast that soon the riders were drenched. In the last non-stop section of the day Baker (Scott) broke a chain, and when only a hundred yards inside the section he experienced a puncture. Ellis (Morgan) was soon in a like predicament, but continued on the rim. Near Dronfield James (Morgan) took an S bend very quickly, and bent the steering arm, and it took him threequarters of an hour to rectify matters. Egginton (Enfield) is now going splendidly again, with a new spindle in position; the old one was not broken, as he suspected, but was ground down very thin. During the rainstorm he produced a most effective V-shaped celluloid screen for his passenger, which protected her splendidly. A large number of riders reported non-stop run.



V. Underhill (3½ h.p. Overseas) ascending Jacob's Ladder.



Where good roads were encountered. A. J. Stevens (6 h.p. A. J. S. sidecar) crossing the moors near Bakewell.

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Six Days Trial

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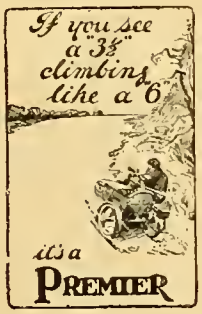

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is now obtainable in England from the principal stockists and tyre dealers. In 1910 the sales of Goodyear motor cycle tyres totalled 1,176. In the following year 27,562 Goodyears were sold. In 1912 the sales jumped to 98,463, and in 1913 over 120,000 motor cycle tyres left the Goodyear factory. Just consider these figures. They are of the utmost importance to every motor cyclist.
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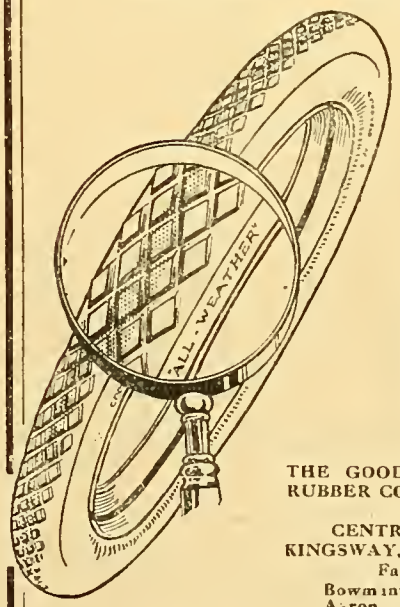

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"2,000 miles on back wheel, there are no signs of wear yet, in fact the tyre is practically new I have not had a puncture yet."
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We could go on quoting these extracts for many pages. They all bear out the marvellous durability of Clinchers Not only in the durability, but in the absence of tyre trouble lies the strong advantage of Clinchers. They are easily detached and attached, needing no levers.

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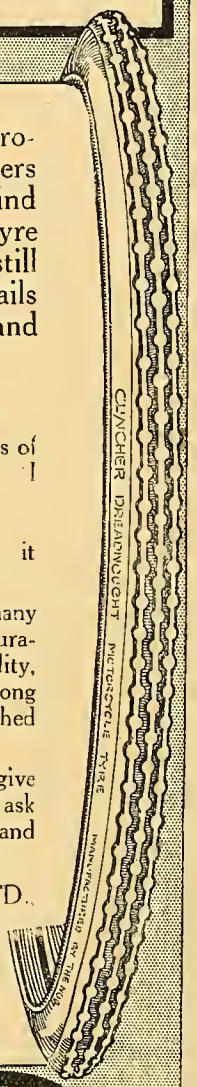

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Official Figures of Special Tests in the Six Days Trial.

Rider, Machine, and H.P.	Acceleration (30 marks).			Speed (20 marks).			Brakes (10 marks).				Restarting (10 marks).		Quick Starting (10 mks.)	
	Speed on Fast 200 yards.	Speed on Slow 50 yards.	Mks. Lost.	Actual Speed.	Below Set Speed by	Mks. Lost.	Distance taken to Pull up.	Time taken to Pull up.	Initial Speed.	Mks. Lost.	Time taken to Restart, 15 yds.	Mks. Lost.	Time taken to Start, 50 yds.	Mks. Lost.
	m.p.h.	m.p.h.		m.p.h.	m.ph.		yds.	secs.	m.p.h.		secs.		secs.	
G. W. Wilkin (2¾ Levis)	16.8	7.05	11	36.59	0.1	–	9	2.2	16.7	1	5.4	–	13	–
Frank May (2¾ A.J.S.)	18.4	6.49	7	43.69	–	–	41	6.2	27.1	5	5.2	–	12	–
E. V. Walters (3½ P. & M.)	19.4	3.75	–	41.86	2.14	4	11	2.6	17.3	2	5.6	–	18	–
Fred. K. Langton (5 Ariel sc.)	17.7	4.18	2	39.65	–	–	17	3.4	20.4	3	5.2	–	29	–
P. S. Taylor (2¼ New Imperial)	17.3	5.67	6	40.54	–	–	27	3.6	31.8	–	Failed	10	17	–
W. J. Brownsort (10 A.C.)	13.3	3.56	9	35.73	3.27	7	13	3.8	14.0	5	5.8	–	31	–
James Robinson (3½ N.U.T.)	16.5	6.25	9	45.92	–	–	26	4.6	23.1	4	5.1	–	19	–
George Nott (6 Clyno sc.)	17.0	3.92	3	42.45	–	–	28	5.4	21.2	5	6.4	–	18	–
F. C. North (3½ Ariel)	21.3	4.77	–	46.88	–	–	13	2.2	24.1	–	5.2	–	22	–
F. W. Chapman (4 Triumph)	19.4	6.0	4	40.91	4.09	8	29	7.0	16.9	7	4.6	–	28	–
Frank Smith (6 Clyno sc.)	19.4	4.11	–	40.72	–	–	7	2.2	13.0	3	5.6	–	17	–
W. J. Montgomery (5 Montgomery)	23.3	4.7	–	38.79	6.21	12	14	3.2	17.9	3	4.0	–	27	–
Stanley Parker (8 Royal Enfield sc.)	18.2	4.15	1	40.36	–	–	59	8.6	28.0	6	1.6	–	33	–
A. Pilkington, jun. (8 Rex-Jap sc.)	17.3	3.32	2	40.72	–	–	29	5.8	20.4	6	1.6	–	22	–
J. H. Kerr (3½ N.S.U.)	–	–	–	19.18	–	–	8	2.8	11.7	5	Failed	10	25	–
W. A. Vickers-Edwards (5 Ariel)	23.8	3.71	–	45.23	–	–	7	2.0	14.3	1	5.8	–	33	–
F. W. Applebee (3½ Motosacoche)	18.8	4.52	–	42.25	1.75	4	16	2.8	23.4	–	Failed	10	31	–
J. D. Drysdale (2½ Connaught)	15.3	5.99	10	38.30	–	–	13	2.6	20.5	–	6.4	–	19	–
Harold Finch (3½ Premier sc.)	13.4	5.06	9	37.50	–	–	10	2.4	17.0	1	9.2	–	17	–
A. F. Plint (1½ Dayton)	12.3	7.31	17	32.14	–	–	14	2.8	20.4	1	5.4	–	18	–
Bert Haddock (2¼ A.J.S.)	22.0	3.75	–	48.13	–	–	14	2.0	28.6	–	5.0	–	16	–
R. Creak-Davis (8 Chater-Lea sc.)	21.8	4.73	–	43.69	–	–	24	3.6	27.3	1	4.2	–	16	–
P. Phillips (2¾ Douglas)	20.9	6.02	2	42.25	–	–	21	3.6	23.9	2	5.6	–	14	–
C. E. Nokes (3½ Sunbeam)	21.3	3.93	–	19.72	–	–	20	3.8	21.5	3	3.6	–	22	–
Joseph Stevens (6 A.J.S. sc.)	21.8	4.09	–	41.47	–	–	24	4.8	20.4	5	5.2	–	18	–
A. Clayton (4 Triumph)	22.08	4.09	–	52.63	–	–	5	1.8	11.3	2	9.8	–	23	–
J. Richards (5 Sunbeam)	19.4	4.26	–	–	Fell									
W. James (8 Morgan)	16.2	3.78	4	37.97	2.03	1	16	3.6	18.2	1	5.4	–	26	–
S. Tubb (3½ Humber)	17.5	4.91	2	35.86	8.14	16	21	4.2	20.4	4	4.0	–	14	–
W. Westwood (4 Triumph)	24.3	4.24	–	47.37	–	–	10	2.2	18.6	–	4.2	–	16	–
T. Stevens (4¼ James sc.)	18.6	5.21	1	41.17	–	–	19	4.0	19.4	4	4.2	–	21	–
Max Heinzel (2 N.S.U.)	11.9	5.61	13	29.51	0.49	1	18	4.8	15.3	6	4.8	–	13	–
G. J. Francis (3½ Lea-Francis)	21.8	2.85	–	46.63	–	–	13	2.8	19.0	2	5.4	–	16	–
C. O. Henfrey (3½ Ariel)	15.5	3.75	5	45.69	–		13	3.0	17.7	3	4.6	–	22	–
Jesse Baker (3½ Scott)	19.4	5.32	1	46.88	–	–	20	3.4	24.0	1	4.0	–	24	–
R. C. Boxer (5 Bat)	22.1	4.61	–	51.72	–	–	22	3.8	23.7	2	6.2	–	20	–
H. Rutherford (3½ Premier)	25.0	6.16	–	42.65	1.35	3	16	3.4	19.2	3	5.2	–	22	–
W. G. Ayling (1½ Dayton)	12.8	4.56	10	26.01	3.99	8	17	2.8	24.8	–	7.0	–	20	–
Percy Pratt (6 Bradbury sc.)	19.3	3.8	–	40.18	3.82	–	35	5.4	26.5	1	5.2	–	13	–
Rex Pearson (2½ Clyno)	20.2	1.79	–	40.18	–	–	11	3.2	14.1	5	3.2	–	21	–
N. Y. Downs (2½ New Imperial)	15.1	6.02	10	36.29	0.71	1	19	3.1	22.3	2	Failed	10	18	–
Neville Hall (2 O.K.)	11.2	5.49	9	35.02	–		16	2.6	25.1	–	Failed	10	24	–
H. W. Teeton (1¼ James sc.)	17.3	4.82	2	37.04	–	–	23	5.0	18.8	5	6.6	–	18	–
H. J. Beal (4 L.M.C.)	18.4	6.09	6	45.23	–	–	12	3.1	14.4	5	6.1	–	26	–
G. Gray Barnard (3½ Sunbeam)	22.0	3.36	–	45.92	–	–	12	2.6	18.9	1	4.8	–	15	–
C. L. Scott (10 A.C. cycle car)	11.2	4.41	12	38.63	1.37	3	16	3.4	19.2	3	4.0	–	22	–
R. Graham Dixon (3½ James)	22.0	2.36	–	48.13	–	–	35	5.2	27.7	1	4.8	–	–	–
J. Drew (2½ New Imperial)	15.4	5.88	9	40.54	–	–	11	2.6	22.0	3	4.8	–	17	–
R. Ellis (8 Morgan cycle car)	16.4	5.67	7	43.69	–	–	13	3.0	17.7	3	22	10	30	–
D. W. Brown (3½ Rover)	21.8	4.34	–	48.65	–	–	21	4.0	21.5	3	5.0	–	19	–
W. B. Gibb (2¾ Douglas)	19.7	4.52	–	44.33	–	–	11	2.0	22.5	–	5.6	–	11	–
G. D. Hardee (7 Matchless sc.)	19.3	5.06	–	42.45	–	–	41	5.8	31.0	3	4.2	–	31	–
Norman Lea (3½ Lea-Francis)	22.8	2.01	–	45.92	–	–	13	2.6	20.4	–	4.6	–	21	–
T. C. de la Hay (3½ Sunbeam)	23.5	4.79	–	50.56	–	–	27	4.6	21.0	1	3.0	–	11	–
F. G. Ball (2¾ Douglas)	19.7	5.62	3	46.39	–	–	13	2 14	22 1	–	4.8	–	13	–
Oswald Birse (3½ N.U.T.)	17.5	6.13	7	–	–	–	–	–	–	–	Failed	10	36	–
C. R. Collier (7 Matchless sc.)	18.6	3.34	–	41.47	.53	1	16	3.6	18.2	1	5.2	–	18	–
R. W. Lovegrove (3¾ Scott)	21.6	1.39	–	42.25	2.75	6	9	2.2	16.8	1	3.6	–	21	–
Fred Turvey, jun. (4 Triumph)	25.2	3.75	–	48.13	–	–	18	3.1	21.8	3	3.8	–	17	–
W.H. Egginton (8 Royal Enfield sc.)	21.6	2.63	7	40.36	1.64	3	30	6.0	20.5	6	8.2	–	41	–
W. Fox (3 Royal Enfield)	19.7	7.89	10	42.45	–	–	17	3.4	20.4	3	Failed	10	18	–
A. E. Catt (4 Triumph)	21.0	5.62	–	46.15	–	–	19	6.4	12.1	8	4.0	–	15	–
Gordon Armstrong (8 Gordon c.c.)	13.0	7.58	9	34.22	5.78	12	16	4.0	16.4	5	9.2	–	31	–
George Hunt (8 Campion sc.)	21.3	3.01	–	42.25	–	–	33	5.4	25.0	1	5.0	–	31	–
Graham Price (5 Bat)	22.0	4.65	–	50.0	–	–	17	4.0	17.1	1	6.2	–	26	–
K. H. Clark (3½ James)	26.5	4.31	–	45.92	–	–	11	2.4	18.7	–	3.8	–	14	–
L. Newey (3½ Ariel)	23.5	4.26	–	48.91	–	–	8	2.0	16.3	–	5.8	–	17	–
E. B. Slater (10 J.B.S. cycle car)	16.7	3.93	3	36.14	3.86	8	28	5.0	22.9	1	5.0	–	22	–
Arthur Kirk (3½ Ariel)	21.0	3.16	–	40.72	3.28	7	25	3.1	30.1	9	3.8	–	23	–
T. J. Ross (4 Triumph)	18.8	4.52	–	42.06	2.94	6	10	2.4	17.0	1	6.0	–	18	–
H. F. Edwards (5 Bat)	21.0	3.75	–	51.14	–	–	16	3.6	18.2	4	4.8	–	23	–
J. Oliphant (3½ Premier)	23.0	5.11	–	43.69	0.31	1	7	2.0	14.3	1	3.4	–	18	–
R. M. Davy (3½ Norton)	17.6	7.31	11	–	Too	late	–	–	–	–	5.0	–	26	–
P. W. Moffat (2¼ Douglas)	22.5	4.52	–	44.12	–	–	6	1.6	15.3	–	3.6	–	11	–
J. W. Woodhouse (8 Quadrant sc.)	19.6	3.21	–	40.91	1.09	2	12	3.4	14.5	5	–	–	22	–
H. Greaves (8 Royal Enfield sc.)	18.4	4.15	1	37.50	4.50	9	24	5.0	19.6	5	8.0	–	42	–
James Allday (3½ James)	18.9	4.15	–	45.69	–	–	13	3.0	17.7	3	4.4	–	17	–
J. W. Moffat (3½ Sunbeam)	23.3	5.62	–	49.18	–	–	19	4.4	17.6	5	4.6	–	21	–
W. D. Hawkes (10 Vic.-Precis'n c.c.)	10.6	3.14	13	31.48	5.52	11	11	3.0	15.0	4	10.6	–	27	–
G. E. Keel (3½ N.U.T.)	23.5	6.09	–	50.28	–	–	30	6.6	18.6	6	5.6	–	17	–
L. A. Bees (4 L.M.C.)	19.4	5.67	3	45.15	–	–	20	3.6	22.7	2	4.0	–	13	–
W. P. Tippett (3½ Humber)	19.4	5.21	–	42.86	1.14	2	13	2.6	20.4	–	6.0	–	32	–
W. Leslie Guy (3½ Scott)	22.1	4.52	–	38.30	6.70	13	9	2.4	15.3	2	4.8	–	24	–
Jack Haslam (3½ Premier)	17.6	4.56	2	38.96	–	–	18	5.2	14.2	7	8.8	–	23	–
P. Shaw (3½ P. & M.)	18.4	3.96	1	42.86	1.14	2	10	2.4	17.0	1	3.8	–	18	–
F. G. Edmond (3½ Humber)	16.2	4.77	4	40.72	3.28	7	10	3.4	12.0	6	6.0	–	26	–
A. H. Wright (6 A.J.S.)	16.5	2.91	4	37.65	–	–	34	5.2	26.7	4	10.8	–	19	–
C. W. Smith (4½ Bat)	26.5	6.81	–	50.0	–	–	12	2.6	18.9	1	Failed	10	40	–
Vincent Underhill (3½ Overseas)	18.4	6.0	6	37.19	6.81	14	31	5.4	23.5	4	9.8	–	16	–
H. F. S. Morgan (8 Morgan c.c.)	16.5	2.54	4	39.65	.35	1	14	3.0	19.1	2	4.6	–	37	–

C.

Rider, Machine, and H.P.	Acceleration (30 marks). Speed on Fast 200 yards.	Speed on Slow 50 yards.	Mks. Lost.	Speed (20 marks). Actual Speed.	Below Set Speed by	Mks. Lost.	Brakes (10 marks). Distance taken to Pull up.	Time taken to Pull up.	Initial Speed.	Mks. Lost.	Restarting (10 marks). Time taken to Restart, 15 yds.	Mks. Lost.	Quick Starting (10 mks.) Time taken to Start, 50 yds.	Mks. Lost.
	m.p.h.	m.p.h.		m.p.h.	m.p.h.		yds.	secs.	m.p.h.		secs.		secs.	
W. Russell (3½ Quadrant)	20.2	7.52	9	39.3	4.7	9	15	3.2	19.2	3	Failed	10	16	–
F. J. Watson (3½ Ariel)	16.9	4.26	3	37.66	–	–	21	3.4	25.2	1	5.0	–	28	–
A. G. Roberts (3½ Blackburne)	17.6	5.99	6	44.33	–	–	35	5.0	28.6	3	5.0	–	17	–
W. E. Cook (5 A.S.L.)	24.9	5.67	–	47.87	–	–	13	2.4	22.2	–	6.0	–	33	–
Eric Williams (6 A.J.S.)	16.0	2.93	4	37.97	–	–	20	5.0	16.3	6	4.2	–	23	–
R. Fenn (4 Triumph)	21.0	6.31	3	45.0	–	–	14	2.6	22.0	–	6.0	–	18	–
G. N. Fenner (3½ Blackburne)	18.9	6.16	5	35.16	8.84	18	7	2.2	13.0	3	5.8	–	20	–
F. Burgess (10 Calthorpe c.c.)	18.8	2.48	–	46.63	–	–	9	3.0	12.5	5	5.2	–	23	–
W. C. Drake (3½ P. & M.)	25.9	5.11	–	43.69	0.31	1	14	2.8	20.4	1	5.0	–	22	–
R. E. Guest (7 Matchless)	18.8	3.93	–	42.06	–	–	12	3.2	15.3	3	6.8	–	16	–
Eli Clark (8 Leader sc.)	18.4	4.26	1	41.10	.90	2	15	4.0	15.3	5	10.2	–	86	10
W. G. McMinnies (8 Morgan c.c.)	23.9	3.53	–	53.89	–	–	19	4.4	17.6	5	8.2	–	39	–
J. S. Holroyd (3½ Blackburne)	19.1	5.55	2	45.69	–	–	20	3.2	25.6	–	6.4	–	16	–

THURSDAY'S ROUTE: 160½ Miles. Sheffield, Stocksbridge, Penistone, Holmfirth, Slaithwaite, Halifax (lunch), Luddenden, Hebden Bridge, Todmorden, Marsden, Bradfield, Sheffield.

Whatever may have been thought of the severity of Monday's route, that planned for Thursday was a great deal more difficult. It was a succession of steep by-lanes with the roughest surface—innumerable hairpins and cobblestones and pot-holes were the order. Twenty miles per hour over such roads was exceedingly difficult, indeed dangerous, for one had perforce to descend the precipitous declines at walking pace, and the only chance of making up time was on up grades, but speeding at any time was decidedly risky on Thursday.

Quite a respectable hill, which was not far from the start, was Holdworth, from the slopes of which there was a lovely view over a reservoir. Fox (Enfield) ran off the route by following an official car which stopped in a side lane. Catt (Triumph) came up comfortably and without apparent effort. The Ariels also did remarkably well, while Armstrong (Gordon), Clark (James), Price (Bat), Hunt (Campion sc.), Oliphant (Premier), Moffat (Douglas), J. W. Moffat (Sunbeam), Greaves (Enfield sc.), and Keel (N.U.T.) all made light work of the hill, and Slater (J.B.S. c.c.) came up the greater part of the hill on second gear.

Tinker's Hill.

The worst part of Tinker's hill had been cut out, but the first portion was fairly stiff. There were three sharp bends, and an appalling gulley near the top, which, however, had a six inch wide easy path through it for those who were lucky enough to see it in time. C. R. Collier and Hardee, both on Matchless sidecar combinations, Ball (Douglas), the Scott riders, Scott's A.C., Kirk, and other Ariel riders, Ross (Triumph), who passed Edwards (Bat) on one of the corners, all made clean ascents. The road continued to be very rough for some distance, and before joining the highway the down grade was very steep and dreadfully cut up by the recent rains.

Climbing up Stairs.

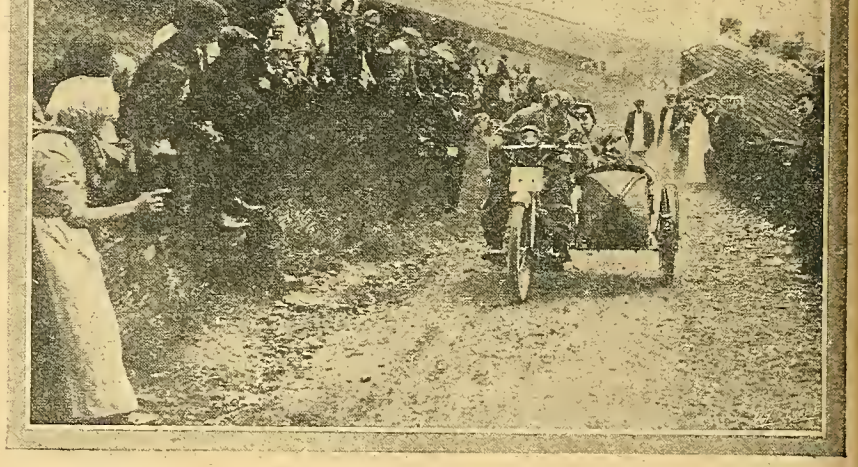
Scapegoat Hill was reported to be the most difficult on the morning section. It contained acute hairpins, but the competitors were now quite practised in this sort of thing and handled their machines splendidly, dropping down to low gear for the corners only and then accelerating finely. Several of the lower-powered machines came to a standstill. We noticed Egginton go up with a flat driving tyre on his Enfield. O. Birse (3½ N.U.F.) retired hereabouts owing to the fact that the low speed of his hub refused to act. As a matter of fact he had been running considerable risk, as on Monday his brakes were damaged in a fall o Grindon Hill.

One notable climb on the mornin section actually included a flight of steps Only the solo machines went up, but th competitors did not like it a bit.

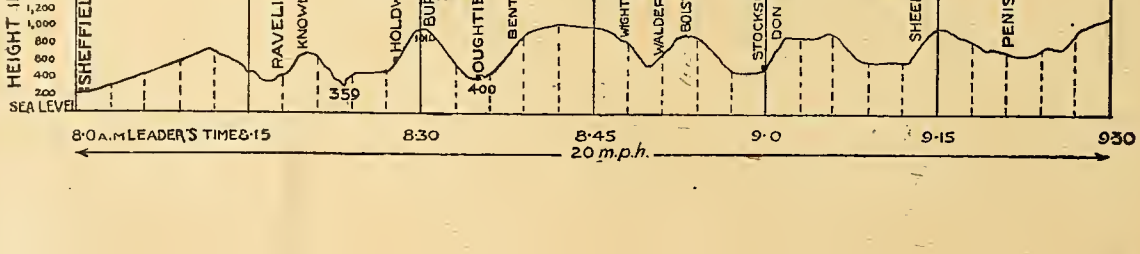
Near Halifax, Parkfield Lane wa descended with great caution.

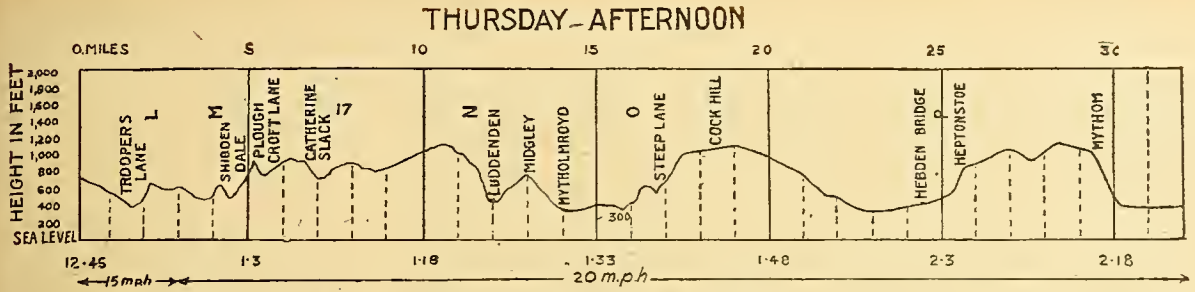
The Luncheon Stop.

Pilkington (Rex-Jap) and Frank Smit (Clyno) reported that they had climbe "The Staircase," and had not remarke the notice that it was only for solo machines. Smith dented his crank case in a gulley while making a clean ascent; Applebee (Motosacoche) had grazed the wall and scraped the skin off his fingers; Haddock (A.J.S.) had suffered a collapsed back wheel halfway to the luncheon stop owing to striking an enormous pot-hole



"IN THEIR CLOGS AND THEIR SHAWLS."
H. Finch (3½ h.p. Premier sidecar) near the top of Scapegoat Hill.





at speed and had to retire. The same pot hole dented many rims and threw one of the Bat riders. Wright (A.J.S.) withdrew at Halifax owing to his passenger having absolutely refused to face the terrors of the homeward journey. Complaints as to the roughness of the roads and the difficulty in keeping to schedule were heard on all sides; in fact very few indeed arrived to time. Cook (A.S.L.) said he thought it had been a fine sporting run, and May, whose A.J.S., good machine as it is, was almost *hors de combat*, took things very philosophically, although he had broken an inlet spring (said to be the first on record on an A.J.S.), and the handle-bar clutch control had been put out of action. Plint (Dayton) reported an excellent run save for one stop on Scapegoat Hill, while Wilkin (Levis) had been unlucky with tyres.

Immediately after lunch a fine example of a really steep and absolutely fair hill was encountered. It had a bad approach owing to the road being under repair at the foot, was very steep, had a good surface, and possessed several corners. Failures were uncommon, and the general excellence of the performances showed that the modern machine, suitably geared, will take any gradient, and, moreover, keep its tune, as this is the fourth day's hard running. Wilkin (Levis), Walters (P. and M.), May (A.J.S.), Brown (Rover), Langton (Ariel), Brownsort (A.C.), Robinson (N.U.T.), Nott and Frank Smith on their Clyno sidecar outfits, Chapman (Triumph), Clark (James), and Price (Bat) were among the many who made excellent ascents.

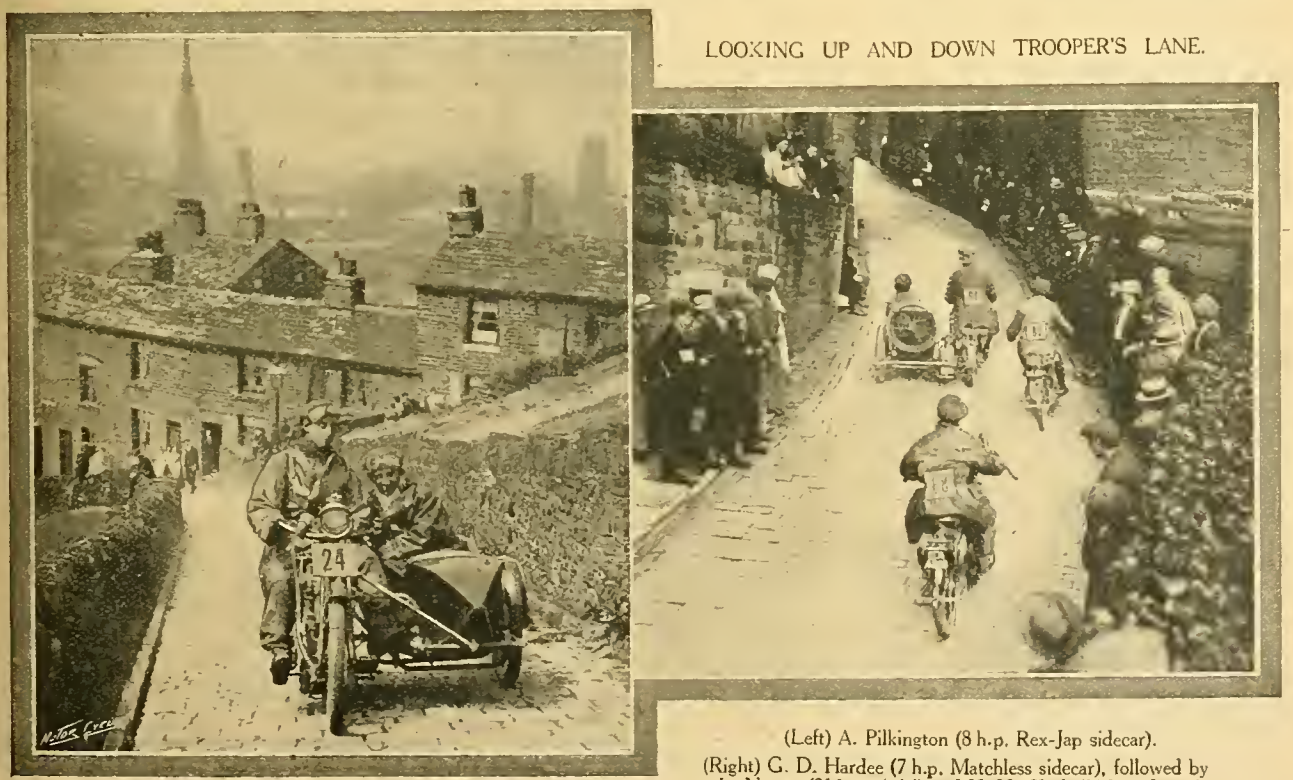
Moderate-powered Sidecars Score.

A mile or two further a steep ascent known as Lee Lane was encountered. This hill has a series of gulleys V-shaped and nearly a foot deep running tangentially across the road. But the gulleys were not so bad as the loose stones which covered the surface. Many a rider came to a standstill, and several fell over owing to the front wheels getting on to big stones, notably F. G. Ball (Douglas) and N. T. Downs (New Imperial). There were many excellent solo climbs, but the most remarkable performances were those of the three 3½ h.p. sidecar outfits still left in the trial, viz., Watson's 3½ Ariel and the two Premiers driven by Finch and Haslam respectively. Edwards (Bat) actually changed up before reaching the top, and his climb and also those of Oliphant (Premier), Ross (Triumph), Davy (Norton), Moffat (Douglas), and Shaw (P. and M.) were steady and sure in contradistinction to some other riders, who seemed to totter at the sight of so many loose stones. The cycle cars generally showed up exceedingly well, Gordon Armstrong's Gordon in particular, though Morgan and McMinnies, on their Morgan runabouts, seldom had trouble with the hills.

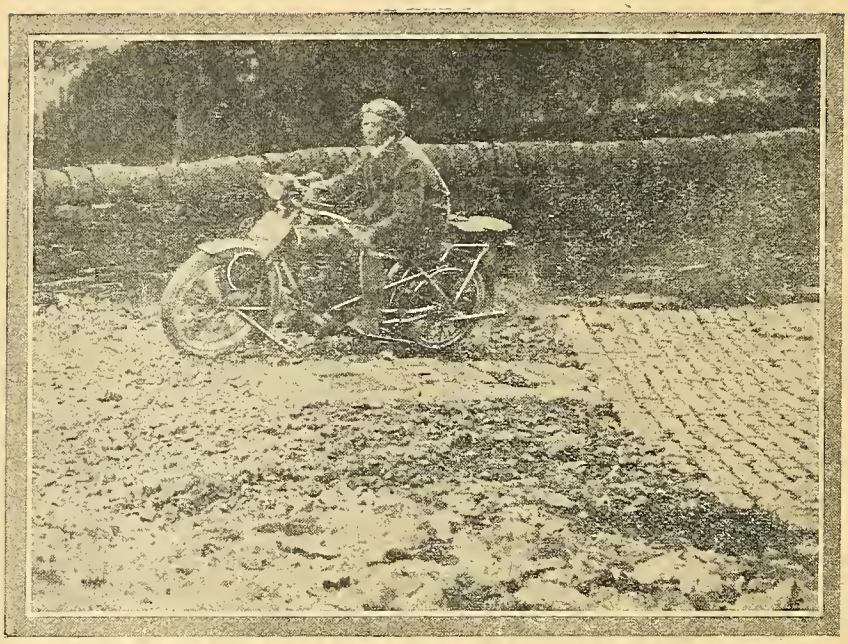
Two riders retired at this point, viz., Stanley Parker, who, in engaging the low gear of his Enfield sidecar suddenly, caused the front wheel to slew round and cannon the bank, so bending the forks, and Eli Clark, whose Leader sidecar burnt out the clutch.

A mile or two further on a stone got fixed between the tyre and guard of Pearson's Clyno and threw the rider, who had to dispense with the guard.

LOOKING UP AND DOWN TROOPER'S LANE.



(Left) A. Pilkington (8 h.p. Rex-Jap sidecar).
(Right) G. D. Hardee (7 h.p. Matchless sidecar), followed by L. Newey (3½ h.p. Ariel) and K. H. Clark (3½ h.p. James).



C. W. Smith (4½ h.p. Bat) on one of Thursday's tit-bits in the way of road surfaces.

Steep Lane was the third test hill after lunch. It was quite one of the best examples of pure steepness, length, sharp corners, and a hill which needed sheer skill to climb. The actual gradient on the steepest portion was 1 in 4, which we carefully measured. This was close to the top, and the near side of the road at this point was made into rough steps. We saw the Victor cycle car and Cook's A.S.L. make excellent ascents. There were, however, one or two failures. On the summit we found Watson (Ariel), who had been compelled to withdraw owing to a broken sidecar frame.

A Nearly Vertical Gradient.

Another hill of the series on the outskirts of Halifax was Blackwood Hall Lane, near Luddenden. There was a terrible gulley some way up, shortly after followed by an acute hairpin bend, the inner corner of which was stated by Major Nicholl to be 1 in 1½. The corner was so sharp and the road so narrow that most of the cycle cars scraped their wings against the wall, while several failures on the part of the motor cycles have to be recorded. These were: Finch (Premier), C. R. Collier (Matchless sc.), Fox (Enfield), Smith (Bat) who hit the wall and came off, Davy (Norton), Keel (N.U.T.), and Fenner (Blackburne) who foot-slogged, while other failures reported are those of Hall (O.K.), Applebee (Moto-sacoche), and Brownsort (A.C.).

Incidents of the Run.

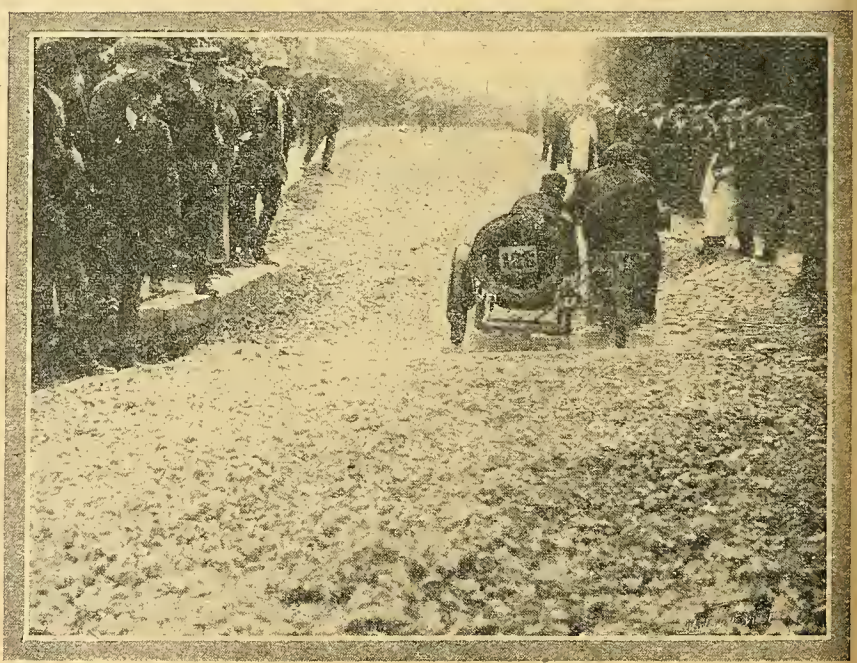
Only eighty-three finished the day's journey. May (A.J.S.) retired shortly after lunch for reasons already stated. Flint (Dayton) broke a front fork stay and had to retire. Fenner (Blackburne) came to a standstill over a gulley through the flywheel and footrests touching the ground. Ellis (Morgan) decided not to restart as he had had enough; Morgan withdrew his runabout owing to a bent front axle; the Victor cycle car, which had done so well, was delayed too long to continue, owing to a burst radiator.

The Rev. E. P. Greenhill, one of the stewards, was anxious to follow Thursday's run on a motor cycle, and a 3½ Rover was placed at his disposal by Jack Haslam. The machine carried him through in a highly satisfactory manner.

All told there were no fewer than thirty-eight hills with single figure gradients in this day of days. Any one of them would have stopped a motor cycle a year or two ago. Cook's Study near Austonley proved no test after what have gone before—indeed, several did not even have recourse to their lowest gears.

Platt (Bradbury sc.) punctured and then followed a real T.T. to make up time. We had the benefit of his dust for some time, so we know how fast his twin Bradbury is. Lodge Lane was the final climb of the day, but practically all got up easily—indeed, many scurried up as they were behind time.

W. C. Drake (3½ h.p. P. and M.) ascending Jacob's Ladder.



Eric Williams (6 h.p. A.J.S. sidecar) on Lee Lane, Shibden Dale, Thursday's *piece de resistance*

FRIDAY'S ROUTE: 148¼ Miles. Sheffield, Marsden, Littleborough, Todmorden, Hebden Bridge, Halifax (lunch), Slaithwaite, Holmfirth, Penistone, Stocksbridge, Sheffield.

It was a very reduced field that started on the last day's run of the ever-to-be-remembered "Six Days" of 1914, for, instead of the 132 who originally started, there were but eighty-one left this morning. Teeton (James sidecar) had withdrawn owing to physical unfitness to continue, though he observed the others on one or two hills. In the initial non-stop section there were several hills to climb, that leading up to Bradfield rising rather abruptly. Henfrey (Ariel), who had put in useful work at the start securing the belt pulley to the spokes, broke a belt. Later, we overhauled C. R. Collier, who was bewailing his luck with tyres, for a front wheel puncture had completed the round of all wheels. The new Matchless detachable wheel, however, soon saw him on his way again. Hereabouts also we encountered Catt, who had suffered gear trouble on his Triumph, and was obliged to withdraw, though up to that point he had not lost a single mark. Near Langsett there was a patch of unrolled loose metal which caused the riders some anxiety. Long after the others had passed Allday (James) was seen making up lost time, another puncture having delayed him considerably. Dixon, another James rider, and Edwards (Bat) managed to come into collision whilst negotiating a hairpin bend together.

Ewden is a fine climb with fair surface, steep at the bottom and with several turns. The view from the top was exceptionally fine, and it was hard to believe one was near the manufacturing districts. Practically all the survivors came up in good form. It was interesting to note that the front wheels of Armstrong's Gordon cycle car, which last night had the tops leaning inwards, had been straightened—a smart repair having been accomplished in garage in ten minutes—by fixing angle pieces and a tie rod under the axle. The last seen of Finch was near the luncheon stop, a broken exhaust valve causing a halt, when it was discovered that by no manner of means could the valve cap be removed. Haslam wasted ten minutes helping with a huge wrench, but with no avail, and finally a new cylinder had to be procured to enable Finch to proceed home. A driver who had put up such an excellent performance surely did not deserve such an ignominious exit, for the hill-climbing of his 3½ h.p. sidecar outfit has been one of the features of the trial.

Observations on Mytholm Rise.

Undoubtedly the *pièce de résistance* in Friday's run was the ascent known as Mytholm Rise, near Todmorden. At the outset the surface was of fairly good cobbles, but suddenly these were left and ordinary road metal in very bad condition was encountered. There were many acute bends, a short, easy stretch, and a long, steep section getting looser and looser towards the summit, and a final hairpin. The gradient was 1 in 5·6, and so severe was the hill that we endeavour as far as possible to qualify each performance which we noted. Francis (Lea-Francis), Little (Premier), Boxer (Bat), Platt (Bradbury), Baker (Scott), Pearson (Clyno two-stroke), and Nokes (Sunbeam), all showed up well. C. R. Collier (Matchless sc.) was apparently using too high a gear and stopped near the last bend. Hall (O.K.-Junior) dismounted and ran. Brownsort (A.C.) suffered trouble through his petrol failing to reach the carburetter, and came to a standstill, so he blew down the filler cap on the dashboard, with the result that the spirit rushed out of the tank into his mouth and nearly choked him. He tasted petrol the rest of the day. Turvey (Triumph) was baulked by a cart, and had a narrow escape from being driven into the gutter. Platt (Bradbury) made a magnificent climb, and as far as the eye could judge his was the best performance of a sidecar combination. Ball (Douglas) made a fine ascent and was applauded by the spectators, while a good climb was made by Kirk (Ariel). Price (Bat) had a tremendous struggle to get to the top—first he almost got into the gutter, then the front wheel leaped a foot off the ground, then he got into the gutter again, but cleverly saved himself and made a clean ascent.

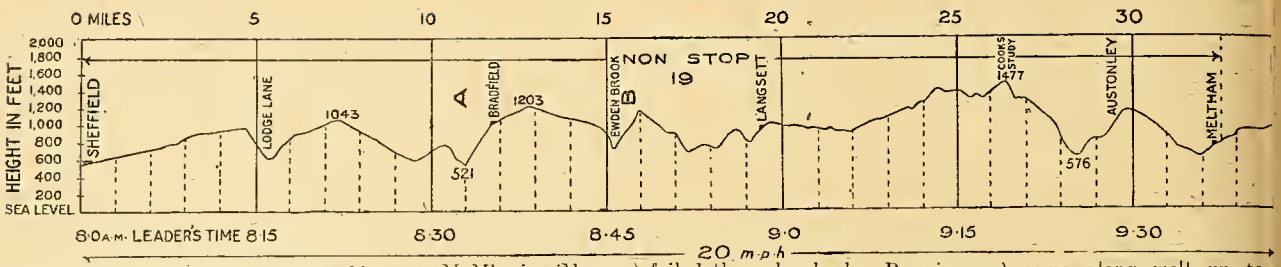
Gibb (Douglas) came up in fine form, while de la Hay (Sunbeam) did equally well. Lea (Lea-Francis) was all over the road, but reached the summit without a stop; Edwards (Bat) was driven into the side of the road by a cart, Brown (Rover) made a fine showing, while quite the best solo performance was that of Lovegrove (Scott), whose machine climbed fast and held the road in a manner which words fail to describe. Ross (Triumph), Oliphant (Premier), Clark (James), and Greaves (Enfield sc.) all got

COMPETITORS ON TROOPER'S LANE, HALIFAX, DURING THURSDAY AFTERNOON'S RUN.

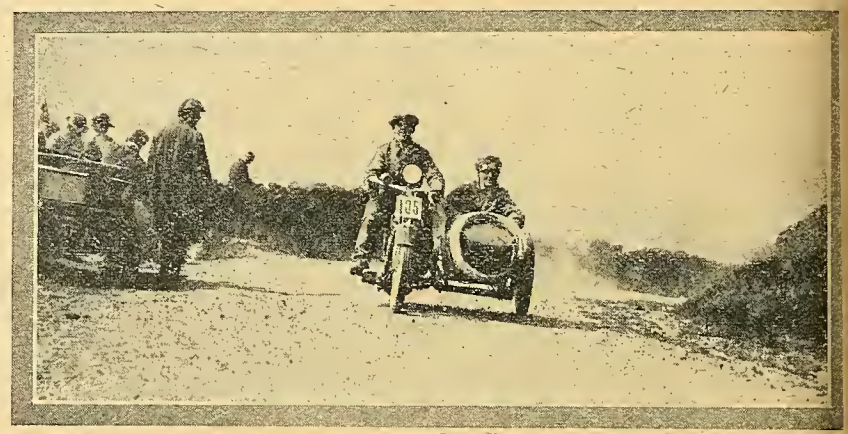
P. Phillips (Douglas) is seen leading A. Clayton (Triumph) and F. W. Applebee (Motosacoche).

H. J. Beal (L.M.C.) and G. Barnard (Sunbeam) on one of the abrupt corners on Trooper's Lane, Halifax.

FRIDAY MORNING



up well, though Egginton's Enfield sc. suffered from wheel slip, while Slater's J.B.S. cycle car made a fine climb. Drew (Imperial) was obviously failing, when he retarded the spark by turning the contact breaker between his fingers, but this feat did not save him. Bees (L.M.C.) came up with ease, while Moffat, like the other Douglas riders, made a fine ascent. Davy, whose Norton has a Brampton variable gear as well as a hub gear, went very well, Newey (Ariel) travelled fast on second, his machine leaping like a deer, and he only changed to first just below the last hairpin. Tippett (Humber) made a good ascent, while Edmond, riding a similar machine but air-cooled, failed. Smith (Bat) and Fenner (Blackburne) performed most creditably, but Keel (N.U.T.) failed to negotiate the gradient; Cook (A.S.L.), whose twin has been doing well, made a clean ascent, and Underhill (Overseas), though his engine was knocking, got up. Gray (Sunbeam) reached the top, though his engine was pre-igniting, and he slipped his clutch a good deal. Leslie (Scott) mounted the hill easily, but not quite so well as his colleague Lovegrove. Drake (P. and M.) was one of the unfortunates, but Holroyd (Blackburne) and the Calthorpe and Gordon cycle cars did extremely well. McMinnies (Morgan) failed through wheel slip, though he made a gallant effort to save himself by making the machine swerve about so as to find a place for the back wheel to grip. Guest, who has accounted for every hill on his Matchless sidecar, was in difficulties in the loose surface, but managed to pull through by bumping on the saddle. Haslam (3½ Premier sc.) came along well up to certain point, but he had to dismount f a few yards. Clean ascents were mac by Allday (James) and Hunt (Campio sc.). At the end of the climb a no



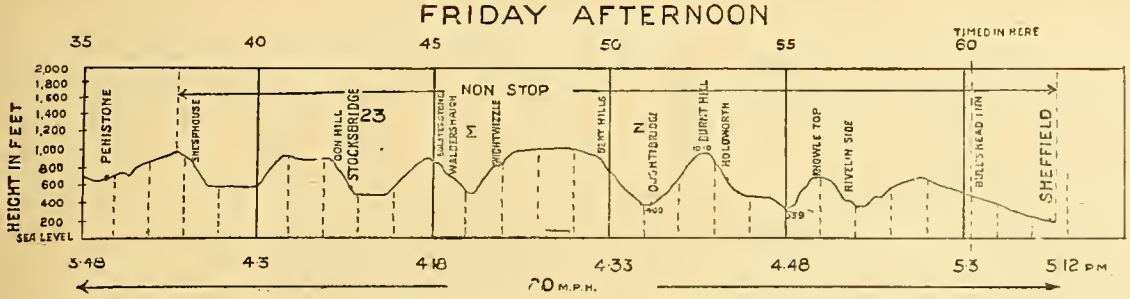
H. Greaves, on the 8 h.p. Enfield, at the top of Lower Bradfield Hill

competing Bradbury sidecar arrived a the summit with three adults and a bab on board.

At the luncheon interval Moffa (Douglas), who is well in the runnin for the 350 c.c. cup, found a tyre fla and had to repair in a non-stop section which lost him five marks. Greave (Enfield) and James (Morgan) were i the same boat..

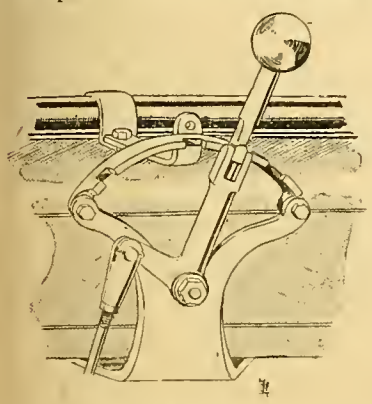
Another hill which called for a certai amount of attention was that leading ou of Holmfirth. The steepest portion wa at the foot, and was about 1 in 5; th surface was cobbles, which, someway up gave way to good macadam, and ther were two easy bends. The leaders cam up with ease, but Langton (Ariel sc.) shec a chain after leaving the cobbles, whicl cost him about five minutes' delay Frank Smith (Clyno sc.) came up well and calmly slowed right down on 1 in 5 to allow a photographer to take a pictur of him. The said photographer climbec the hill in a sidecar outfit, and turnec sharp left up a side turning with th object of leaving the machine out of th way of the competitors, when Not (Clyno sc.), who was behind, followec him. Quickly realising his mistake Not turned round on the sidecar wheel an got away again without stopping eithe road wheel or engine. It was a very clever piece of driving. Near thi point Scott was obliged to retire owing t a melted big end bearing His A.C. hac shown up particularly well throughou the week, and it was indeed hard lines t have to withdraw on the very last day o this strenuous trip.

G. Nott (5-6 h.p. Clyno sidecar) and A. J. Stevens (6 h.p. A.J.S. sidecar) on Meal Hill, Slaithwaite.



Tinker's Monument.

As stated in our report of Thursday's run, the real hill up to Tinker's monument was omitted, but even if that were so a very good substitute was found. It began by being rough, but not very steep, and keeping up its roughness for quite a distance, then the road was grass-grown and good, but the last section that mattered, which was about 1 in 6 and 3in. deep in little stones, large stones, and dust, was by no means pleasant. Drew (Imperial) failed, and Platt (Bradbury sc.) came to a stop through his gear operating rod being out of adjustment. Beyond this point a number of competitors went astray, and never passed the timekeeper at the end of the non-stop



The Wolf three-speed gear control lever.

section, but it takes a wily customer to deceive Mr. Ebblewhite, and he quickly got his car under way, and, cutting across country, took the times in a different place. The trouble was due to Thursday's arrows not having been taken down.

Further on Platt's Bradbury engine seized, and as we passed clouds of smoke were issuing from the engine, as paraffin was soused over it in the driver's frantic endeavours to finish. The last ascent of note was Burnt Hill, Oughtibridge, and we could not help but observe the more pleasant look on the competitors' faces as the end hove in sight. Wilkins (Levis) and Walters (P. and M.), who have led the string all the week, came along practically dead to time, and most of the others made good climbs. Pilkington (Rex-Jap sc.) actually stopped on a hill for the first time owing to an air lock, but proved the qualities of his machine by restarting on the steepest part and accelerating finely. The veteran Applebee got on to loose stones at the corner, and only just recovered himself. Easily the best ascent among the passenger machines was made by Burgess on the Calthorpe Minor, who swept up the hill, scattering stones in all directions at the corner. Clayton pointed to a flat rear tyre as he passed us; he rode the last twenty-five miles on the rim. Two of the three Scotts actually went up on top gear. When but fifteen miles from the finish Vickers Edwards broke a valve, and, having no spare, gave up.

Hardee's sidecar frame broke when almost in sight of the storage depot, a $\frac{7}{8}$in. solid bar of chrome vanadium steel having sheered.

Saturday's Proceedings.

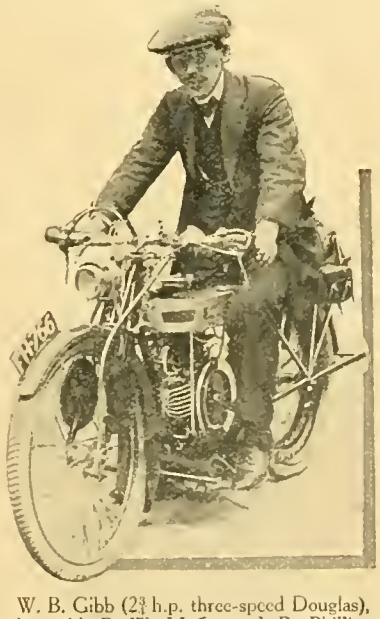
Saturday was devoted to an inspection of the machines which survived operations commencing at 8 a.m. Many a competitor whose footrests were bent, or a valve lifter broken, or rim dented, quaked at the prospect of having marks deducted which might preclude them from an award. In the evening the results were issued and the following special awards:

W. J. Brownsort (10 A.C. cycle car) climbing Bradfield Hill.

THE SPECIAL AWARDS.

The Team Prize.—The Douglas Team: Messrs. W. B. Gibb, P. W. Moffat and P. Phillips on $2\frac{3}{4}$ h.p. three-speed model Douglas motor cycles, 60.9 × 60 mm. bore and stroke. The highest and lowest of the three gear ratios available were 5.6 and 13.5 to 1. The Douglas team gained 597 marks out of a possible 600.

Second.—The P. and M. team, 593.
Third.—The Matchless team, 583.
Fourth.—The Scott team, 576.
Fifth.—The Humber team, 545.
Sixth.—The Premier team, 499.



W. B. Gibb ($2\frac{3}{4}$ h.p. three-speed Douglas), who with P. W. Moffat and P. Phillips formed the winning team in the A.C.U. Trials.

Cup, Value £8 8s. (presented by Mr. J. Haslam, Sheffield, for the best performance by any machine not exceeding 350 c.c.)—Messrs. W. B. Gibb ($2\frac{3}{4}$ h.p. Douglas) and P. W. Moffat ($2\frac{3}{4}$ h.p. Douglas) tied.

Cup, Value £15 15s. (presented by the Sheffield Motor Cycle Traders for the best performance by a sidecar machine).—R. C. Davis (8 h.p. Chater-Lea sc.).

Cup, Value £15 15s. (presented by the Sheffield Motor Cycle Traders for the best performance by a solo motor cycle).—W. Westwood (4 h.p. Triumph).

Special Gold Medal (for an exceptional performance).—N. Hall (2 h.p. O.K.), 58 × 72 mm. = 190 c.c.. Albion three-speed gear.

TABLE OF RESULTS SHOWING AWARDS AND MARKS GAINED.

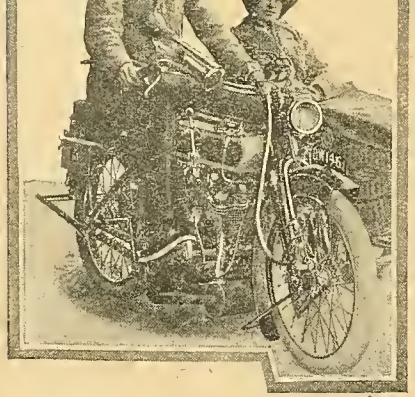
Rider and Machine.	Consumption of Cycle Cars	Total Marks Gained.	Condition Marks Lost.	Bonus.	Award.
E. V. Walters (3½ P. and M.)	—	193	1	+10	G.M.
George Nott (6 Clyno sc.)	—	186	3	+ 3	G.M.
F. C. North (3½ Ariel)	—	200	2	+10	G.M.
Frank Smith (6 Clyno sc.)	—	200	2	+10	G.M.
F. W. Applebee (3½ Motosacoche)	—	189	1	+10	G.M.
R. Creak-Davis (8 Chater-Lea sc.)	—	200	2	+10	G.M.
P. Phillips (2¾ Douglas)	—	197	2	+10	G.M.
C. E. Nokes (3½ Sunbeam)	—	200	1	+10	G.M.
Joseph Stevens (6 A.J.S. sc.)	—	198	1	+10	G.M.
A. Clayton (4 Triumph)	—	200	3	+10	G.M.
W. Westwood (4 Triumph)	—	200	2	+10	G.M.
T. Stevens (4¼ James sc.)	—	197	7	+10	G.M.
G. I. Francis (3½ Lea Francis)	—	195	2	+10	G.M.
Jesse Baker (3¾ Scott)	—	196	2	+10	G.M.
R. C. Boxer (5 Bat)	—	194	2	+10	G.M.
H. Rutherford (3½ Premier)	—	190	4	+ 6	G.M.
Rex Pearson (2½ Clyno)	—	186	6	+ 4	G.M.
G. Gray Barnard (3½ Sunbeam)	—	200	1	+10	G.M.
H. Graham Dixon (3½ James)	—	200	2	+10	G.M.
D. W. Brown (3½ Rover)	—	196	7	+ 7	G.M.
W. B. Gibb (2¾ Douglas)	—	200	3	+10	G.M.
G. D. Hardee (7 Matchless sc.)	—	186	10	+10	G.M.
Norman Lea (3½ Lea-Francis)	—	200	1	+10	G.M.
T. C. de la Hay (3½ Sunbeam)	—	198	7	+10	G.M.
C. R. Collier (7 Matchless sc.)	—	197	1	+10	G.M.
R. W. Lovegrove (3¾ Scott)	—	190	3	+10	G.M.
Fred. Turvey, jun. (4 Triumph)	—	200	1	+10	G.M.
W. H. Egginton (8 Enfield sc.)	—	175	4	—	G.M.
George Hunt (8 Campion sc.)	—	188	7	+ 7	G.M.
Graham Price (5 Bat)	—	182	3	—	G.M.
L. Newey (3½ Ariel)	—	200	1	+10	G.M.
Arthur Kirk (3½ Ariel)	—	183	2	+10	G.M.
T. J. Ross (4 Triumph)	—	199	3	+10	G.M.
H. F. Edwards (5 Bat)	—	200	3	+10	G.M.
J. Oliphant (3½ Premier)	—	200	3	+10	G.M.
P. W. Moffat (2¾ Douglas)	—	200	2	+10	G.M.
J. W. Moffat (3½ Sunbeam)	—	199	4	+ 9	G.M.
G. E. Keel (3½ N.U.T.)	—	174	5	—	G.M.
L. A. Bees (4 L.M.C.)	—	200	3	+10	G.M.
W. P. Tippett (3½ Humber)	—	194	3	+10	G.M.
W. Leslie Guy (3¾ Scott)	—	187	2	+10	G.M.
P. Shaw (3½ P. and M.)	—	200	0	+10	G.M.
F. G. Edmond (3½ Humber)	—	179	3	+10	G.M.
C. W. Smith (4½ Bat)	—	190	3	+10	G.M.
Vincent Underhill (3½ Overseas)	—	181	2	+10	G.M.
W. E. Cook (5 A.S.L.)	—	198	1	+10	G.M.
Eric Williams (6 A.J.S. sc.)	—	188	3	+10	G.M.
F. Burgess (10 Calthorpe)	27.9	200	1	+10	G.M.
W. C. Drake (3½ P. and M.)	—	200	1	+10	G.M.
R. E. Guest (7 Matchless sc.)	—	200	1	+10	G.M.
W. G. McMinnies (8 Morgan)	50.6	183	5	+10	G.M.
Fred. K. Langton (5 Ariel sc.)	—	176	4	+ 6	S.M.
J. D. Drysdale (2½ Connaught)	—	172	3	+ 6	S.M.
S. Tubb (3½ Humber)	—	172	5	+10	S.M.
C. O. Henfrey (3½ Ariel)	—	162	5	—	S.M.
Neville Hall (2 O.K.)	—	138	4	+ 7	S.M.
H. J. Beal (4 L.M.C.)	—	175	3	+ 8	S.M.
F. G. Ball (2¾ Douglas)	—	169	2	+10	S.M.
G. N. Fenner (3½ Blackburne)	—	173	0	+10	S.M.
J. S. Holroyd (3½ Blackburne)	—	177	0	+10	S.M.
G. W. Wilkin (2¾ Levis)	—	163	5	+ 3	B.M.
W. J. Brownsort (10 A.C.)	19.4	152	2	+ 3	B.M.
James Robinson (3½ N.U.T.)	—	150	7	—	B.M.
W. James (8 Morgan)	29.5	135	2	—	B.M.
J. Drew (2½ New Imperial)	—	151	3	—	B.M.
E. B. Slater (10 J.B.S.)	35.8	135	0	—	B.M.
H. Greaves (8 Enfield sc.)	—	159	7	+10	B.M.
James Allday (3½ James)	—	155	2	+ 6	B.M.
P. S. Taylor (2½ New Imperial)	—	109	3	+10	—
F. W. Chapman (4 Triumph)	—	106	4	+ 2	—
Gordon Armstrong (8 Gordon)	27.8	114	12	—	—
R. M. Davy (3½ Norton)	—	103	3	—	—
A. Pilkington, jun. (8 Rex-Jap sc.)	—	111	5	—	—
Jack Haslam (3½ Premier sc.)	—	109	2	—	—

TRIALS NOTES.

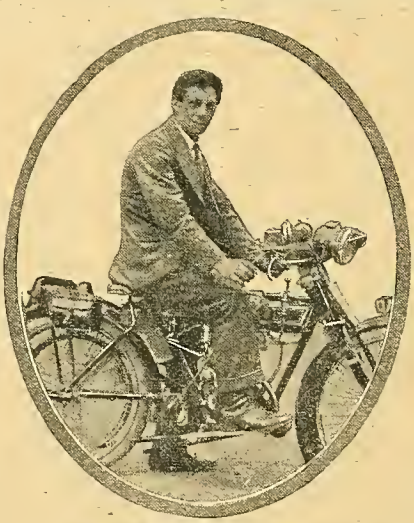
Fancy including a brake test on the level when competitors were descending 1 in 4 gradients every day without exception!

F. C. North's record in Six Days Trials is surely unequalled. He has competed in six events and on every occasion has qualified for a gold medal—a magnificent testimony to his riding skill and the qualities of his Ariel.

The Motor Cycle representatives were frequently the only pressmen observing the performances on the test hills.



R. C. Davis (8 h.p. Chater-Lea), who won the special sidecar cup in the A.C.U. Six Days Trials.



Neville Hall (2 h.p. O.K.), who was given a special gold medal for an exceptional performance. Hall's three-speed mount had an engine of only 193 c.c., and was easily the smallest to survive the course.

To W. James belongs the credit of surviving the Scottish Trial and again the English Trial on a two-seater Morgan.

The performance of Neville Hall on the 2 h.p. O.K. Junior stands out prominently. His was the only miniature to finish, and the other competitors were so impressed by his plucky exhibition that a petition was signed to present Hall with a special gold medal. His machine had an Albion three-speed counter-shaft gear.

Thursday's route was by far the worst ever arranged in a Six Days event.

One of the best roadside repairs during the trial was by J. S. Holroyd, who broke three pinions in the hub gear on his Blackburne, and effected a replacement after dismantling the gear on the road. Holroyd had never seen the inside of a hub gear before, and told us that when he removed the end plate "a lot of springs and balls fell out."

Surely there is no need for the A.C.U. to organise a "Colonial" trial now, for there are no worse roads to be found in Yorkshire than those traversed on Monday, Thursday, and Friday.

Benzole was procurable everywhere in the districts at 1s. 6d. per gallon. Those who used it liked it, and were pleased to find that their engines refused to knock.

W. Westwood (4 h.p. three-speed Triumph), who has been awarded the cup for the best solo performance.

Six Days Trials Notes.—

The two motor bicycles used by our staff in reporting this event were a strange contrast. One was the product of that old-established and excellent firm, Messrs. Phelon and Moore, was expected to acquit itself well, and it did so, while the other was one of the new 3½ h.p. twin A.B.C.'s —quite a new and untried production. Had it not done well we should have forgiven it on account of its youth, but as it climbed every test hill it was put at in excellent form and finished in perfect condition, it deserves the fullest credit.

The series of steep hills came as a surprise, and no one can recollect a trial in which there was a greater succession. It has been a tremendous test, and only the best men and the best machines have finished it successfully.

Route-marking by means of spilling dye on the roads is in its infancy. Nine times out of ten during last week's trial it was successful, but on the tenth occasion the colour would not show up on the road. The arrows are a valuable adjunct to the system, and some improvement might be effected by using brighter shades of dye.

A smoking concert arranged by the Sheffield and Hallamshire M.C.C. at the King's Head Hotel on Wednesday proved a popular change in the evening's programme. Filling up protest forms was largely indulged in other evenings.

On Thursday evening a competitors' "protest" meeting was held at the Grand Hotel, when certain resolutions were passed calling upon the A.C.U. to reduce the average speeds, especially for passenger machines. Simultaneously the A.C.U. officials were discussing the advisability of allowing a few minutes' grace in connection with Thursday morning's route, which was eventually done.

The Brake Test.

Owing to a certain amount of misunderstanding on the part of the competitors of the brake test, the marks lost therein have not been taken into consideration in making the awards.

AMONG THE CHIMNEY TOPS

P. Phillips (Douglas) and A. Pilkington (Rex-Jap sidecar) ascending Don Hill, Stocksbridge
The sidecar is seen approaching one of the several gulleys.

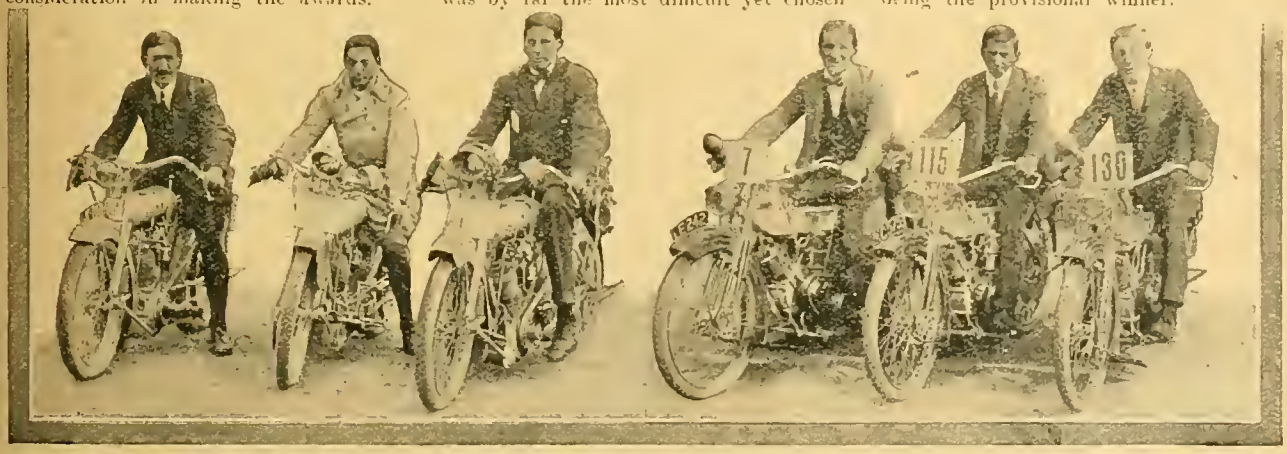
The Final Examination.

The judges, Major D. F. Nicholl, R.A., D.S.O., and Dr. A. M. Low, D.Sc., A.C.G.I., etc., and the stewards, the Rev. E. P. Greenhill and Mr. F. Dover, and other officials worked for twelve hours in examining the surviving machines and working out the results. The examination by the four gentlemen named, who are expert motor cyclists, was most thorough. We spent some time with them during their arduous task, and saw that very little escaped their notice.

EAST MIDLAND CENTRE TEAM TRIAL.

The course chosen for this trial on Saturday last was a sporting one which competitors took in a sporting spirit. It was by far the most difficult yet chosen by the Centre, being up and down test hills and along "colonial" road sections nearly the whole of the circular route, which started at Ambergate. Ten teams from the Lincoln, North Derbyshire, Matlock, and Nottingham clubs turned out, and no club other than the North Derbyshire finished with more than one man in a team. North Derbyshire were declared the winners, and now hold with Lincoln one share in the trophy. The following made non-stop runs: R. Blanksby (7 Indian), K. W. Hamilton (2¾ Douglas), C. C. Elborne (4 Triumph), T. Boam (3½ Bradbury), and B. Rhodes (3½ Sunbeam). Of these Blanksby is not eligible for an award, as his engine was over the capacity allowed for solo mounts, and Hamilton because his machine was not fitted with a clutch.

In conjunction with the Centre trial the Nottingham Club ran for the Bowden Cup, C. C. Elborne (4 Triumph) being the provisional winner.

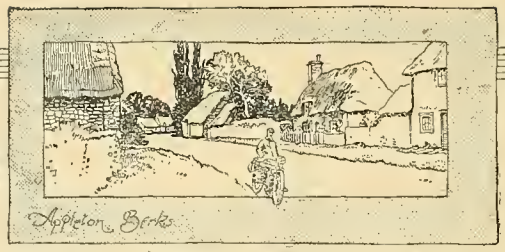


SOME OF THE SURVIVORS IN THE A.C.U. TRIALS.

THE BAT TEAM.—R. C. Boxer, Graham Price, and H. F. Edwards.

E. V. Walters, P. Shaw, and W. C. Drake, who successfully rode 3½ h.p. P. and M. machines, and were placed second.

CURRENT CHAT



TIMES TO LIGHT LAMPS.

July	16	... ...	9.8 p.m.
,,	18	... ...	9.6 p.m.
,,	20	... ...	9.4 p.m.
,,	22	... ...	9.2 p.m.

Six Days Awards.

In the present issue we give a list of medal winners in the Six Days Trials. Of these, fifty-one won gold medals, nine won silver medals, and eight won bronze, while five competitors gained no award, though they finished the course.

Half-day Trial for Cycle Cars.

There are two dozen entries for the Midland Light Car Club's cycle car and light car trial on Saturday next, the 18th inst., starting from the Midland Wheel Club's premises at 2.30 p.m.

Weights in the Six Days Trial.

It is interesting to notice the extremes met with in the official weights of the competing machines in the Six Days Trial. The lightest motor cycle was the 1½ h.p. Dayton, ridden by W. G. Ayling, which scaled 148 lb. ready for the road. The heaviest solo machine was the 5 h.p. Montgomery, which turned the scale at 324 lb. fully equipped. The distinction of having the heaviest sidecar outfit was shared by R. E. Guest (7 h.p. Matchless) and Eli Clark (8 h.p. Leader) at 616 lb. each. The lightest and heaviest cycle cars were respectively W. G. McMinnies's 8 h.p. Morgan single-seater, 588 lb., and M. D. Graham's 10 h.p. Morris-Oxford, 1,444 lb. It is interesting also to note that the average weight of the three Douglas machines which composed the winning team was 203 lb., or just 2 lb. heavier than the average weight of the machines in the Junior T.T. race.

The International Six Days Trial.

Entries for this event closed at ordinary fees on Saturday last, and the English contingent, so far as we can gather, for up to the present no official news has reached us from the U.M.F., will consist of the following: Frank Smith (Clyno sc.), a two-stroke Clyno, *C. R. Collier* (Matchless sc.), F. May (A.J.S.), *W. F. Newsome* (Triumph), *T. C. de la Hay* (Sunbeam), H. V. Colver (Matchless), P. S. Brady (Douglas), G. A. Gregson (Bat), R. C. Boxer (Bat), H. F. Edwards (Bat), F. Dover (Premier), J. Stuart White (Bradbury), J. Woodhouse (Quadrant), C. P. Finn (Enfield), M. C. Breeze (B.S.A.), a P. and M., an Ariel, two A.B.C.'s, and a Morgan in the cycle car class. Twenty-one in all, so England will be well represented. The names printed in *italics* are those comprising the British team. Entries close at double fees on July 25th. The machines will be examined and sealed on Sunday, August 2nd, at l'Ancien Arsenal, Avenue Félix Viallet, Grenoble. Teams from Germany and Switzerland, and, of course, France, will lend an international air to the competition. In all, over sixty entries are expected.

Show Stands.

At the Olympia Show in November certain stands will be available for firms desirous of supporting the system of universal stand decoration. The idea is the outcome of an effort toward uniform stand decoration at the Olympia Show of 1915.

SPECIAL FEATURES.

A.C.U. SIX DAYS TRIALS.

MILITARY MOTOR CYCLISTS.

ROAD TESTS OF NEW MODELS.

Two-strokes and Lightweights.

Among the special articles arranged for our next issue is a description of a hill-climbing expedition in Lakeland by Mr. George D. Abraham.

Miss May Walker will deal with lightweights and two-strokes from a lady's point of view.

"Why I Favoured the Two-stroke Engine" is the title of an interesting article by Mr. Alfred A. Scott.

This number, dated July 23rd, will be specially enlarged.

A.C.U. SIX DAYS TRIALS. R. E. Guest (7 h.p. Matchless sidecar) in one of the gullies on Lee Hill, Shibden Dale, where many stopped. This ascent was covered with large loose stones.

FUTURE EVENTS.

July 18.—M.C.C. Members Meeting at Brooklands.
„ 18.—Midland Light Car Club Open Efficiency Trial.
„ 18.—Liverpool Amateur M.C.C. Open Trial for Amateurs only, for Reliance Cup.
„ 25.—Streatham and District M.C.C. Open Hill-climb.
„ 25.—Coventry and Warwickshire M.C. Cycle Car and Light Car Open Trial.
„ 25.—B.M.C.R.C. Race Meeting.
Aug. 3-9.—F.I.C.M. INTERNATIONAL SIX DAYS TRIALS. Grenoble as a centre.
„ 15.—Essex M.C. Race Meeting at Brooklands.
Sept 6-9.—ANGLO-DUTCH TRIAL IN HOLLAND.

International Six Days Trial.

Further probable entrants for the trial at Grenoble organised by the F.I.C.M. include G. Hunt (8 h.p. Campion sc.) with new Jardine four-speed gear box, and A. E. Catt (4 h.p. Triumph).

Motor Cycle Races at Cambridge

There will be three races for miniature motor cycles (not exceeding 250 c.c.) at the Cambridge Town and County Mammoth Show which will be held on the August Bank Holiday. Entries to Mr. W. C. Gibbs, 9, Christ's Lane, Cambridge, close on the 26th inst.

The Castleford Speed Trial.

On Wednesday, last week, the Castleford Motor Club held a successful speed trial at Byram Park, in which the following proved to be winners in their respective classes: Lightweights—G. Shaw (2¾ Nestor). Sidecar machines up to 3½ h.p—M. H. Watson (3½ P. and M. sc.). Sidecar machines over 6 h.p.—C. Lynn (8 Matchless sc.) and — Pailey (6 New Hudson sc. (tied). All comers' handicap—E. Roberts (2¾ Douglas). The fastest time of the day was made by G Shaw (3 Enfield) over a half-mile course, from a standing start.

A.A. and M.U. Notes.

Special Road Warnings.—The A.A. has been informed by the District Council of Cheadle and Gatley that a large number of motor vehicles are passing through Cheadle at unreasonable speed. As there is a great amount of traffic in the High Street, the council feel that unless greater care is taken, prosecutions may ensue.

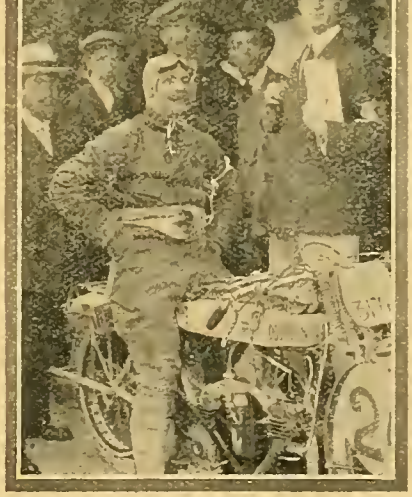
The Perth-Inverness road is again open to traffic, a temporary bridge having been erected at Carr Bridge, in place of the bridge lately washed away. Members are warned that careful driving will be necessary in this neighbourhood for some time to come.

West of England Road Notes.—Several A.A. members have recently sent in letters complaining of the unsatisfactory condition of roads in the County of Devon. The Association has for some time past been endeavouring to secure the necessary improvements, and is now informed that, as a result of an application to the Road Board, a large grant is being made for the purpose of extensive operations in the county.

R. W. Lovegrove (3¾ h.p. Scott) ascending Trooper's Lane, Halifax, in the A.C.U. trials. The Scotts excelled in hill-climbing this year

An Italian Race.

Classes for 350 c.c. and 500 c.c. machines were provided in the Circuito Valle Ticino, an important Italian road race held last week. In the former a Douglas machine ridden by B. Badino finished first over the 127 miles, and in the 500 c.c. class honours went to Bordino, riding a Motosacoche, Rudges filling second and third positions.



Baj Badino (2¾ h.p. Douglas), winner of the 350 c.c. class in the Italian race, the Circuito Valle Ticino, run last week over a 127 miles course

Next Thursday!

An issue devoted mainly to two-stroke and lightweight motor cycles. A number of special articles and illustrations will be included.

No Professionals Eligible.

"Amateurs only" is the keynote of the open reliability trial for the Reliance Trophy and other prizes to be held by the Liverpool Amateur M.C.C. on July 18th. The trial takes the form of a 130 miles run.

Drive Carefully in Harrogate.

The Corporation of Harrogate, a town which has lately seen a good deal of motor competitions, recently decided to apply for a ten-mile speed limit in consequence of numerous complaints of reckless driving in the town. Motorists visiting this place are requested to drive with moderation, especially along the Leeds road and West Park. Although steps have been taken with regard to the provision of signposts at certain dangerous corners, the Harrogate and District A.C. feel sure that if a little more consideration is shown by motorists it will help to prevent the infliction of one more speed limit area.

Circuit de l'Eure Team Prize.

Considerable uncertainty appears to have existed over the winning of the team prize, for which the Hutchinson Tyre Co. put up a trophy in the Circuit de l'Eure. First of all it was announced that the Douglas team had won, and this was followed by a further examination of the timekeeper's records, whereupon it was stated that the B.S.A. team were entitled to the award. The matter, we understand, has now been finally settled at a meeting of the Sporting Committee of the Motor Cycle Union of France, held last week, when it was definitely decided that the originally named team, viz., the Douglas, were the winners of the trophy.

Invitation Team Trial in Yorkshire.

An account of this severe trial was published in our issue of June 11th, but the final and official result did not come to hand until this week, and is given below:

1. Harrogate.—W. Fawcett (3½ P. and M.), T. C. Atkinson (2½ Triumph), R. Swift (4 Bradbury), G. Hill (3¾ Scott), W. E Grange (6 Bradbury sc.), and H. W. Fortune (6 A.J.S. sc.).

2. Bradford.—T. Bullus (3½ P. and M.), S. Todd (3½ P. and M.), P. Shaw (3½ P. and M.), H. Drake (3½ P. and M.), W. Gillyard (8 Chater-Lea sc.), and W. Clough (8 Chater-Lea sc.).

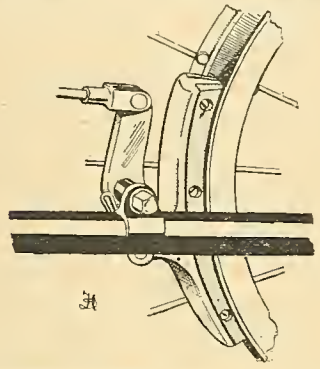
No other club finished with a full team. The special medal presented by the President of the Bradford Club for the best individual performance of the day goes to W. Fawcett (3½ P. and M.).

South Harting Hill Climb

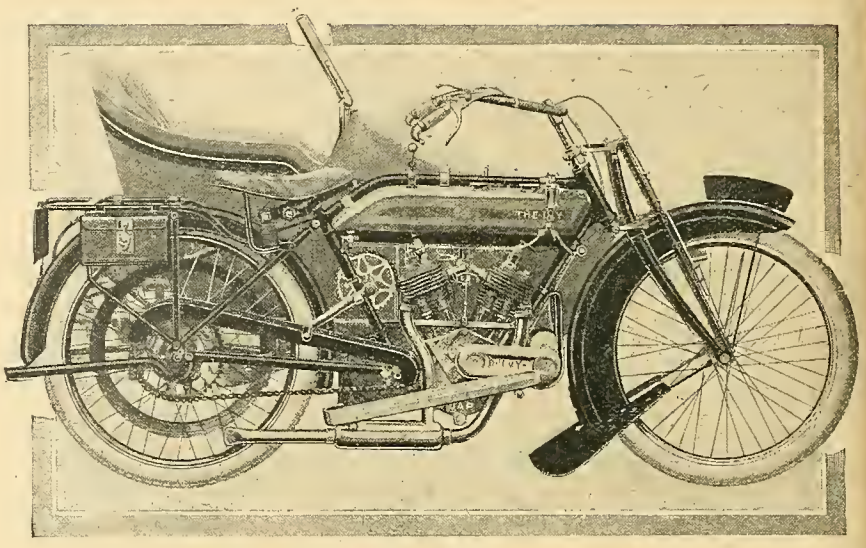
A fine entry of sixty-one has been received by the Cyclecar Club for their hill-climb on Saturday next at South Harting, which starts at 2 p.m., but is preceded by a lunch at the Dolphin Hotel, Petersfield. A special class is reserved for lady drivers, and has attracted five entries. A feature of the proceedings will be the free decarbonisation of competitors' engines, if desired, by the Dyer Apparatus Co., Willesden.

A New 5 h.p. Ivy Model.

IN addition to the wide range of machines manufactured by S. A. Newman, of Aston Cross, Birmingham, a very practically designed 5 h.p. twin will in future be marketed. The engine is the 70×85 mm. twin J.A.P., and the drive to the rear wheel is by chain throughout, the Enfield gear being fitted. The front chain is neatly enclosed in a metal case, and the rear chain is protected by a cover extending over the top links. An Amac carburetter is fitted, and the magneto may be arranged for handle-bar or tank control. One of the most striking features of the machine is the mud-guarding. The front wheel is covered by a wide guard with deep continuous valances, and, in addition to these, a large magneto shield helps to protect the rider's feet. The rear guard is 7in. across the chord, and catches the mud thrown from the brake rim as well as from the tyre. The equipment is thoroughly good throughout, and the powerful rear brake (which is fitted to most Ivy models) is worthy of comment.



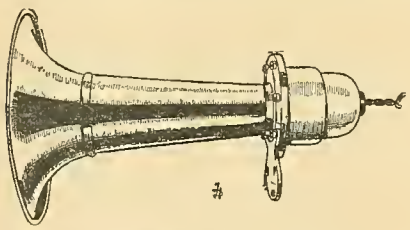
Powerful rear brake on the 5 h.p. Ivy.



Valve side of the twin-cylinder Ivy sidecar combination.

A NEAT ELECTRIC HORN.

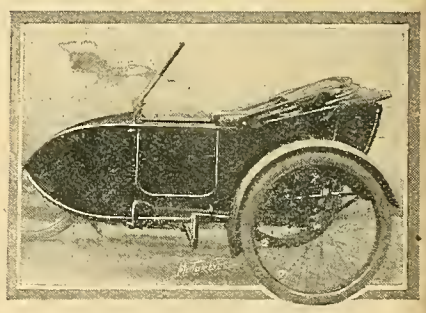
Electric horns have a great fascination for the majority of motor cyclists, though sometimes a fear of extra complication exists. The Apollo manufacturing Co., of Moseley Street, Birmingham, has just produced a very simple and effective device, which has the additional advantage of requiring very little current. Half an amp. only is required, so that the usual small 4½ volt "Flash" dry battery will last over a very considerable period. In point of fact, a somewhat earlier type of horn has been in use on a light car owned by one of our staff. The machine has been in constant use since the beginning of March, and the original twenty-amp. cells are still in use. There has probably been a certain amount of waste due to meddlesome folk in garages, so that it might be a good plan for those who have no lock-up to fit an intercepter in the circuit, when the batteries should last indefinitely. The construction of the device is remarkably simple, and there is practically nothing to go wrong, even the trembler adjustment being adjustable by the merest novice. In simple words, the action of the horn is as follows: A diaphragm of special steel is carried in a specially formed horn base and from it projects a steel rod. Surrounding the rod is a circular electro magnet, which actuates a vibrating armature with the usual platinum screw adjustment. At each vibration the armature hits the diaphragm rod, and a clear penetrating note is produced. Besides the screw adjustment the armature, which is mounted on a special carrier, can be easily moved nearer or further from the end of the rod if required. A neat button switch is provided, and the horn is well finished in plating, brass, or black. It may be obtained with handle-bar fittings or for light cars.



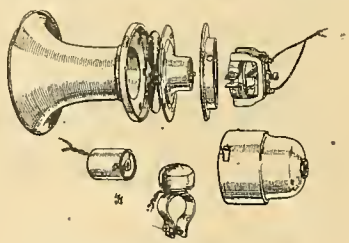
The Apollo light car horn.

THE EARLE SIDECARS.

A light and durable sidecar with ample seating accommodation and space for tools, luggage, etc., is to be found in the Earle, which is manufactured by Messrs. John Lester and Co., 62, Highgate Road, N.W. Much care is put into the design and construction of bodies, which comprise the necessary artistic streamlines that are so essential if a really smart and neat effect is to be attained. Customers are also able to have their own ideas put into execution in a satisfactory manner. We called recently and inspected several bodies, some in the finished state and others in the course of erection. Aluminium mouldings are used, but only with care, for it is quite an easy matter to spoil the appearance by over-decorating in this respect. Another point which commands attention is the efficient toolbox provided at the rear of the seat, access to which is possible without disturbing the passenger. Further notable features, such as spring back and seat, map pocket, mat, a large toolbox underneath the seat, locker in front of body, lamp bracket and apron, and patent quick attachment are also provided.



The Earle coach-built sidecar with wind-screen and Cape cart hood.



The A.M.C. motor cycle electric horn showing details of construction.

"THE MOTOR CYCLE" LIST OF CLUB EVENTS.

July 18th.—Bradford M.C. and L.C.C. Hill-climb.
" 18th.—Dublin and District M.C.C. Reliability trial and speed-judging competition, leaving Rockbrook P.O. at 2.30 p.m.
" 18th.—Bury and West Suffolk and Ipswich M.C.C Inter-club event.
" 18th.—Middlesbrough and District M.C.C. Sidecar trial for McAdams Cup.
" 18th.—Cyclecar Club. Hill-climb at South Harting and run to Selsey.
" 18th.—South Cliff (Scarborough) M.C.C. Flexibility hill-climb.
" 18th.—Bolton and District M.C.C. Speed contest
July 18th.—East Essex M.C.C. Gymkhana.
" 20th.—Plymouth and District M.C.C. Open-air general meeting at Rock, Yelverton, at 8 p.m.
" 22nd.—Middlesbrough and District M.C.C. Slow race from Bungalow.
" 22nd.—Folkestone and District M.C.C. Paperchase, starting at 2.30 p.m.
" 23rd.—Leicester and District M.C.C. Run to Rockingham Castle, starting at 2.15 p.m.

Western District (London) M.C.

This club is being entirely reorganised, and all those wishing to join, especially motor cyclists residing in the Ealing district, should write the hon. sec., Mr. B. F. G. Fowke, 10, St. Stephen's Gardens, East Twickenham, for particulars.

Newcastle and District M.C.

A route-finding competition has been held over a fifteen mile course. Out of fifteen starters ten completed the course, and W. E. Crompton (2¾ Sunbeam) proved to be the winner.

Purley and District M.C.C.

A competition was held last Saturday for the Dobson Cup, which was won in a point-to-point trial by H. J. Densham (6 A.J.S. sc.), with J. W. Cumming (7 Matchless sc.) second, and H. B. Willoughby (3½ Rudge) third.

Grimsby and District M.C. and L.C.C.

The result of the hill-climb at Thorganby Hill was as follows:

Class 350.—1, C. H. Jennison (2¾ Douglas), fig. of merit 96.
Class 600.—1, H. S. Jennison (Campion), fig. of merit 124; 2, Withers (Rudge multi), 129.9; 3, Bellamy (Triumph), 130.6.
Class 1,000.—1, Rostern (4-5 Zenith), fig. of merit 124; 2, Lambert (4-5 Zenith), 141.
Sidecar.—1, Roots (6 Campion), fig. of merit 119; 2, Sleight (4½ Singer)

Colchester and District M.C.C

A hill-climb was held on the 4th inst. at Bounstead Hill, Berechurch. *The Motor Cycle* formula was used. Results:

Touring Machines to 500 c.c. (on Time).—1, E. C. Thorn (3½ Singer), 28⅕s. 2, J. G. Bromley (3½ Rover), 28⅘s.
Any Machine to 1,000 c.c. (on Formula).—1, T. S. Wilkin (3½ Rudge), 108; 2, R. L. Armes (2¾ Douglas), 126. On Time.—1, F. E. Crosby (7 Indian), 24⅕s. 2, B. Hines (7 Indian), 25⅕s.
Sidecars (on Formula).—1, J. G. Bromley (3½ Rover), 118; 2, P. G. Page (7 Indian), 215.
Any Machine to 500 c.c. (on Formula).—1, T. S. Wilkin (3½ Rudge), 96; 2, F. E. Crosby (2¾ Douglas), 106.
Flexibility Trial.—1, J. G. Bromley (3½ Rover), slow 59s., fast 18s. (ratio 3.28); 2, T. S. Wilkin (3½ Rudge), slow 45s., fast 16s. (ratio 2.82).

Blackheath and District M.C.

A successful flexibility contest was held on the 4th inst. on Crown Ash Hill. Competitors were required to cover a certain portion of the hill as fast as possible during the afternoon, and later another portion of the hill as slowly as possible. The results were based on the formula $\frac{W \times T_2}{C \times T_1}$ where W = weight of machine and rider, C = cubical capacity of engine, T_2 = time of slow climb, and T_1 = time of fast climb. Results:

Solo Class (Time).—1, G. S. Woodman (7-9 Indian), 17⅗s.; 2, G. Edwards, jun. (7-9 Indian), 20⅗s.; 3, E. Lister Wilson (7-9 Indian), 20⅘s.
Solo Class (Formula).—1, W. L. Strong (3½ Rudge Multi), fig. of merit .0447; 2, G. S. Woodman (7-9 Indian), .0391; 3, G. Edwards, jun. (7-9 Indian), .0326.
Passenger Class (Formula).—1, G. W. Poynton (7 Matchless sc.), fig. of merit .0724; 2, C. T. Liddon (15-18 Hupmobile), .0546; 3, L. Hewitt (6 Enfield sc.), .0306.

Dorset A.C.

A hill-climb was held at Zigzag Hill, Shaftesbury, on the 8th inst. Results: 1, E. W. Benison (2¾ Douglas); 2, R. Rogers (2¾ Douglas); 3, H. Springfield (2¾ Douglas).

The second event resulted in V. Hunt (6 Sunbeam) and T. F. Rowland (2¾ Douglas) tying for first place.

Fastest time of the day was made by L. Adams, whose 2¾ Diamond covered the 1,584 yards in 1m. 55s.

Slough M.C. and L.C.C.

The result of the recent Stratford-on-Avon (second) trial for the Harris challenge cup is as follows: 1, Mr. Swinstead (V.S. sc.), time 10m. 22s.; 2, Mr. Eliot (Arno), 19m. 15s.; 3, Mr. Kennedy (Douglas), 27m 4s.

Portsmouth and District M.C.

The above club held its annual speed-judging contest at Rowlands Castle on Wednesday, July 1st. The winners were L. Shilling (8 h.p. Morgan), 30 secs. early; C. Bennett (Sparkbrook), 55 secs. early; and W. J. Fleetwood (Henderson), 100 secs. early.

A SCENE IN THE A.C.U. SIX DAYS TRIALS.

D. Brown (3½ h.p. Rover) and P. S. Taylor (2½ h.p. New Imperial) on Jacob's Ladder, a narrow winding climb near Hathersage

Club News.—

North Birmingham A.C.

The results of the club hill-climb, held on the 4th inst. at Hipton Hill, Evesham, are as follow:

CLASS I.: Solo.—1, A. G. Forsythe (3½ Regal) fig. of merit 410; 2, T. Hubbard (3½ B.S.A.), 510; 3, Ernest Smith (3½ Regal-Green), 540. Fastest time of the day, A. G. Forsythe (3½ Regal), 17⅘s.

CLASS II.; Sidecars and Cycle Cars.—1, Ernest Smith (3½ Regal-Green), fig. of merit 627; 2, Arthur Butterfield (2½ Levis), 809; 3, T. Hubbard (3½ B.S.A.), 940.

The event was decided on *The Motor Cycle* formula.

Bradford M.C. and L.C.C.

A reliability trial was held last week to Landsides and back *viâ* Haworth, Colne, Gisburn, Clitheroe, Trough of Boland, Lancaster, and Milnthorpe. Result: 1, W. Clough (8 Chater-Lea sc.); 2, C. Sydney (3¾ Scott); 3, E. Bennett (3½ B.S.A.); 4, S. Binns (3¾ Scott). Teams of three riders from other clubs are invited to take part in the Bradford-Brighton and back (August 1st-4th) run to compete for the Dyson Shield.

Bristol B. and M.C.

The third reliability trial was held over a ninety-five mile course to Marlborough and back on the 11th inst. A fair number of members competed, and all accomplished the double journey in spite of the fact that the course was not arrowed, and was difficult to follow: Result: 1, A. S. Richards (2¾ A.J.S.); 2, W. B. Harris (6 A.J.S.).

The club's annual members' trial to Land's End is fixed for August 1st to 3rd.

North-West London M.C.C.

The eighth annual gymkhana took place on Thursday, the 9th inst., at Finchley, before a most appreciative gathering of about 2,000 people.

The events were of this club's usual order, the details being, however, of distinctly novel character. About twenty competitors took part.

A.C.U. SIX DAYS TRIALS.

W. D. Hawkes (10 h.p. Victor cycle car) on the lower portion of Scapegoat Hill during Thursday morning's run.

A.A. SCOUTS UP-TO-DATE.

The A.A. Scouts in Cheshire and various other districts have now been supplied with Auto Wheel attachments by the A.A., to enable them to cover a bigger field.

FORTHCOMING OPEN EVENTS.

M.C.C. Race Meeting at Brooklands.

The Motor Cycling Club will hold a private race meeting at Brooklands on the 18th inst. There will be eleven races for motor cycles, sidecars, and cycle cars (in addition to two for cars), the most important of which will be the club championship for the "Harry Smith" gold challenge cup. Distance, ten laps.

Penrith and District M.C.C.

By permission of the Earl of Lonsdale, president of the above club, open speed trials will be held in Lowther Park on Bank Holiday, August 3rd, at 10.30 a.m. In all there will be fifteen events, including special events for two-stroke motor cycles and cycle cars. The awards consist of gold, silver, and bronze medals, and a special prize for the fastest time of the day. Entries, to the secretary, the Gloucester Arms, Penrith, close on July 25th.

Open Trial in the South.

The West Hants M.C.C. have applied to the A.C.U. for a permit for an open reliability trial to be held on August 8th. There will be five classes for solo machines, three for sidecars, and one for cycle cars. Competitors will be timed by their own watches in sealed cases. There will be four non-stop sections (short). The start will be from the White Hart Hotel, Ringwood, Hants, at 8 a.m., and the distance about 160 miles. Entries should be sent to the hon. secretary, Mr. Chas. H. R. Norrington, Longham, Wimborne.

One Day Open Trial.—Manchester to Brooklands.

The N.W.A.A. will run an open one-day trial under A.C.U. open permit, on Saturday, August 1st, from Manchester to Brooklands.

The first portion will take the nature of a reliability trial (length, two hundred miles). The route will be Manchester, Buxton, Ashbourne, Atherstone, Daventry, Banbury, Windsor, Henley, Staines, Weybridge, Brooklands.

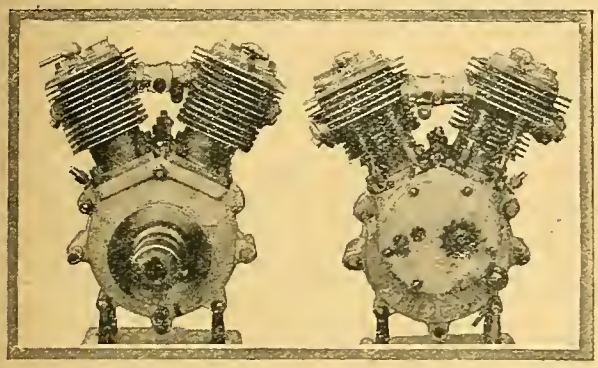
Over this first portion certain lengths will be of an absolute non-stop nature, but the total non-stop lengths added together will not exceed seventy-five miles, leaving the balance—125 miles—for competitors to go as they please.

On arrival at Brooklands track, all competitors will be timed over a flying lap (two and threequarter miles). After finishing the lap they will ascend the test hill from a standing start, where their times will again be taken.

For rules and regulations, apply to the hon. secretary Mr. S. W. Carty, 5, Redcross Street, Liverpool.

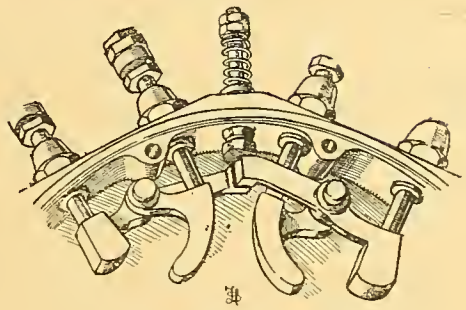
The 4 h.p. Twin Precision.

THE 4 h.p. twin Precision is described by the makers as a lightweight twin, as it is claimed that, on account of its flexibility and smooth running, it does not require a heavy frame or fittings, while the weight of the engine itself is only 57 lb. It is, of course, not to be imagined that a machine fitted with this engine should be a lightweight proper, but that it should be very light for the power. The design follows standard Precision lines, but there are several interesting features peculiar to the engine. The bore and stroke are 60 and 88 mm. A new inlet pipe is



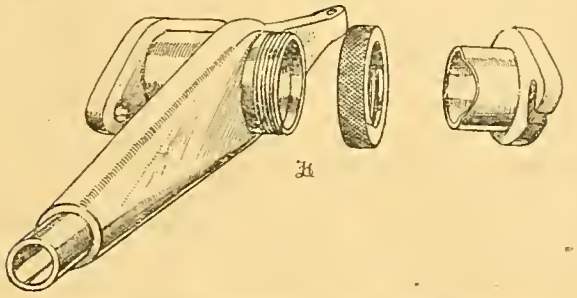
Both sides of the latest pattern 4 h.p. twin-cylinder Precision engine.

fitted which will be standardised on all Precision twins, and the manufacturers are to be congratulated on taking so much interest in a much neglected part. The pipe is somewhat flattened to permit of an easy passage between the valve chests, and flange joints are utilised to make a sound connection. To prevent air leaks in the pipe the flanges are bolted up tight to the cylinder, and a sliding joint is formed by two separate parts of the pipe, while in addition a light stuffing gland is formed by a screwed ring packed with special material. The internal exhaust lifter is another note-



The neat exhaust lifter mechanism on the Precision engine.

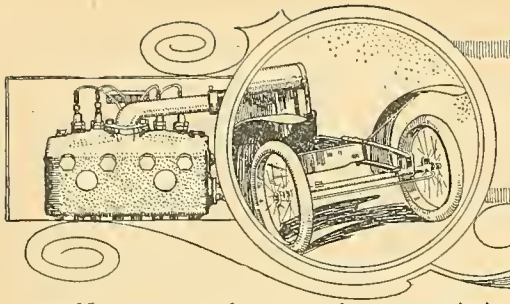
worthy point, for a spring tappet projects upwards from the top of the timing case, while the lower end rests upon extension arms of the exhaust valve rockers. Thus, on depressing the tappet by means of the usual handle-bar control, both exhaust valves are lifted evenly, a point which helps easy starting and renders the valve gear quieter when coasting down hill. Two cams only are used, one for both valves on each cylinder.



Inlet pipe on the new 4 h.p. twin Precision.

SCENES IN THE A.C.U. SIX DAYS TRIALS.

(Left) T. Stevens (4¼ h.p. James sidecar) at a sharp corner at Walton. (Right) A. Clayton (3½ h.p. Triumph) and S. Tubb (3½ h.p. Humber) on the stony surface of Green Hill, Wirksworth.



An All-enclosing Body.

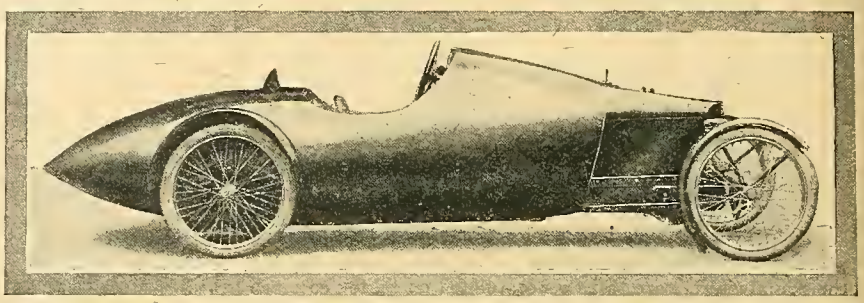
Novel Construction which excludes Grit and Wet from Moving Parts.

ON many cycle cars the transmission is left unprotected from the ravages of road dust. But to produce a vehicle with separate devices of protection for various components means that inaccessibility will reign. Therefore it was in considering these items that Mr. Percival White, Kelvin Road, Highbury, resolved to design and construct a machine the body of which would enclose as much of the mechanism as possible. Streamline principles are strictly adhered to, whilst the weight is not at all excessive, in spite of the substantial form adopted. Two seats are provided which can be readily detached if necessary, whilst for inspection of the transmission, and for making minor adjustments thereto, the backs, which are on hinges, can be moved forward, thus allowing a certain amount of freedom in gaining access.

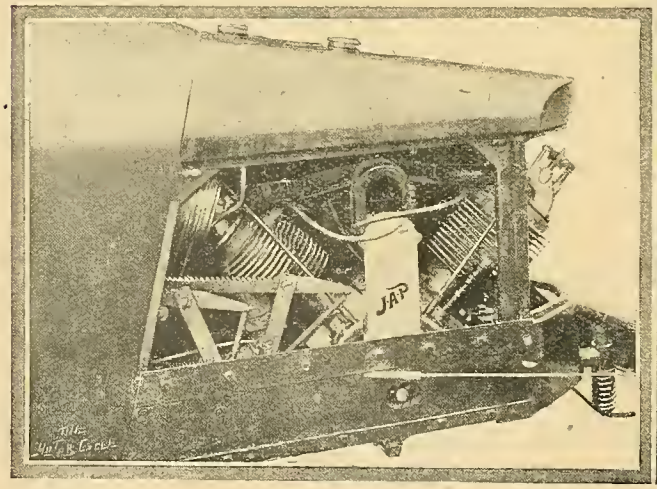
In this particular model chain transmission is utilised, but in all probability some other forms will be tested in order to find out which will be the most suitable. A 9 h.p. 90° twin J.A.P. provides the power.

Mr. White, having studied the question of cycle cars for some years both in America and England, knows how important it is to have as efficient a type of springing as possible. At the same time, he is not a believer in very light springs of large amplitude, as under these conditions such a vehicle will not hold the road with certainty. Consequently, the suspension has been designed carefully, and, as we found out in a trial run, is very effective in practice. Furthermore, the steadiness on corners is very noteworthy, in spite of the long wheelbase. Each rear spring is made up of two separate cantilevers, which house the wheel bearings at one end and are slotted at the forward end in order that adjustment for the chain can be carried out. When on the road we were delighted with the steering, which is of the wire and drum type.

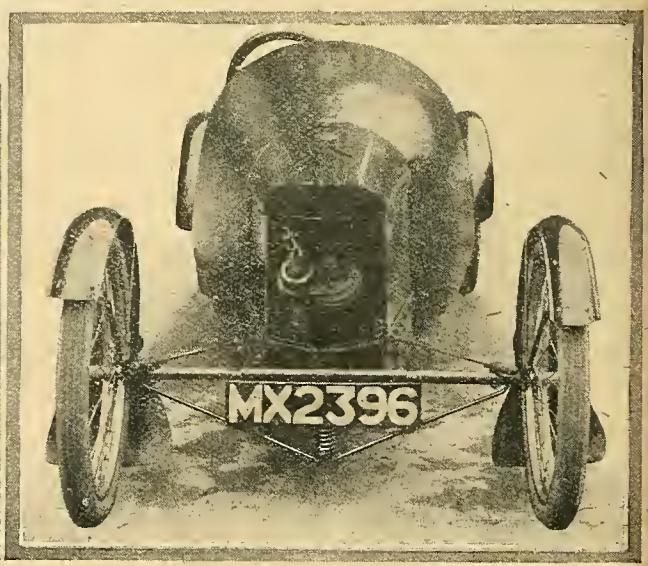
We think that such a vehicle with its wood frame and a simple form of transmission could be made very reliable as well as to sell at a reasonable price.



Side view, showing general appearance.



The J.A.P. power unit as fitted to the Percival White cycle car. Shields are fitted on each side.

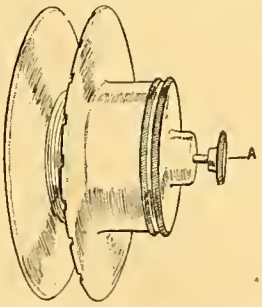


Front view of the Percival White cycle car, showing position of aircooled J.A.P. engine, and method of steering and front springing

Fafnir Motor Cycle Engines.

FAFNIR engines are manufactured by the Aix-la-Chapelle Steel Works, a long-established firm which is known throughout the whole Continent for the quality of the material employed in the various branches of engineering with which it deals. The Fafnir firm is one of the oldest connected with the construction of motor cycle engines, and has been in the business over fourteen years. The address of the London branch is 211, Upper Thames Street, E.C.

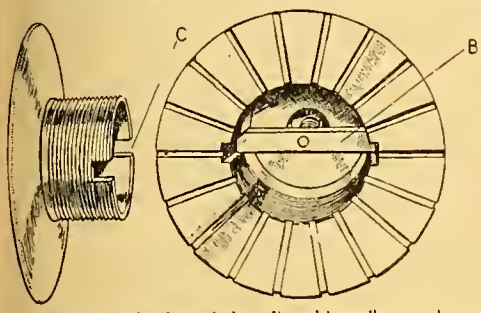
A variety of models is manufactured—the 2½ h.p., 70×80 mm., ball bearing crankshaft, and the popular 3½ h.p., 499 c.c., 85×88 mm. The engine, which weighs about 54 lb., is beautifully made, and is provided with a gear-driven magneto The mainshaft is provided with a double row of Skefko self-aligning ball bearings, and an internal exhaust valve lifter is adopted. The valve rockers are fitted with roller ends, thus minimising the friction to as large an extent as possible, and the tappet bearings run in long bushes. The distance pieces below the valve guides are drilled at the sides, so as to keep the springs from contact with the cylinder,



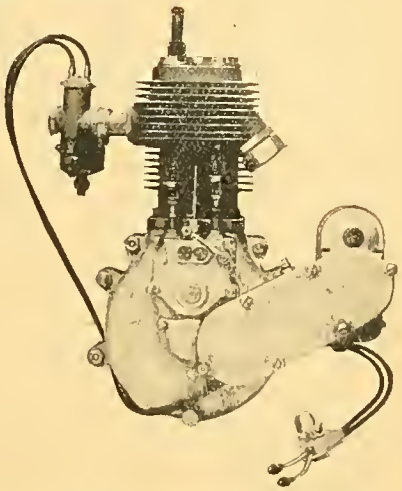
The complete Fafnir adjustable pulley.

thus keeping them cool and adding to their life, while in the latest models adjustable tappets are fitted. Great care has been taken with the design of the engine, oil holes being provided in all bearings to ensure perfect lubrication. The latest models of this engine will be provided with a chain-driven magneto.

The Fafnir adjustable pulley is quite an interesting piece of work The method of operating is clearly shown in the accompanying illustration. The knob A is attached to a spindle holding the bar B, and when pulled out allows the pulley to be turned till, on the knob being released, it again engages with the slot C. The pulley therefore can



Interior mechanism of the adjustable pulley on the Fafnir engine.



Valve side of the 3½ h.p. Fafnir engine.

be operated and the gear ratio raised or lowered without the aid of tools, a point which should be much appreciated by the average rider.

The illustration of the Fafnir method of holding the gudgeon pin is also interesting. It will be noted that two rings only are fitted to the piston, and that the gudgeon pin is slightly tapered, and has a slot cut in its narrow end. A spring ring is fitted into a slot in the piston itself, and on the gudgeon pin being driven through the ring springs into the slot and holds the gudgeon securely.

To most of these models the Fafnir two-speed epicyclic gear box can be

Method of securing the gudgeon pin on the 3½ h.p. Fafnir engine

fitted. It is designed to bolt straight on to the crank case, and is driven by means of three pinion wheels direct from the crankshaft to the belt pulley, which runs at half the engine speed.

Besides the 3½ h.p., the Fafnir Co. supply a 5-6 h.p., 70×80 mm. twin; a 4½ h.p., 86×96 mm. single; and a cycle car engine, 85×88 mm. twin, which can be had either water or air-cooled, and fitted with or without a leather cone clutch.

THE A.C.U. SIX DAYS TRIALS.

J. Haslam (3½ h.p. Premier sidecar) on the rough surface of Lee Hill, Shibden Dale

STREATHAM OPEN CLIMB

The Streatham and District M.C.C. will hold their fifth annual open hill-climb on the 25th inst. at 3 p.m. During the afternoon there will be twenty classes, including cycle cars, and in the standard bicycle classes a weight limit will be imposed as has been done before by this club. *The Motor Cycle* formula will be used. Entries must be received by the hon. trials sec., Mr. Frank L. Bassett, 73, St. Julians Farm Road, West Norwood, S.E., not later than the 18th inst.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Thunderstorms.

Sir,—I think that your correspondent "X 37" is in error in thinking that the partial insulation afforded by india-rubber tyres is any protection whatever against lightning; in fact, this insulation may, in certain cases, actually increase the danger of the "disruptive discharge" known as the lightning stroke. Perfect metallic connection between the wheels of the vehicle and the earth, such as obtains in the case of railway trains, is much more likely to form an efficient protection. F.W.H.

A Gap in the Market.

Sir,—In reply to Mr. Edmund Caseby's letter in the last issue of *The Motor Cycle*, has this gentleman, I wonder, tried the capabilities of the 2½ h.p. Motosacoche machine?

Considering this motor cycle possesses practically all the requirements Mr. Caseby describes in his letter, and that the Motosacoche is a native of Geneva, Switzerland, I should fancy it is just such a machine that his dozen *confrères* could wish for. I have ridden one or two of this make of motor cycle, and have been perfectly satisfied with its handiness, hill-climbing capabilities, and low cost of upkeep.

R. L. NYE

Colwyn Bay Races.

Sir,—With reference to the protest lodged against Mr. Wade's engine in Class I., this engine has now been measured by Mr. Loughborough, of the Auto Cycle Union, and he has certified that the size of the engine is 69.99 bore by 71.20 stroke, making the c.c. 273.73. In fairness to Mr. Wade, it should be stated that he filled up his entry form in ignorance of the size of the engine, putting down the sizes as 70 × 76, which, on the face of it, places his engine outside this class, thus proving that he was perfectly innocent in his intentions.

Mr. Wade has been perfectly honourable over the whole matter, and the engine which I took from him at the races has never been out of my hands until measured by Mr. Loughborough. The result is that now the first prizes in Classes I. and XIV. are being awarded to Mr. Wade on his 2½ h.p. New Imperial.

S. W. CARTY,
Hon. Sec. Mersey M.C.

Proposed Trial for Lady Motor Cyclists

Sir,—I have been trying for some time to get up a test for ladies only. It seems hard that all trials should be got up for men, and there are at present so many good lady riders.

Mrs. Gordon Fletcher has kindly consented to help me and also to ride, so I hope with this able assistance that the event will be a great success.

Will any lady who is keen send her name in to me as soon as possible? The closing date for entries will be August 6th. A silver cup has been offered as first prize, and there will be a second and a third prize.

A stiff reliability trial has been suggested, about 120 miles non-stop run (lunch excepted), over very hilly country with plenty of hairpin bends. I am sure lady riders will agree that a difficult test will be more interesting than an easy one. It will be interesting to see, I hope, some good driving, steady heads and good nerves.

I hope the entries will be many and that all lady riders will help to make the event a sporting success.

(MRS.) E. KNOCKER.

[Letters addressed c/o the Editor will be duly forwarded.—ED.]

Scottish Six Days Trials.

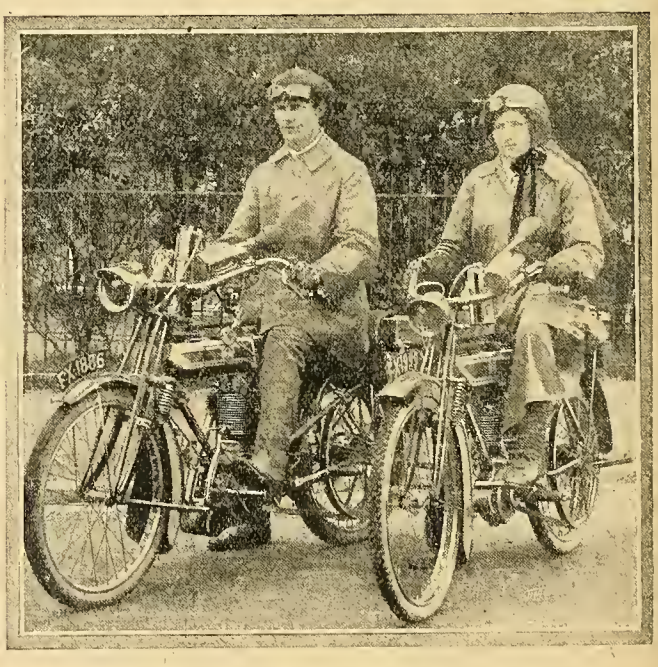
Sir,—I have noticed with considerable interest the remarks of your correspondent with reference to the marking in the Scottish Six Days Trials, and beg heartily to endorse them. It is, in my opinion, ridiculous and distinctly unfair to have deprived the three competitors mentioned of gold medals through being the matter of a minute or two early or late at a check, and this calculated, in the majority of cases, by means of watches which were never intended for the purpose, viz., were not proper stop watches. The reply of the officials to this is probably that competitors are allowed five minutes early or late at checks, but unless special watches are employed it is almost impossible to determine to a second when the five minutes has expired. Take the case of the Lea-Francis rider, who arrived within a few yards of the finishing point with a clean sheet and through no fault of his own or his machine checked in a few minutes late. The right and proper course of the officials was to award this man the gold medal he earned. FAIRPLAY.

[We give our correspondent's letter publicity, but we do not know that the watches employed were unsuitable for their purpose. We should imagine that they were suitable. Rules are rules, and if a small latitude is allowed to one competitor why not to all?—ED.]

Lady Motor Cyclists.

Sir,—Being a constant reader of *The Motor Cycle* and seeing the growing number of photographs of lady motor cyclists, I think perhaps the enclosed photograph of Mrs. Clarke and myself would be of interest to your readers.

Mrs. Clarke rides a 2½ three-speed Premier, and has now ridden some 2,000 miles, and my mount is a 3½ h.p. of the same make. ERNEST L. CLARKE.



Mr. and Mrs. Clarke on their Premier motor bicycles

Loose Carburetters.

Sir,—I have so frequently read complaints in the correspondence columns of *The Motor Cycle* as to the difficulty experienced by customers in trying to induce manufacturers to fit other than standard carburetters, that the following experience is quite a welcome relief. At the end of January last I took delivery of my 1914 3½ h.p. twin-cylinder N.S.U. fitted with the standard N.S.U. carburetter. I had covered some 2,500 miles very satisfactorily, but thinking to get a little more speed and power I brought the machine up to the N.S.U. works at Willesden Green, and, on explaining my wants, the people there tested the machine and fitted a Senspray carburetter, involving the fitting of a complete new induction pipe and petrol pipe, free of all charge, telling me to test the machine at my convenience, and, if I liked the Senspray, then to keep it, or, if not, to bring the machine back and they would replace my old carburetter. I might mention that I am very pleased with the Senspray, which has more than fulfilled my expectations. Usual disclaimer all round. O. B. SMYTH.

An Australian Rider's Suggestions.

Sir,—Seeing several letters in your valuable paper recently anent all black finish, might I be allowed a few words, not being in favour of such a procedure? I opine that with an all black machine, when such is on view in a showroom window, well polished up, there is no doubt that it looks very pretty; but let it be run for fifty miles on a dusty road in company with a machine finished in grey colour, and note the difference in appearance—the dust colour scores every time.

When my machine—which is a 3½ h.p. twin M.A.G. (the "Speedwell" on the tank is the trade mark of the agents here)—first reached me, it had a black finish with nickel fittings, but I soon tired of frequently spending hours

F. Hoff on his 3½ h.p. Speedwell-M.A.G.

cleaning it, so got it re-enamelled a colour between that adopted by the Matchless people and a slate grey, having the hubs, spokes, rims, and many out-of-the-way clips done, but the handle-bars I left nickelled, as I do not think it improves a machine to have them coloured, and is unnecessary, as they are easy to keep bright. I now can spend half an hour cleaning and looking after the engine and vital parts, whilst the time spent on dusting over the other parts is infinitesimal.

I enclose a photograph of myself, taken recently, which may be of interest. Most of the riders here have semi-T.T. bars, and dispense with footboards, and also use knee-pads on the tank, as these three items give one a feeling of being at one with one's mount, which is very necessary on account of the wretched state of our roads here. Another fact worth mentioning is the light weight of the frames which are often sent out. They may be all right for your land, but our roads need to be ridden on to be appreciated (!) Why, in the heart of the city they are dangerous to life and limb. F. HOFF.

Sydney, N.S.W.

The Overseas Trial.

Sir,—If this event is intended to be anything of a test of overseas models, the following conditions ought to be imposed:

1. The trial should be held over a course of not less than 150 miles in length, which must be covered without a refill of petrol or oil. This will test tank capacity. (The average tank accommodation is quite inadequate for Australian conditions.)
2. The roads selected should be the roughest in England. Marks to be deducted for dented rims, broken spokes and fork springs, and fractured frames.
3. No tyre pump, tools, or spares of any kind to be carried by competitors or obtained *en route*.
4. Schedule speed to be 20 m.p.h. All hills shall be in non-stop sections—section to commence at least one mile from foot of hill.
5. At finish of course machines must cover a half-mile stretch at 50 m.p.h.
6. A record of petrol consumed to be made and mileage per gallon shown in the results.
7. Marks to be allotted to all machines fitted with spring frames.

If the first four conditions are not included the A.C.U. might as well save itself the trouble of conducting the trial.

Melbourne. DISSATISFIED.

A Starting Difficulty.

Sir,—I think a little of my experience with motor cycles may interest readers of your paper. First, I had a locally-built machine, but as the frame kept breaking (twelve times) and the expense of repairs (£30 in eleven months) was too much, I sold it. Then I got a German machine, which went well but was slow, and I was often about a mile behind the rest of the club. Then I got a Triumph (1909), a good and fast machine, but as I was leaving the State for a time I decided to sell it. I found a likely buyer and went out for a run with him. Now my machine was noted for the easy way in which it started, but, strange to say, after going over the hills with him I was going to show him how easily it started, but try as I would, I could not get one stroke out of it. There was another motor cyclist with us of ten years' experience—mine is five years and the buyer's two years—but not one of us could find the fault. We got a good shock at plug and a good spark, but we tried four plugs, carburetter was clean, timing right, etc., so my friend offered to tow me home. Now I do not like to be beaten in anything like that, so all the way home I was thinking, and in my opinion there was only one thing that could be wrong, namely, the magneto; so I said to the buyer, "Come home with me, and I will show you in five minutes what is wrong," so he came, and I took the magneto off and cleaned the oil off the carbon inside the one running on to the armature on 1909 Bosch machines, and away it went; I was getting a spark, but not under compression.

Victoria, Australia. AMATEUR.

The Rule of the Road.

Sir,—Allow me to protest against a practice which is becoming very common among motor cyclists and cycle carists. I refer to a certain class of road users who *habitually* corner on the wrong side. I myself have seen the same riders do this time after time. Some do it just for "swank," others do it to avoid "changing down," and again some do it in pure ignorance or thoughtlessness.

I have seen the same person repeatedly move right over to the other side of the road, in order to "hog" up an oncoming hill on "top." It is not even safe to be on one's right side when these people are about. Twice recently this practice has been forcibly brought to my notice, and on one of these occasions I had to hug the kerbstone so closely to avoid a collision that my silencer actually scraped it.

I refer more especially, but by no means exclusively, to sidecarists. I know that a gentle right hand bend can be negotiated more easily at speed by nearly scraping the right hand kerbstone, but is the game really worth the candle? I do hope that readers of this letter who are guilty of this offence will just think for a few minutes of the danger they are causing to themselves and others. With a little thought, I feel sure that people would realise the foolishness of their doings and would leave off endangering other people's lives.

THOMAS B. CROW.

Black Lists and Boycotting.

Sir,—One reads a great deal about "black lists" on which towns where the speed limit is enforced are placed. Now, as a keen motor cyclist, I must admit that I do not agree with such methods.

I think that there should be a reasonable speed limit through every town, or else many motor cyclists would rush through at all speeds, as is evident by the number of fines. As to the vigilance of the police, what is the law made for but to be enforced?

With regard to the supposed harmful effect of boycotting, I do not think that there is anything like the harm done that one is led to believe. Moreover, I think that these methods cannot tend to make motor cyclists popular among the public, as the cause of the grievance is amply justified and recognised by all but a number of inconsiderate enthusiasts. C. R. NEUZERLING.

The Lightweight Vogue.

Sir,—Your readers must have read with considerable interest and pleasure the recent announcement of an early special number of *The Motor Cycle* dealing with two-stroke and lightweight machines. These machines are introducing a great many newcomers to the ranks of motor cyclists, and this leads me to suggest that perhaps the noble army of raw recruits have reached a degree of numerical importance which would justify a special corner of *The Motor Cycle* being devoted solely to their interests every week. So numerous and varied are these new creations that the choice is bewildering, and expert guidance desirable.

The question also arises whether it is not time to differentiate "lightweights" into two classes, in order to distinguish the genuine, or ultra-lightweight, from its heavier brothers. In defining this new class it is better to err on the light side, or, speaking in terms of h.p., the limit should not exceed 2¼. This h.p. is ample for solo riding, if a change-speed gear is used. MOTORETTE.

Rear Lights.

Sir,—May I, as a motor cyclist, heartily endorse the remarks in your issue of July 2nd on this point? It is altogether typical of our imbecile party politicians that they will waste months and years over trivialities, whereas matters of life and death (and this question of rear lights on all road vehicles is no less than such a matter) are allowed to slide untouched. Is it impossible to wake up these well paid Rip Van Winkles to the fact that the world is changing with unprecendented rapidity, that every day sees the flood of motor traffic increased in volume and mobility, and that the existing regulations, though no doubt suited to the times of Boadicea, are in these days an outrageous anachronism? Then another grievance I have is against the way in which carters and the like sprawl across country roads and lanes without the slightest notion of keeping to their own side. Cannot the police be persuaded to transfer a little of their attention from motor trapping to these appallingly negligent people? It is all very well to retort that I as a motorist want the whole earth to myself. I want nothing of the sort. But the quintessential fact is that motors have come to stay and increase in numbers, and what I do want is a commonsense acceptance of this fact and the new and more stringent obligations on all road users entailed thereby, without waiting for the otherwise inevitable long list of accidents to focus attention on the point.

In the meantime we have that priceless sample of imbecile legislation, whereby motors, the fastest vehicles on the road, must carry rear lights, though the slowest, and consequently most dangerous, vehicles are seemingly allowed to do as they like in these matters.

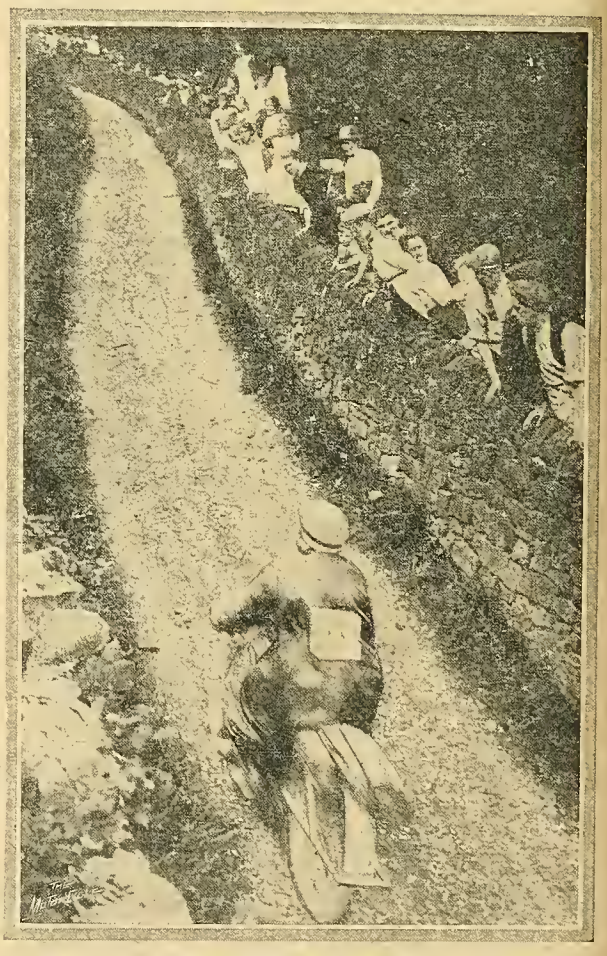
I suppose nothing short of a surgical operation will get it into the heads of members of Parliament that mere speed as such is not of itself a dangerous thing. Once this obsession is removed we may perhaps anticipate a little intelligent legislation. HUGH P. VOWLES.

Sir,—As your correspondent, Mr. A. B. Bennett, seems to know all about the accidents in which a Derby motor cyclist ran into the back of a brewer's dray, and a similar accident in which another motor cyclist ran into the back of a furniture van, perhaps he can give us some information as to what speed each of the motor cyclists was travelling. It seems to me that before using these accidents as arguments in favour of rear lighting it is very important to have some information as to the speed. If these two motor cyclists were travelling faster than either the law or the effectiveness of their head lights permitted with safety, the accidents are no doubt most regrettable, but are poor as arguments on which to base advocacy of rear lighting. W. P. COOK.

Short-sighted Policy.

Sir,—Having garaged my machine at a South Coast watering-place for eighteen months and having paid my accounts regularly every month, I have now received treatment guaranteed to cause me to withdraw any custom over which I have any influence. Having at the end of June an account of somewhere near £2, I wrote the firm a cheque for £2, asked for my bill to be sent, and my bicycle to be forwarded to Dover at once. After a week's delay I received a receipt for my £2 and a short but firm note to the effect that on receipt of the other ten shillings owing them the bicycle would be despatched by passenger. As a matter of fact, I did not forward the ten shillings, but wired to their manager at a neighbouring town, and by the next train my bicycle arrived, a week and two days adrift.

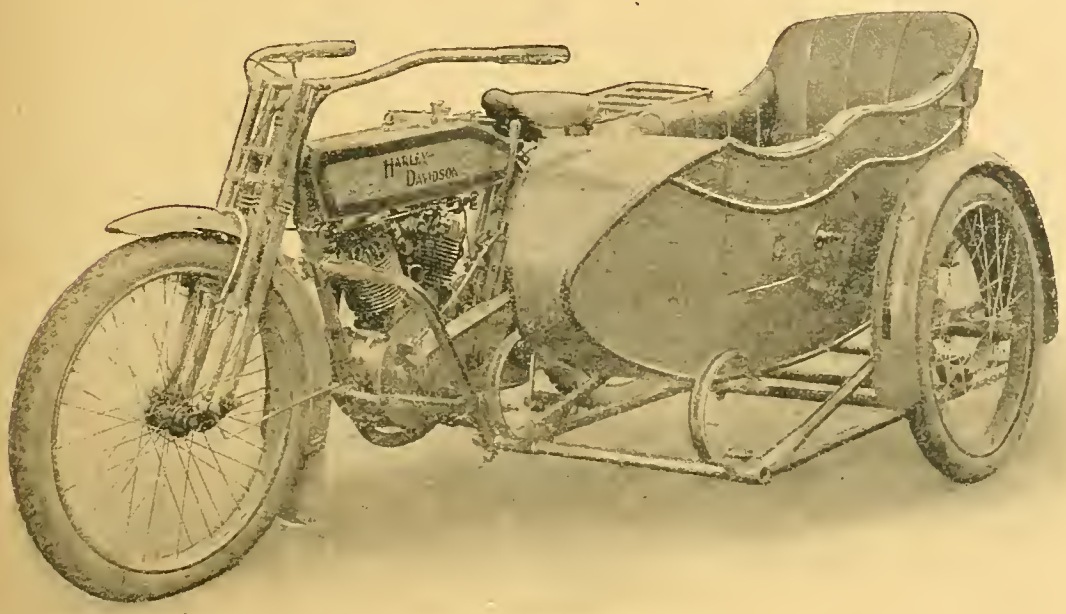
Doubtless, this seems to be a very small grievance, but to the naval man, who has to take his pleasures on the spur of the moment, and at odd places, it may, and does, cause great inconvenience to be treated in this fashion by a firm that owes its prosperity almost entirely to naval owners of cars and cycles. T.H.



B. J. Chinn (4 h.p. Wolf) ascending Jacob's Ladder, one of the worst hills in Tuesday's route of the A.C.U. trial.

BETTER

THAN THE BEST OF THE REST



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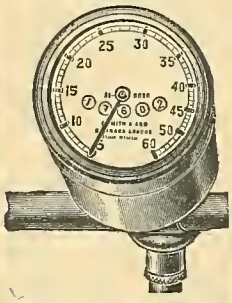

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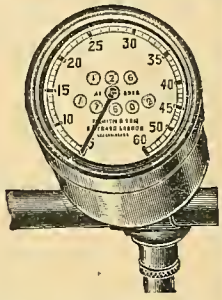

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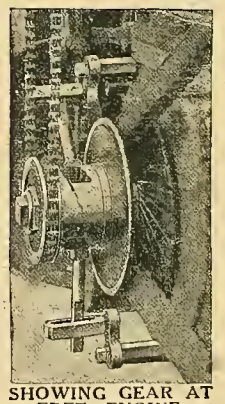

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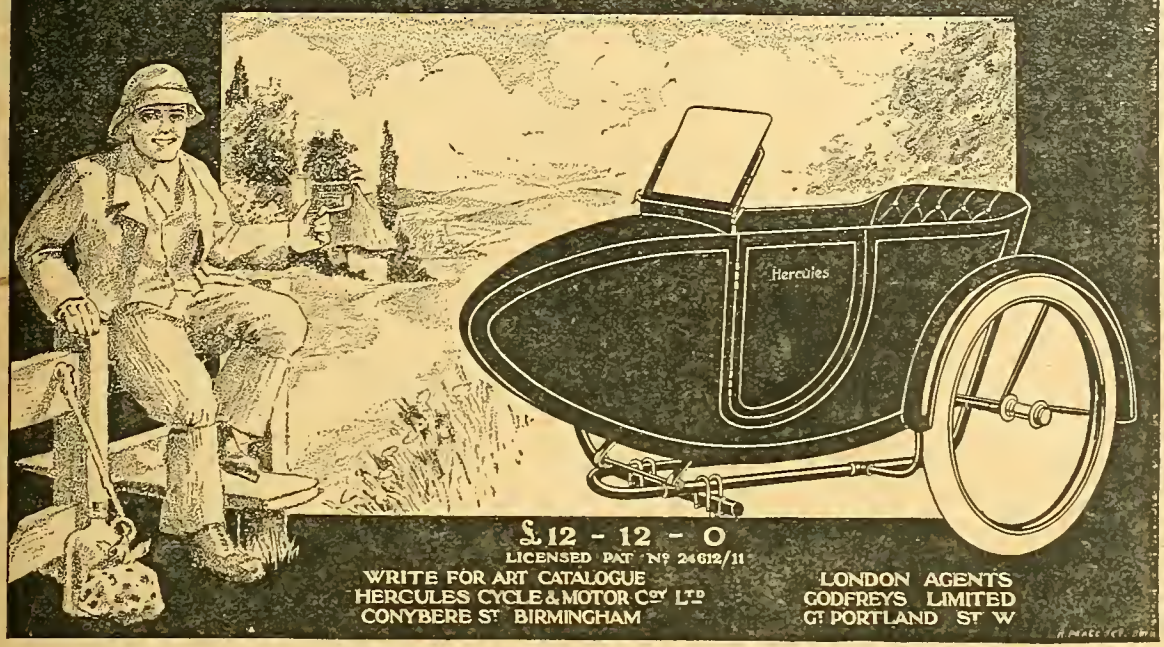

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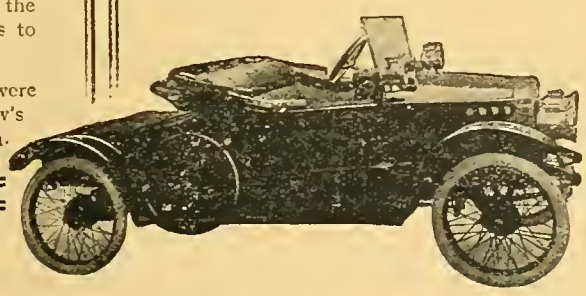

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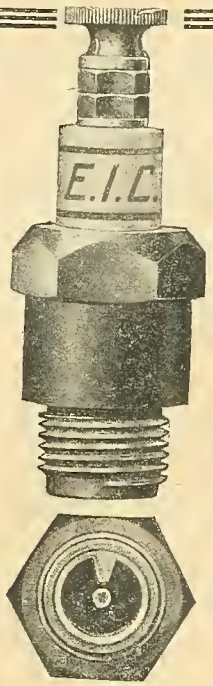

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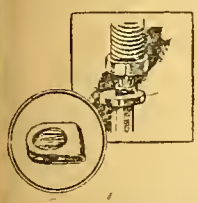

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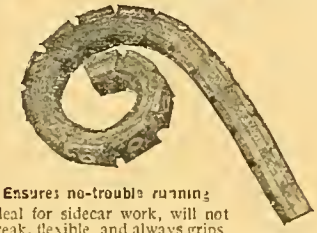

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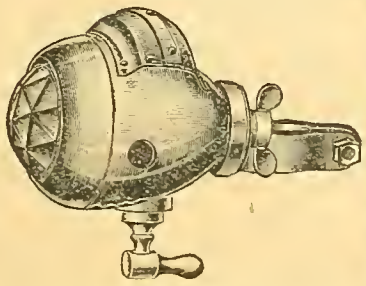

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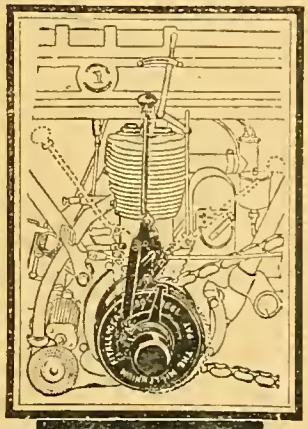

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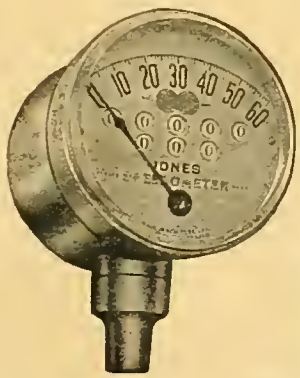

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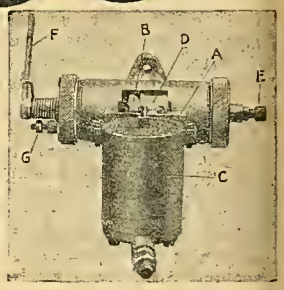

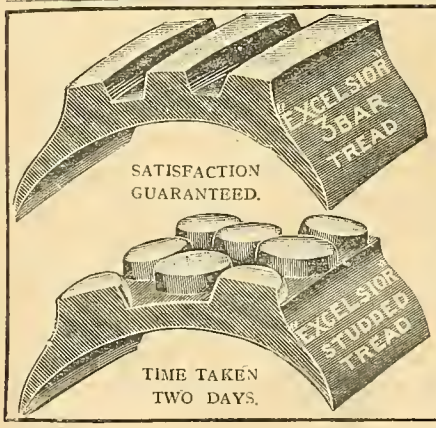

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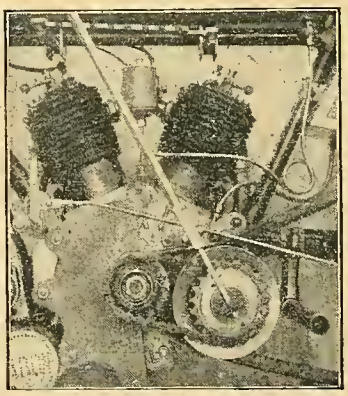

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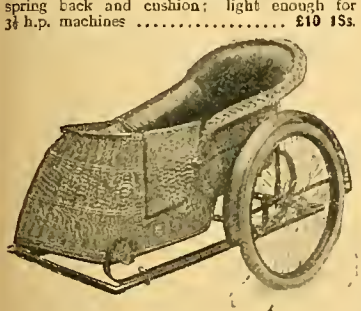

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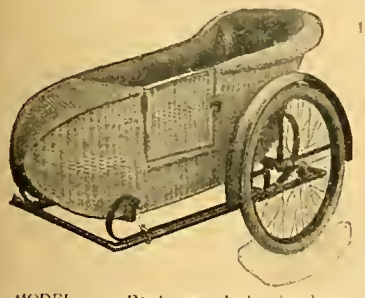

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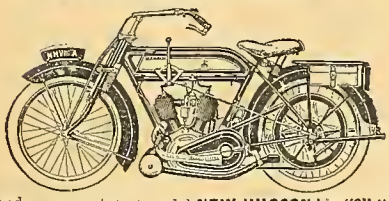

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CARDEN, Model B, 5-6h.p., J.A.P. engine, with lamps, horn, indicator, and tool box; £50, or near offer.—Eyles and Eyles, Town Hall Garage, Oxford. [5351

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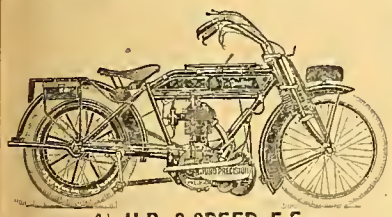

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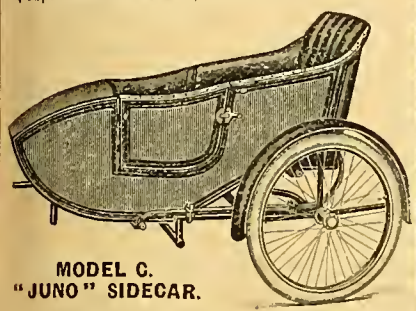

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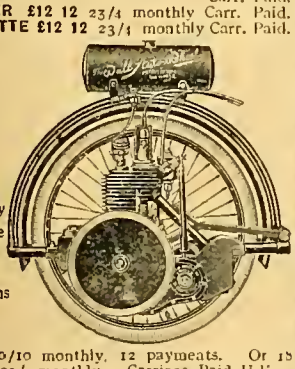

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ENFIELD Combination, 1912, perfect condition, speedometer; £48.—Chesterton, Chessingham Grove, Sutton, Surrey. [X4937

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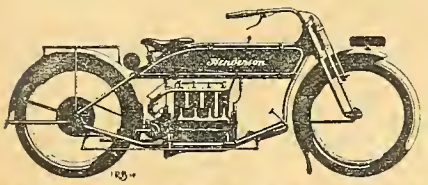

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HENDERSON Combination, 8-10h.p. 2-speed model, practically new; cost £110, accept £80, or exchange for 1914 G.N. or Morgan cycle car.—Earl, 5, Heath St., Hampstead. [X4941

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1913 Lady's 2¾h.p. Hobart, 3-speed, like new, with lamp, horn; cost £55, accept £33.—5, Old Hall Rd., Gatley, Cheshire. [X4981

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HUMBER, 2h.p., mag., B. and B. carburetter; £15/10.—Shuker, Shrewsbury. [0542

HUMBER, 1912, 2-speed, free engine, sidecar, perfect.—Bishop, Kingsbury, Somerset. [X4691

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HARLEY-DAVIDSON, 8 h.p., 2-speed	£65 0
B.S.A., 3½ h.p., 3-speed, chain drive	£63 0
EDMUND-M.A.G., 3½ h.p., twin-cyl., 2-speed, spring frame	£63 0
TRIUMPH, 4 h.p., 3-speed	£60 0
DOUGLAS, Model W	£52 0
ZENITH, 6 h.p., clutch model	£75 12
DOUGLAS, Model V	48 0
NORTON, 3½ h.p., T.T. Roadster	£50 0

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NEW 1913 MOTOR CYCLES.

ALCYON, 2 h.p.	Reduced to £24
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1914

1576. **INDIAN,** 2-speed £56

1569. **ROYAL ENFIELD** and Sidecar, large lamp and horn, spares, etc. £74

1913

1563. **CHATER LEA** and Sidecar, 8 h.p., 3-speed, special tyres, lamps, horn, mirror, speedometer, etc., etc. £64

1533. **B.S.A.,** 3½ h.p., 2-speed £42

1541. **HENDERSON,** 8-10 h.p., 4-cylinder £52

1553. **INDIAN,** 7 h.p., 2-speed £42

1433. **REGAL,** 4½ h.p., 1912 frame, 2-speed £32

1542. **ZENITH,** 6 h.p. £46

1572. **ZENITH,** 8 h.p., special competition machine, large tank, etc. £56

1566. **B.S.A.,** 1913-14, Special, fitted with Armstrong 3-speed gear, and large tanks £45

1912

1573. **RUDGE,** 3½ h.p., T.T. £27

1575. **BRADBURY,** 3½ h.p. £25

1577. **RUDGE** Multi, 3½ h.p. £30

1560. **ARNO,** 3½ h.p. 3-speed, and Sidecar £32

1575. **BRADBURY,** 3½ h.p. £27

1430. **F.N.,** 5-6 h.p., 4-cylinder, 2-speed, and Sidecar £35

1412. **HOBART,** 2¾ h.p. £20

1573. **RUDGE,** 3½ h.p., T.T. roadster £27

1453. **ZENITH,** 8 h.p., and Sidecar £48

1542. **ZENITH** 6 h.p. £42

1567. **ZENITH,** 6 h.p., T.T. roadster £42

1568. T.T. **TRIUMPH,** very fast £30

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1545. **CHATER-J.A.P.,** 2¾ h.p. £16

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912 6h.p. Matchless, 6 speeds, overhead valves, fitted with Hutchinson tyres, Cowey speedometer, Rushre head lamp, belt, machine in perfect order; £35. ing and Harper, 6 and 7, Bridge St., Cambridge. [5074

MATCHLESS, 8h.p., 1912½, 2 speeds, twin belt, Matchless sidecar, tyres almost new, speedometer, n, etc., fitted rear suit case; cost £108, complete; 5, or near offer.—Apply, Bamber, Birkdale, Lancs. [5150

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MINERVA, 2½h.p., h.b.e., B. and B., good Michelin tyres, rubber belt, running order; £5.—Beachey, twell, Banbury. [5086

MINERVA, 3½h.p., and sidecar; £14; good condition.—J. Matthews, 45, The Promenade, Palmers een, London, N. [5152

12.—2¼h.p. Minerva, Druids, Bosch, 1913 B. and B., new rings, gudgeon, bushes, spare belt and er, lamp set, reliable.—Phillack, Rectory, Hayle. [5171

MINERVA Twin and sidecar, 2 speeds, F.E., 1914 Bosch, and B. and B., h.b.e., new tyres and belt, p, horn, etc.: £25.—44, Pattenden Rd., Catford. [5350

3h.p. Minerva, very low position, Hellesen ignition, 4 Amac h.b.c. carburetter, belt and tyres good, ntiful condition; bargain, £10.—50, Richmond Park , Kingston-on-Thames, Surrey. [5081

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M.M.C., 3½h.p., B.B. carburetter, mag. ignition, Brooks B100 saddle, new 2 gallon tank, really good er; £16/10.—Lamb's, 151, High St., Walthamstow. [5195

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MOTOSACOCHE Lightweight, mag., 1911, like new; £10/5.—119, Lcy St., Ilford. [5209

MOTOSACOCHE, 2½h.p., 1914 model; cost £44, what offers?—Gocher, Nutbourne, Pulborough. [5156

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MOTOSACOCHE, 1¼h.p., 2 accumulators, just overhauled; £9, or offer.—Gates, Station Rd., Sudbury, Suffolk. [5262

913 Motosacoche Lightweight, brand new machine; £25; cash or easy terms.—R. E. Jones (Garages), l., Mackworth Hotel, Swansea. Also at Cardiff. [0548

912 2½h.p. Motosacoche, free engine, brand new tyres, enamelling and plating guaranteed absolely perfect throughout; £15.—26, Medora Rd., Romford. [5362

MOTOSACOCHE, 1913, 2½h.p., variable gear, free engine, good running order; £19; seen by appointment.—Norman, Carshalton Park Rd., Carshalton one: Hop 2555. [5345

MOTOSACOCHE, 2½h.p., adjustable pulley, free engine, perfect order, 2 belts, spares, tools, new p and horn; £20 or close offer.—66, King's Rd., estwich, Lancs. [X5055

MOTOSACOCHE, 3½h.p., 1913, electric lamps, F.R.S. largest head light, speedometer, portable d; cost £95; owner buying car; best offer.—Box 550. *The Motor Cycle* Offices, 20, Tudor St., E.C. [5400

MOTOSACOCHE, 2½h.p. free engine, mag., Druid spring forks, 1911 model, not used once during 12 or 1913, condition perfect; lowest £15, or exchange 13 combination and cash.—A. J. Hill, The Limes Cot e, Borcham, Sussex [4808

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MOTO-REVE Lightweight, free engine, mag., good order; £10.—Davies, Alma Cottage, Maesgwyn Rd., exham. [X4384

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913 New Hudson, 3-speed; bargain, £35.—460, Fulham Rd. [5033

NEW Hudson, 6h.p., 1914, and sidecar; offers.—Bishop, Kingsbury, Somerset. [X4692

NEW Hudson, 1913, 3-speed combination drive, not ridden 500 miles; £45/10.—Motor Co., Ltd., Hereford. [X4835

NEW Hudson, 1912, 3½h.p., 3-speed, sidecar, new Hutchinson oo back; £34.—20, Temple Fortune ll, N.W. [X5074

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NEW Hudson, 1913, 3½h.p., 3-speed, lamp, horn, and tools, guaranteed sound; bargain, £38/10, or near er.—Shuker, Shrewsbury. [0541

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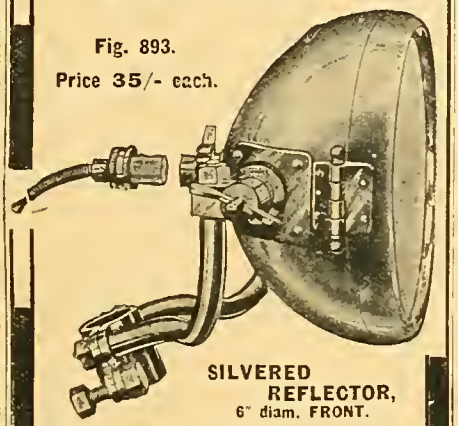

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Fig. 778.

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NEW Hudsons.—6h.p., 1914 models; 68 gns.; exchanges or easy payments.—Maudes, 136, Gt. Portland St., London, W. [8363

NEW Hudson (1912), 2¾h.p. J.A.P., Armstrong 3-speed new tyre, perfect condition; £24.—121, Brooke Rd., Stoke Newington. [X4938

NEW Hudson, 6h.p., 3 speeds, almost new, only used about 1,300 miles, complete with fitments and sidecar; £70.—Turpins, Preston Rd., Brighton. [0511

1913 2¾h.p. 3-speed Free Engine Kick Starter New Hudson, lamp, horn, only done few hundred miles; £35.—Bagge, Broad St., King's Lynn. [X5086

SPECIAL 1914 3½h.p. T.T. New Hudson, Armstrong, 300 miles; £50; exchange T.T. Douglas.—Martin Wright, Victoria Embankment, Nottingham. [X4995

1912 New Hudson, 2½h.p. J.A.P. engine, 3-speed gear, new Palmer cord back cover, studded front, B104 saddle, very good condition; £21.—Robinson's, Green St., Cambridge. [8621

1913 New Hudson, 3½-4h.p., 3 speeds, free engine, kick start, Montgomery sidecar, new condition, splendid running order; £43.—"Bramlea," Charlton Rd., Shepperton-on-Thames. [4728

NEW Hudson Big Six and Model de Luxe sidecar, Lucas head lamp, sidecar lamp, horn, Watford speedometer, new in May; cost over £100, complete outfit; lowest cash price £75.—A. Lesadd, 237, Ilford Lane, Ilford. [X4386

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2½h.p. New Imperial, 2-speed, almost new; accept £28/10.—Hayes, Barnet. 623. [X4405

NEW Imperial Lightweight, as advertised, in stock; easy terms; exchanges; 31 gns.—Chatwins, King St., Richmond. [5304

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NOBLE, 3h.p., m.o.v., splendid condition, all accessories, practically new, just overhauled; photo; absolute gift, £7/10.—24, St. Mark's Rd., N. Kensington. [X4897

Norton.

NORTONS.—Immediate deliveries and best terms; write us.—Parker and Son, St Ives, Hunts. [0534

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BARGAIN List.

ONE 2h.p. N.S.U. Single-cyl. Lightweight, complete with 2-speed gear and free engine, 1913 model, shop-soiled; £30 net

ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine, 1914 model; £32 net.

ONE 3h.p. N.S.U. Twin cyl. Motor Cycle, complete with under-geared pulley, 1912 model; £25 net.

ONE 3½h.p. N.S.U. Single-cyl. Motor Cycle, complete with h.b.c. 2-speed gear and free engine, 1914 model, shop-soiled; £48 net.

ONE 6½h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine, 1913 model; £45 net.

ONE 8h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine; £25 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0538

N.S.U., 4-5h.p twin, 2 speeds, coachbuilt sidecar, full equipment; £35.—R., Heathfield Lodge, Acton. [5137

1912 N.S.U., 3h.p. twin, 2-speed, good condition; accept £20; sidecar £3/3.—15, Seaford Rd., Eastbourne. [5346

1913 3½h.p. N.S.U., single, 2-speed and free engine, Lucas lamp; £20.—Mauthner, 134, Haverstock Hill, N.W. [5331

N.S.U. 2½h.p. Twin, free engine, excellent order; £15 cash.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0531

N.S.U., 3½h.p., mag., 2-speed gear and free engine, in excellent running order; £14.—9, Avern Rd., West Molesey, Surrey, near Hampton Court. [5308

4h.p. Twin N.S.U., mag., 2-speed and free engine, £15; 1912 3h.p. twin N.S.U., spring frame, £17; splendid condition; bargains.—Barnes, Crane St., Leicester. [5334

1914 3½h.p. Twin N.S.U., 2 speeds, brand new, £39; with new Projectile sidecar £48; powerful combination; great bargain.—Purcells, 78, Charlotte St., Fitzroy Sq., W. [5186

6½h.p. 1913 N.S.U., with sidecar, Nala 2-speed hub, excellent condition, complete in every way; £46; f.o.b. London.—Claus Franzenburg, 55, Vogel-angstr. Stuttgart, Germany. [X4983

N.S.U., 1913, 6½h.p., latest 2-speed, F.E., Turner coach sidecar hood, screen, 3 splendid lamps, Cowey, etc., recently overhauled, fine condition.—Ward, 24, Hillfield Park, Muswell Hill, N. [5343

N.S.U. 1914 Twin Model, 3½h.p., just delivered; also 6-7h.p. N.S.U., and Burbery sidecar, complete, only done 450 miles, accept £50; Royal Leicester sidecar, sporting coachbuilt model.—Dents, Stonegate, York [5078

N.S.U., 1913, 3½h.p., 2-speed machine, with 11 gn. Phœnix cane sidecar, combination complete with 3 lamps, acetylene rear light, speedometer, horn, etc., is open to any examination or trial; cost £85 last year, accept £45 for quick sale, or consider an exchange for a 1914 Douglas.—The Morris Garages, Oxford. [5183

MOTOR CYCLES FOR SALE.

N.S.U.

N.S.U. 6-7h.p. Twin, latest pattern 1914 model, with loop frame and rear spring, mechanical lubrication, 2 speeds, free engine, controlled from handle-bar, kick starter; £66; immediate delivery, no waiting; best exchange terms or deferred payments; also the famous N.S.U. 2-speed gear to fit all known makes, from stock. —Eagles and Co., N.S.U. London Agency, Acton, W. Tel.: 556 Chiswick. [X4943

N.U.T.

2¾h.p. N.U.T., T.T. model, with 3-speed gear, in stock; immediate delivery; new; £60/10.—The Motor Mart, Eastbourne. [X4847

3½h.p. N.U.T., touring model, with 3-speed gear, clutch, kick starter, etc.; in stock, immediate delivery, £60/10; Brown Bramble sidecar to match, if required, in stock, £14/14.—The Motor Mart, Eastbourne. [X4848

O.K.

O.K. Junior, complete with 2-speed gear, etc., in stock; immediate delivery; new; £30.—The Motor Mart, Eastbourne. [X4849

O.K., 3½h.p., twin-cyl., 2-speed gear, clutch, kick starter, etc., in stock; immediate delivery; new; £50.—The Motor Mart, Eastbourne. [X4850

O.K. Juniors.—We are Surrey agents for this perfect lightweight. May we call on you and demonstrate its remarkable powers? It costs £30 only; immediate delivery. A postcard will bring it to your door.—Meeten, Dorking. [4646

P. and M.

1912 P. and M. and Sidecar, complete; £43.—Cross Jeweller, Rotherham. [X5050

P. and M., 1912, 3½h.p., 2-speed, and sidecar; £33. —239, Liverpool Rd., Islington, N. [5233

1914 P. and M., brand new; must sell; best offer.—Jones. Bryn Salem, Llanfairpwll. [X4135

NEW 1914 P. and M.'s in stock, ready for immediate delivery.—Walker's, Fishburn, Ferryhill. [X6644

PHELON and Moore; delivery from stock from Birmingham agents, Colmore Depot, 31, Colmore Row. [X4430

1914 P. and M.'s; immediate deliveries.—Purcells, 78, Charlotte St., Tottenham Court Rd., London. [2183

1912 P. and M. and Chater Sidecar, in excellent condition; £45.—Pond, 349, West End Lane, London. [X5021

P. and M., 1909, 3½h.p., 2-speed, perfect, £20; sidecar, 50/.—W., 26, Princes Parade, Church End, Finchley. [5258

1913 P. and M., bought in August, has not done 1,000 miles; take £35.—Apply, 30, Pembroke Gardens, Kensington. [5368

BRAND New 1914 P. and M., in crate; £60, first cheque gets it.—Box No. 6,353, *The Motor Cycle* Offices, Coventry. [X3927

1914 3½h.p. Phelon and Moore, 2-speed gear, free engine, splendid sidecar machine; £65.—Carnforth Motor Co., Carnforth. [4862

P. and M., kick starter, fully equipped, as new, condition, only done 2,000 miles; £40.—2a, Fountayne Rd., Stoke Newington, N. [5151

P. and M. and Sidecar, lamps, speedometer, all accessories, perfect condition; £32/10. — 15, Bovenel Rd., Honor Oak Park. [5279

1914 P. and M. Motor Cycles; delivery from stock; cash or easy terms.—R. E. Jones (Garages), Ltd., Mackworth Hotel, Swansea. Also at Cardiff. [0545

P. and M., 3½h.p., 2-speed gear, handle starter, lamp, horn, rear lamp, wicker sidecar, etc., complete, in perfect condition; £36.—The Motor Mart, Eastbourne. [X4853

1913 P. and M. Combination, done 830 miles, all spares, also Lucas lamps, generators, horn, Cowey speedometer; cost £100, take 70 gns.; equal to new.—Illingworth, Queen St., Morley. [X5053

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P. and M., 1914, as good as new, with 1914 Mills-Fulford Corvette sidecar, cost £78 3 months ago; any examination; accept £68, or offers; will ride to intending purchaser.—Ravenscroft, 72, Cowley Rd., Oxford. [X5054

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PEUGEOT, 2½h.p., U.H.; £9; wanted, free engine, for Indian.—Robinson, Sandy, Bedfordshire. [5220

PEUGEOT, 5-6h.p., 2 speeds, Bosch mag., Hutchinson tyres, cane sidecar, any examination or trial; £35, or exchange for Douglas.—P.B., 48, Watney St., Stepney, E. [5252

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4¼h.p. Precision, N.S.U. gear, Montgomery sidecar, splendid order; £30.—Browne, Oaklands Cottage, Cuckfield. [X4794

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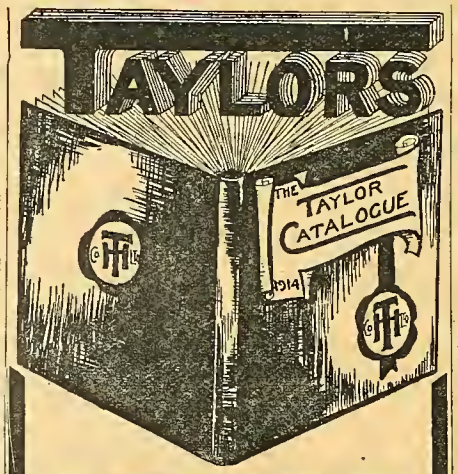
3½h.p. Premier Cycle, in good condition; £18; seen after 6 p.m. any evening.—15, Rosenthal Rd., Catford. [5155

PREMIER, 3½h.p., counter-shaft, 3-speed, semi T.T.; immediate delivery; £61/10.—Motor Co., Ltd., Hereford. [X4827



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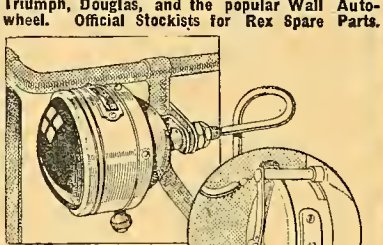

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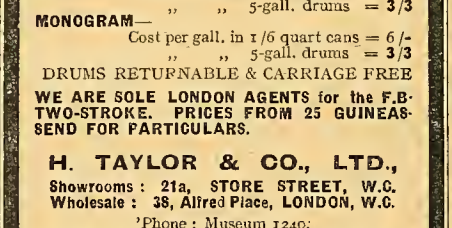

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PREMIER.—A few 1913 3½h.p. Premier fitted with counter-shaft 2-speed or hub 3-speed gears, second-hand but guaranteed by makers to be in perfect order, with or without sidecar; prices from £36; trials and terms arranged.

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PREMIER Showrooms, 20, Holborn Viaduct. [5269

3½h.p. Premier, free engine, good running order; bargain, £18.—Blackhurst, 23, Johnson Rd., Marton, Blackpool. [X5013

WHAT Cash Offers?—1913 3½h.p. Premier, 2-speed counter-shaft, soiled, unused.—26, London Rd., Gloucester. [X4994

1914 3½h.p. 3-speed Armstrong, Premier, lamp, horn, done about 400; £47/10, bargain.—Wills, chemist, Merthyr Tydfil. [5234

PREMIER, 3½h.p., 3-speed counter-shaft; £61/10; actually in stock.—The Exeter Motor Cycle and Light Car Co., Ltd. [0508

BRAND New 1914 3½h.p. 3-speed Premier, owner dead; first cheque over £50 secures.—7, Doncaster Rd., Barnsley. [X5051

PREMIER, 1912, 3½h.p., 3 speeds and clutch, used solo only, splendid order throughout, overhauled and guaranteed; £35.—Below.

PREMIER, 1912, 3½h.p., standard touring model, Lucas lamp set, horn and tools, good condition, overhauled and guaranteed; £22.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0480

1911 3½h.p. Premier, fitted with 1913 spring forks, tyres and belt good, enamel and plate good; £17. —Robinsons, Green St., Cambridge. [8622

1913 3½h.p. 2-speed Counter-shaft Premier, Corvette sidecar, fine climber, superb order; £45.—Purcells, 78, Charlotte St., Fitzroy Sq., W. [5064

1914 Premier, 3½h.p., counter-shaft model, 3-speed, new, never used; cost £61/10, accept £48/10.—Garland, Ironmonger, Warrington. (D) [X4131

1911-12 3½h.p. Premier, clutch model, very little used, condition as new, new tyres, belt, P. and H. lamp set, horn, spare belt, etc.; £24.—Earl, 5, Heath St., Hampstead. [X4940

PREMIER Twin 2¾h.p. Lightweight, late 1912, beautiful order, just overhauled, guaranteed perfect; £14, worth £20; bought cycle car.—77, Tower Ramparts, Ipswich. [X5071

1912-13 3½h.p. Premier, Sturmey-Archer 3-speed, just renewed, Palmer cord back tyre, P. and H. lamp, good condition; £34; with Montgomery sidecar £36/10, offers.—Wilkinson, 14, Crecfield Rd., Ealing. [5077

PREMIER, 1912, 3½h.p., 2-speed, Dunlop tyres front, Hutchinson on back, lamp and horn, £36/10; also another, 1912½, 3-speed, with sidecar and accessories, £42.—Lamb's, 151, High St., Walthamstow. [5190

1914 7-9h.p. Premier Combination, counter-shaft model, Canoelet sidecar, Pillion seat, elaborately fitted up, purchased February, used 1,300 miles only; cost £95/10, accept £65.—Barrett, Motors, Canterbury. [X4412

Puch.

PUCH, 5-6h.p. twin, fast, powerful, sidecar, all accessories; any examination; £38.—13, Fleetwood St., Stoke Newington. [5120

Quadrant.

QUADRANT, 3½h.p., standard, Bosch mag., B. and B. carburetter; £14.—Motor Co., Ltd., Hereford. [X4830

QUADRANT, 1912, 4¼h.p., Big Single, 3 speeds and clutch, cane sidecar, in splendid order, overhauled and guaranteed; trial; £32.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0478

Rex.

REX, 1912, Big 4, new condition, £25; sidecar, £3. —67, Wantage Rd., Reading. [X4999

REX, 6h.p., chain drive model, and coachbuilt Sidette; £85.—Motor Co., Ltd., Hereford. [X4828

TWIN Rex, clutch, large family sidecar; £28.—Hole, Lissinghurst, Park Lane, Carshalton. [5327

REX and Rex-Jap, 1914 models; keen exchange quotations.—Collier's, Westgate, Halifax. [0390

REX, 6h.p., 2 speeds, belt drive, with coachbuilt Sidette; £77/10.—Motor Co., Ltd., Hereford. [X4829

3½h.p. Rex, B. and B., spring forks, running order; £7.—Windermere, Wellington Rd., Bilston, Staffs. [5275

REX, 1909, 3½h.p. model, Bosch, good tyres, nice machine; £14.—Speechley, 45, Church Rd., Acton. [5404

1909 3½h.p. Rex, with 1911 cylinder and piston, splendid condition; 10 gns.—80, Dorset St., Leicester. [X4973

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND NINETY-FIRST CONSECUTIVE ISSUE.

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An index to advertisements will be found on the page facing the back cover

Two-strokes and Lightweights.

THIS week our pages are mainly devoted to the subject of two-stroke engines and lightweight motor cycles, these two products having attained to such a degree of popularity and importance that such a step is warranted. Few people realise how closely the two-stroke engine and the lightweight motor cycle are allied, yet the one is undoubtedly the outcome of the other. The lightweight, to our mind, has not commanded so much attention lately merely because it *is* a lightweight, for everybody with the slightest experience of motor cycle matters has for years sighed for a genuine lightweight motor cycle able to perform all ordinary requirements: but, undoubtedly, it is the two-stroke engine which has mainly accounted for the wonderful latter day development of the miniature motor cycle. Long ago this journal asserted that in the two-stroke engine lay the keynote to the lightweight, and *The Motor Cycle* has consistently encouraged this type of engine by frequent articles and by keeping readers posted on developments in this direction. In the spring we strongly recommended the R.A.C. and A.C.U. to conduct a special trial for two-stroke engines, and, although our suggestion has not yet borne fruit, it is undoubtedly only a question of time before a trial exclusively confined to engines working on the two-cycle principle will become an accomplished fact.

Ten years ago a good deal of ink was spilt on the subject of featherweights (we refer to machines weighing about 80 lb.), and certain journalists were so absorbed in them that they went so far as to declare that heavyweights were dead. The editorial view of *The Motor Cycle* published at that time was that the lightweight pure and simple would take ten years to materialise in a successful guise, and this view was openly expressed on more than one occasion. At the same time we pointed out that the lightening process would be gradual, and as the efficiency of engines went up so should we be able to reduce their capacity and thus bring about the lightweight motor cycle. Our words have proved pretty near the mark, but unquestionably the two-stroke engine has given the lightweight a tremendous fillip.

There is nothing new in the lightweight; indeed, just as the cycle car was the forerunner of the modern motor car, though, of course, under a different name, so the lightweight was the forerunner of the modern motor cycle. We who used it in the early days of the movement knew only too well its shortcomings. Did we not pass our novitiate on a 1¼ h.p. Werner, afterwards migrating to a 1¾ h.p. Minerva, and thence to a 2 h.p. of the same make? There were no change-speed gears in those days of the movement, but *The Motor Cycle* lost no opportunity to point out the desirability of such a fitment, and seven or eight years ago successfully conducted a campaign in favour of the change-speed gear for motor cycles. Gradually, but surely, engine efficiency has been improved from year to year until now we have miniature engines able to propel rider and machine at speeds which satisfy the moderate-minded rider, quite apart from the useful purposes into which such machines may be pressed by doctors, travellers, and others, where extreme handiness is a *sine qua non*.

The Vogue of the Two-cycle Engine.

THE lightweight is bound to enjoy a tremendous vogue, but we doubt if this vogue will not be surpassed by the two-stroke engine. The vast possibilities of the two-stroke engine as a motive power have always been impressed upon us. Its light weight alone proves its worth, not to speak of its simplicity and absence of valves—so important when small sizes and high temperatures have to be considered. Originally the two-stroke engine was very extravagant and erratic in its running, but the best brains in the motor cycle world have been devoted to its improvement, and the time has arrived when the

two-stroke or "valveless" engine, as it is sometimes called, promises to be a serious rival to its four-stroke prototype Indeed, so far as lightweights are concerned it is questionable if the two-stroke engine does not already rule the roast, and its uses are bound to be further extended in the near future. Who knows, too, that the two-stroke engine may not some day or other solve the cycle car question?

Finally, we should like to make it clear that we are not among those who consider that the lightweight has arrived to the exclusion of every other type. It has all along been our view, and we have openly expressed it on several occasions, that no one type of machine will satisfy everybody. The old saying about one man's meat applies especially to motor cyclists. There ar those who are not content to tour along with a lo geared engine buzzing away at their feet; there ar others who by reason of their bulk and stature ma find it impossible to use a lightweight with comfort especially as 24in. wheels are so much favoured. Suc people are, however, in the minority, and the light weight is bound to attract thousands of new converts and even if its purpose in life were only to act as a stepping stone to higher circles, it would have mor than justified its existence. We look forward with con fidence to a very bright future for this type.

TWO-STROKE TIPS.

Keep the exhaust ports clear of carbon and the silencer and pipes quite free.

If power diminishes, clean the piston rings and grooves, and while the cylinder is off scrape the underside of the piston head.

Use a fairly large plug gap; the magneto runs at engine speed and will spark across a wider gap than is used on a four-stroke.

Keep the carburetter gauzes clean, and if there are gauzes in the transfer ports they require occasional cleaning and the joints should be very carefully made.

Too much trouble cannot be taken over the cylinder and port joints.

Plugs are most important, and it is well to use the plug recommended by the makers.

A big jet gives power, but does not usually two-stroke well at low speed. On the other hand, a small jet usually improves two-stroking.

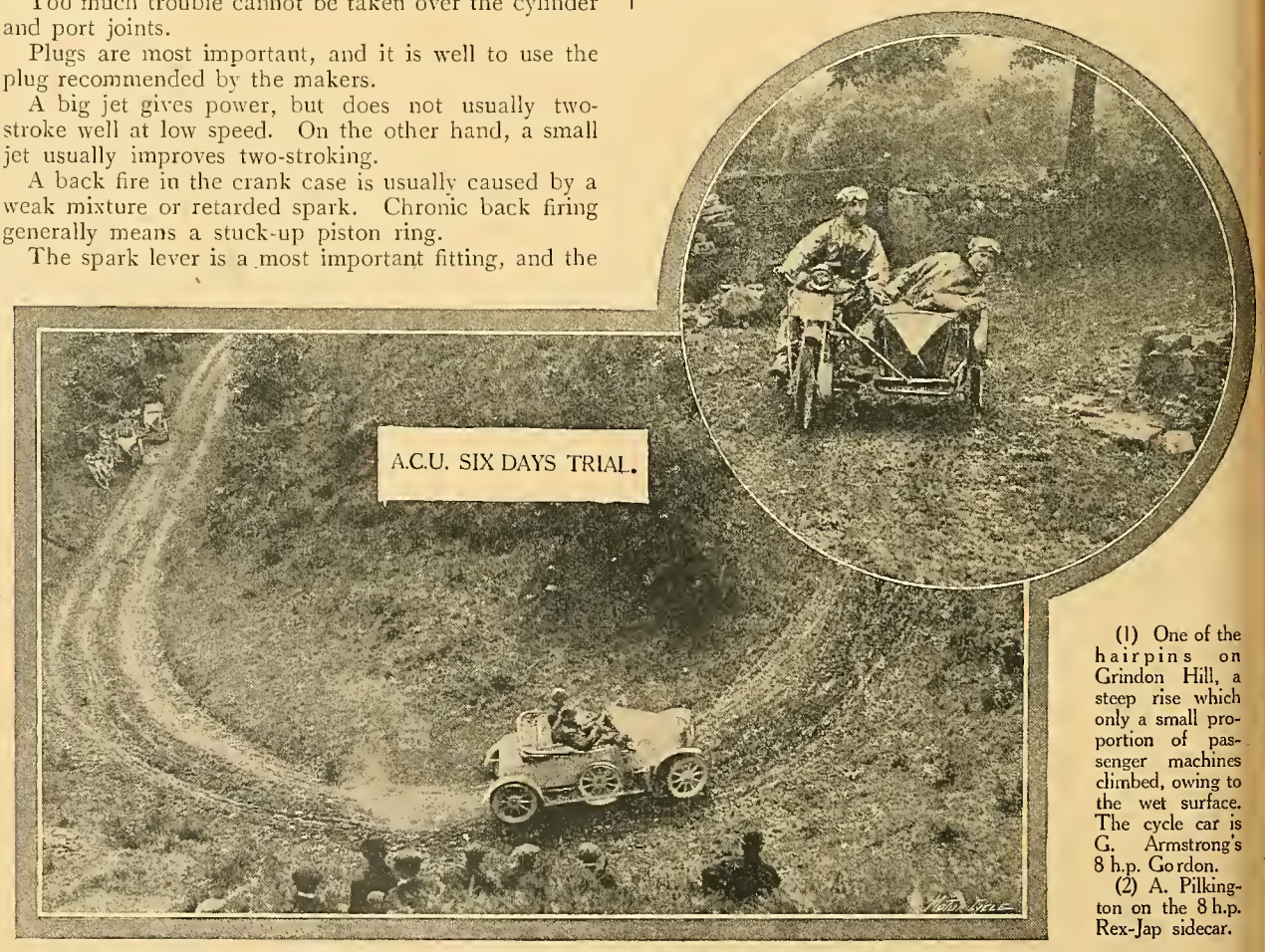
A back fire in the crank case is usually caused by a weak mixture or retarded spark. Chronic back firing generally means a stuck-up piston ring.

The spark lever is a most important fitting, and the spark position is of the greatest importance on two-strokes.

If the release valve is exposed and has no gauzes, make sure that the tank is sound and that no petrol is overflowing from the filler cap.

The spark timing should be more advanced on two-strokes than is customary with four-stroke engines.

In the case of engines lubricated by "petroil" mixture, shake the tank before attempting to start after a long rest in order thoroughly to mix the fuel, and use only the best oil.

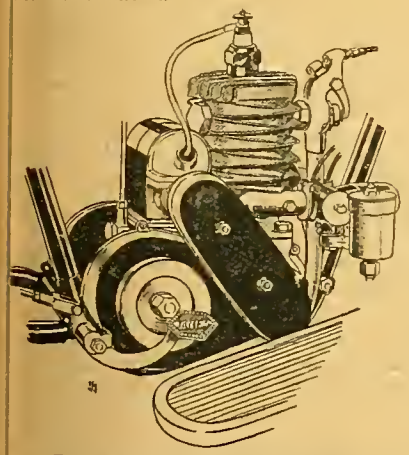


(1) One of the hairpins on Grindon Hill, a steep rise which only a small proportion of passenger machines climbed, owing to the wet surface. The cycle car is G. Armstrong's 8 h.p. Gordon.

(2) A. Pilkington on the 8 h.p. Rex-Jap sidecar.

THE A.E.C. TWO-STROKE.

AN addition to the list of two-strokes is the machine manufactured by the Auto Engineering Co., of Springfield Place, Coventry. The single-cylinder engine is of the three-port type and has a bore and stroke of 62×70 mm. The drive is by belt and chain, the two-speed Condor gear box being placed well forward so as to obtain as long a belt as possible. The main shaft of the gears passes right through the box and carries the belt pulley on the opposite side to the chain wheel, the box itself being carried on a flat slotted plate at the base of the seat tube. The engine is mounted in a somewhat unusual manner, being carried between two steel bearer plates bolted direct to the frame. This method relieves the crank case of all frame strains and also enables the engine to be detached with considerable ease. The frame has double top tubes and is fitted with Saxon forks and 24in. wheels.



Engine unit of the two-stroke James.

TWO-STROKE JAMES REFINEMENTS.

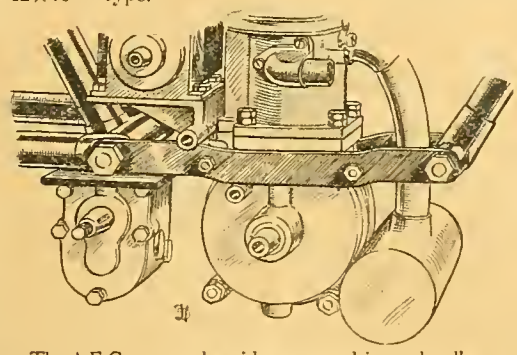
The 2¼ h.p. two-stroke James, though it remains unaltered in its essentials, has undergone one or two refinements, and is now a very striking looking machine. The sheet metal chain cases are very well carried out and look extremely neat with their black enamel finish. The well-known James staggered cooling ribs have now been standardised, and another distinctive feature is that the change-speed lever has been brought up through the centre of the tank and works in a quadrant on the top tube, where it is conveniently placed for the rider. The exhaust from the release valve is led away to the back of the engine by a long pipe, and is clear of petrol fumes.

A NEW LEVIS FOR 1915.

We hear from Messrs. Butterfields, Ltd., Stechford, Birmingham, makers of the Levis, that they have for some time been testing a new engine of 53×70 mm. bore and stroke, giving a capacity of 198 c.c., and from this engine such excellent results have been attained that it has been decided to adopt it for the 1915 Levis.

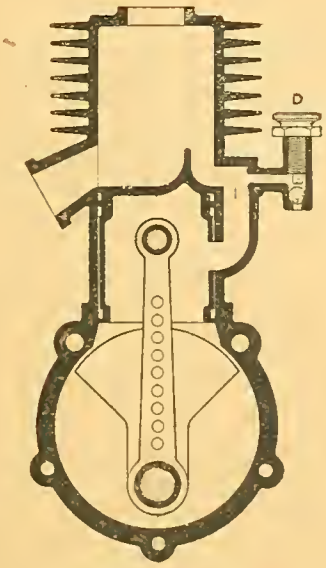
THE 2¼ H.P. PARAGON.

THE Paragon engine differs from our specimen sketches in that the gas is transferred through ports in the piston wall. The Clyno and Connaught are other examples of this type.

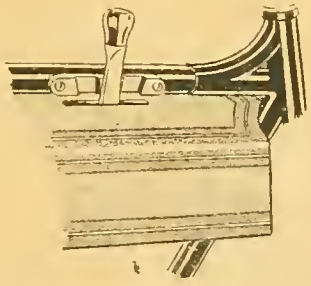


The A.E.C. two-stroke with magneto drive and pulley removed to show engine and gear box carriers.

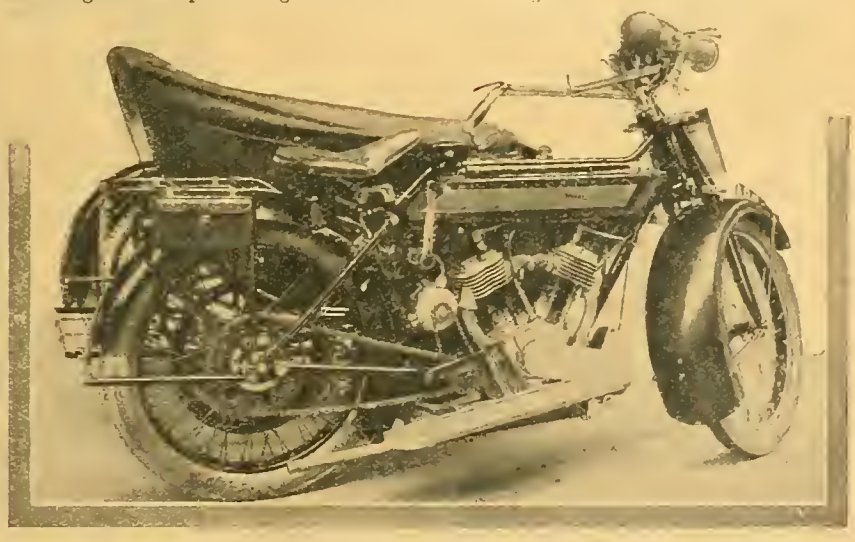
The accompanying sketch shows the latest design of Paragon two-stroke used on the Paragon motor cycle and manufactured by the Portway-Cooper Manufacturing Company, Lower Brantham, near Manningtree, Essex. The bore and stroke respectively are 66 mm. × 70 mm., and the cubical capacity of the cylinder 239 c.c. The engine is of the three-port type, and possesses several new and interesting features, among which we may mention an auxiliary air scavenging device D, which works in the following manner: A is a non-return valve of the ball type placed in the transfer port B, by means of which the transfer passage B' is filled with pure air at each up-stroke of the piston. When the exhaust port C is partly open the transfer passage B2 on the opposite side of the cylinder also begins to be uncovered, at which point most of the exhaust gases leave the cylinder under their own pressure, whereupon pure air rushes through the transfer passage B, followed by a fresh charge of gas, sweeping out what is left of the exhaust gases and preventing these from contaminating the new charge. After much experimenting the Portway-Cooper Manufacturing Company have found that this device adds greatly to the efficiency and economical running of the engine.



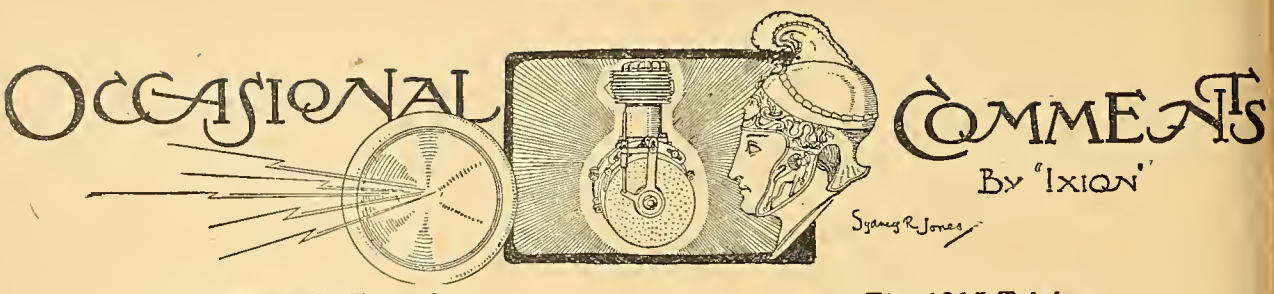
Section of the Paragon engine.



New gear control on the James two-stroke cycle, showing how the tank is designed for the gear lever to project through it.



One of the 8h.p. Enfields in the English Six Days Trial. As will be observed, this machine has the Lucas dynamo fitted to the rear down tube, a frame with dropped top tube, and a new design front mudguard. A sidecar brake was also provided.



The Sheffield Farce?

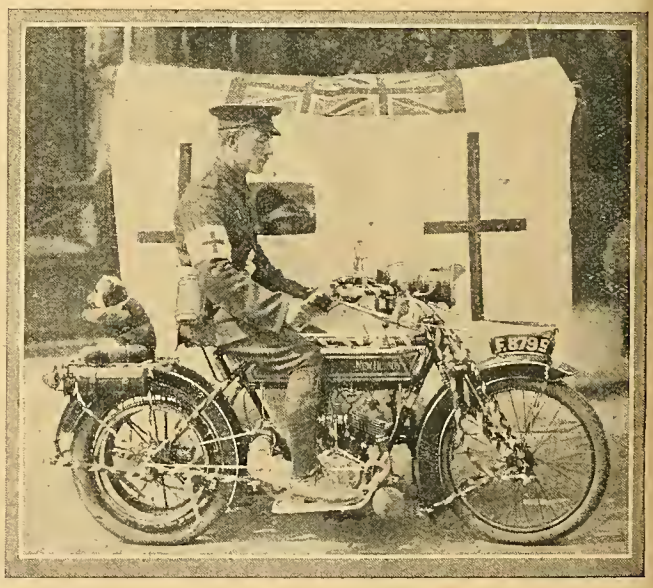
The A.C.U. have my sincerest sympathy. They realise it is their business to differentiate the first class, the second class, third class, and "dud" motor cycles from each other in the interests of such members of the general public as lack inside knowledge of the market. (It used further to be their business to develop and perfect the motor cycle—but that portion of their duties is over, so far as the Six Days are concerned, for the best modern motor bicycles are as good as present knowledge and design permit.) This differentiation cannot be effected by the old-style trial, consisting of a thousand miles of main road, including no worse gradients than Birdlip and Wenlock Edge. I believe I could get a gold medal in such a trial with a 1903 2¾ h.p. Excelsior, provided I was allowed to put a three-speed hub on it; at any rate, any clever rider could make pretty certain of his gold medal with one of the worst 3½ h.p. 1914 machines. Hence the Auto Cycle Union were compelled to launch out; and the line they took was to shorten the mileage in order to include a series of pseudo-scientific and rather petti-fogging technical tests of brakes, petrol consumption, acceleration, and the like, whilst the abbreviated mileage was planned to include a hair-raising, palpitating collection of up and down precipices, a sheet lightning series of freak hills, disfigured by the most appalling surfaces. I do not see what else the A.C.U. could have done. Their mandate from the trade was "organise a six day trial which some of us can get through!" Their mandate from the public was "Help us to distinguish the 'duds' from the 'good 'uns!'" The Sheffield Trial was a tolerable compromise between the two mandates, and a plucky one at that, for it has irritated the trade not a little, jeopardised the authority of the Union, and rendered the whole position with regard to the 1915 Trial one of no small complexity and delicacy.

Where the Trial Misfired.

There will never be any real dissatisfaction with a trial which gives every honest machine a solid chance of a gold medal. There will always be dissatisfaction with a trial which makes it a toss-up whether the best machine in the world finishes or not. *The personal factor must be eliminated as far as possible.* To secure this ideal, we must avoid freak hills, and we must dispense with tests which call for trick riding; dispense, if possible, even with such mild diversions as brake and acceleration tests. (What tourist cares enormously for the last varnish of accelerative vivacity, what need is there of a formal brake test when a machine has covered such a course as last week's fearsome 675 miles?) Here we come into collision with the mandate of the general public; for if the course be too simple, the "duds" will get their golds, and tie for the team prize with the best machine in the world.

The 1915 Trials.

Honestly, I can see but two alternatives which unite respectful obedience to the two reasonable mandates by which the Union must act. The most practicable is a firm adherence to decent roads, coupled with an extension of distance. I never knew a Six Days Trial yet in which quite half of the entry were not in a pretty rickety condition by the last day. I do not mean that their engines were worn out, or their frames on the point of collapsing; but I mean that a seventh day on the road, under even that loose observation which is possible in a Six Days, would have dropped them with a thud from the gold medal to the silver medal grade. A 2,000 miles trial over main roads in 1915, including, if possible, 1,000 miles in Scotland, would certainly differentiate between the various grades of machines, and would leave the "disgruntled retirants" no excuse for failure but the poor quality of their mounts. If the Manufacturers' Union can be persuaded to face the additional expense and to dispense with the services of two or three valuable men apiece for a fortnight in the busy season, this is by far the most promising solution. The R.A.C. was forced to resort to it several years ago, and I see no alternative for the Union, which is really sound. One of our correspondents recently suggested another plan, which sounds grotesque, but is not unpracticable, namely, that every machine of 500 c.c. and over should compete with a sidecar attached and with an observer



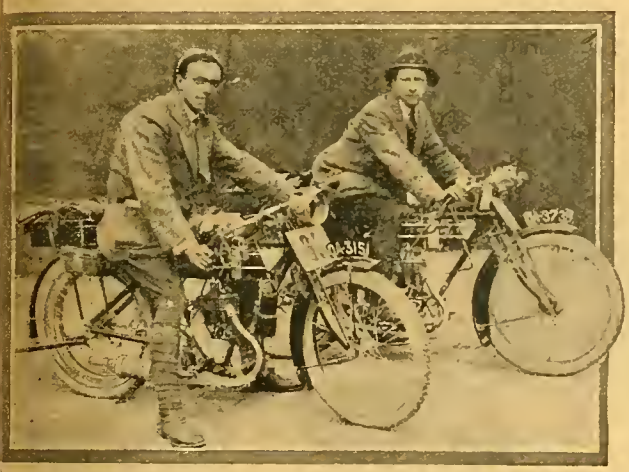
A military motor cycle ambulance seen in a procession at Ilford in aid of the local hospital. The machine is a 6 h.p. New Hudson.

ecasional Comments.—

n the sidecar, the trial to be conducted on a purely ion-stop basis. Entries would have to be limited n order to obtain a sufficiency of trustworthy observers. Tyre stoppages could at last be left unpenalised—within reasonable limits. Most modern machines re specifically designed for sidecar work—at least n occasions. This policy is entirely practicable, and f a fortnight's trial proves impossible, the idea is well worth a trial. Why should not machines be ested under the conditions for which at least 50% f them are purchased?

One Result of the Sidecar Policy.

The majority of petty stoppages are sustained for ooted plugs and minor transmission adjustments. As a consequence of a trials policy, which punishes neither of these ultra-common defects, we still suffer rom crude lubrication systems and transmissions which are unduly tiresome to attend to. Three ears of Six Days Trials on a non-stop basis would go far towards equipping us with scientific lubrication systems, and with chains, chain cases, gears,



A couple of 2½ h.p. New Imperial-Jap machines, which survived the strenuous conditions of the A.C.U. Six Days Trials with Sheffield as centre. They were ridden by J. Drew and P. S. Taylor.

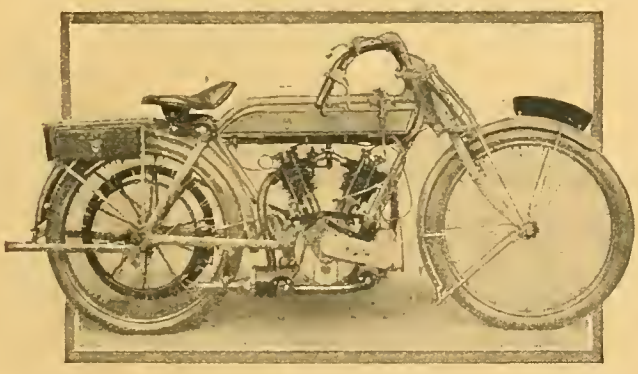
etc., which required less attention than their present forerunners, and demanded less expenditure of time when the inevitable stoppage arrived. Nevertheless, I confess that the 2,000 miles plan has my preference. Over and over again have I used a machine of re-nowned make with vast pleasure for eight or nine hundred miles, only to find that, as it approached its fourth figure, the power fell sadly away. I do not apprehend that many machines would expire during 2,000 miles of main road work. But I am sure that many would encounter trouble with their detail work, and that the majority of the engines would be a full 25% less powerful at the finish than they were at the start. Such a trial would be peculiarly interesting if a power test, *e.g.*, speed on the track, commenced and concluded the fortnight; and the award of cups for the best performances in all classes would induce entrants to undergo such power tests without "foxing." A minimum speed of 50 m.p.h. could be demanded from all the 500 c.c. machines prior to the start; and the finishing track test, for heavy

Tilting at the ring on motor bicycles was one of the events included at the Lillywhite sports at Foleshill, Warwickshire.

bonuses, would, of course be a genuine "all out" affair

A Better Way.

I am all in favour of gold medals being restricted to riders who obtain a perfect time and reliability score; and also of such trifling errors as those described above being disregarded *in toto* on rational evidence, especially where a man is accidentally *early*. If a man is *late*, and produces some excuse, I should require the most convincing evidence to admit his claim to a clean sheet; but I should feel it my duty to receive and to weigh all the evidence, because it is not a matter of whether Jones shall gratify his personal pride by winning a gold medal, or whether the Whirlwind Co. shall gain the team prize or not; it is a matter of supplying the public with accurate and lucid information. But there was no excuse for that Irishman's bonus, and I hope no future trial will be disfigured by so ridiculous an anomaly. Fancy climbing all the frightful test hills, bringing your machine through in perfect condition, being well ahead of time at thirty-nine checks out of forty, being a minute early at the fortieth check because your watch had suddenly accelerated about 1½%, and then being published as worthy of only 144 marks out of the maximum 195! (I ought to add that I was not a competitor, or my criticisms may be discounted as being interested.)

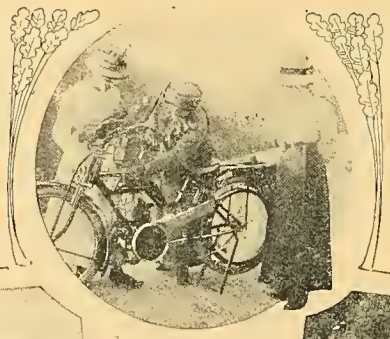


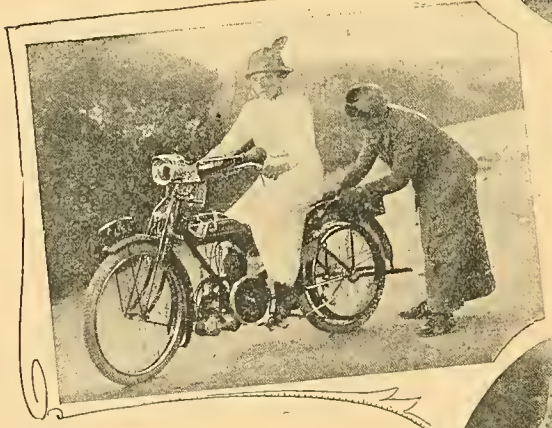
A 3½ h.p. overhead valve Hazlewood, built to special order. This is a very neat example of a fast roadster, but will not be made a standard model.

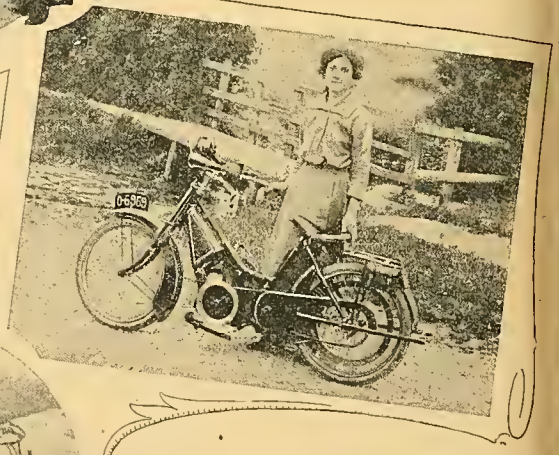
THIS week I am going to talk upon two-strokes, to discuss their suitability for feminine requirements, and to review several interesting models that have been placed at my disposal by the courtesy of their manufacturers. The two-stroke is generally a lightweight machine, and as such appeals most strongly to the novice and the fair sex, especially as it can so easily be placed in a low frame.

The first machine that I would mention is the Velôcette, a low-built open-framed mount of pleasing design. The frame, finished in black enamel, allows ample dress room. The engine is of $2\frac{1}{4}$ h.p., made by Messrs. Velôce, fitted with two-speed gear controlled from the handle-bar. The manufacturers of the Velôce are, I believe, famous for its effective lubrication arrangement. A small oil sump, holding a pint of oil, is fitted in the left side of the crank case. Pressure from the exhaust gases is so directed that lubrication is forced automatically

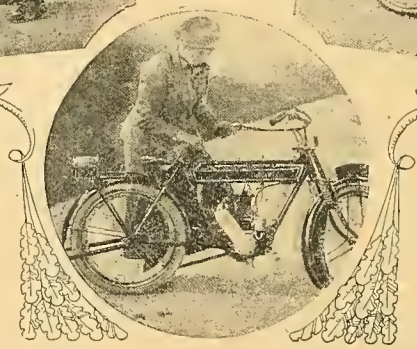
LADIES AND LIGHTWEIGHTS.







(2) Her first ride. "The push off."



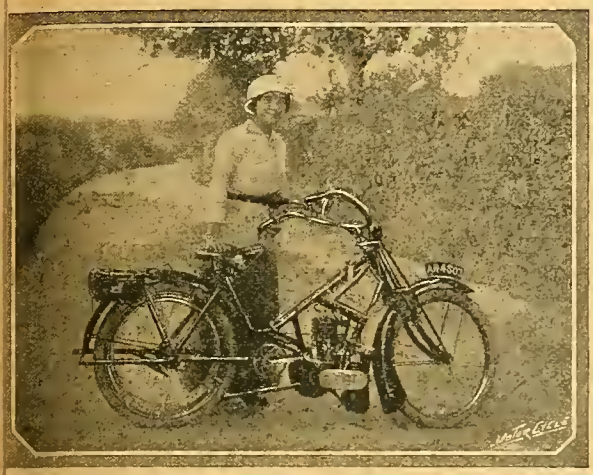
(1) Instructing novices in the use of the spark lever.
(4) The Hobart two-stroke.

(3) The Velocette.

—certainly an ingenious method to carry the necessary oil to the working parts! The flywheel is fitted on the left side of the machine, and the drive is by means of chains, and although I gave this tiny mount a good testing on the road, I never noticed anything harsh in the transmission. To protect the skirt of the rider a small metal guard is fitted over the engine. The sparking plug projects through an aperture in this. I wondered whether this being so exposed would cause shorting in wet weather. Possibly not, or the high tension wire would be carried under the engine shield. The wheels are but 24in. in height. Aluminium footboards are fitted. These are a great advantage for comfort over tiny foot-rests, but even these would be improved if covered with rubber to absorb vibration and to give the feet more grip. In all my tests the Velôcette showed up well, the top gear giving smooth running and the low the slowest of speeds for traffic. This mount, fitted with a Senspray carburetter, is priced at thirty-two guineas.

The Two-stroke Hobart.

Another attractive little machine, particularly light and lively, is the new Hobart two-stroke. In appearance it is especially smart, its highly finished black and gold tank making it look like a miniature "Sunbeam." The $2\frac{1}{4}$ h.p. engine, of Messrs. Hobart Bird's own manufacture, is quiet and efficient. The magneto is fitted behind the engine, well away from the mud and water splashes of dirty weather. Lubrication is



Miss May Sansom, of Redbourne, with her open frame Connaught two-stroke.

effected by mixing oil with the petrol in the usual quantity, viz., half-pint of oil to one gallon of spirit. Again the Senspray carburetter was fitted as standard. The machine is only single geared, and driven by ¾in. Dunlop belt. I gave the machine a good gruelling over country roads, and found it capable of thirty miles an hour on the level. The height from the ground is lower than in most diamond framed machines, partly accounted for by its 24in. wheels. Foot-rests are fitted as standard, but, if I may make the suggestion, foot-boards would be an improvement.

The Royal Ruby.

Made in Manchester, this is a mount of striking appearance, as the tank is finished in the colour that befits its name. It is fitted with a 2½ h.p. Villiers engine, two-speed counter-shaft gear, a ¾in. Lyso belt giving the final transmission. An Amac carburetter is fitted as standard. This machine is well worth a trial, its detail work being especially good. The rear brake has a direct pull operated by a pedal at the rider's left heel. The tank, too, has a filler cap worthy of the name, and the belt pulley is of sensible dimensions, thus lessening belt wear—nothing seems so disastrous to belts as the tiny pulleys sometimes fitted. I put the machine through a test containing a long hill which boasts a gradient of 1 in 8. The engine answered readily, and I changed into bottom gear only for the top portion. From a lady's point of view the Royal Ruby is easy to handle and comfortable to ride.

The Two-stroke Chater-Lea.

Messrs. Chater-Lea, a name which has long been associated with high-powered sidecar outfits, are now turning their attention to a two-stroke lightweight. With an engine of 2¼ h.p., the machine placed at my disposal has a diamond frame and is fitted with a counter-shaft two-speed gear. The standard specification includes a comfortable Brooks saddle and Palmer tyres. On the road the machine travelled well at 25 m.p.h., but was inclined to choke at higher speeds—most probably due to its being fitted with a jet of unsuitable size. The drilled belt pulley is an exceptionally large one. Oil and petrol are mixed in the usual quantities. The mount lent to me for a trial was by no means new, but its climbing powers were vigorous and praiseworthy.

The New Ryder.

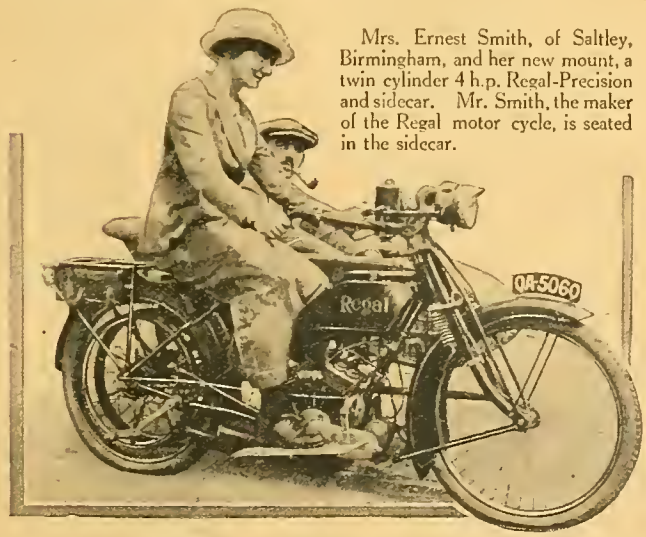
This is made in both open and diamond framed models. The open framed lady's model is the first of this make that I have handled. It is fitted with the popular Villiers 2½ h.p. engine and silenced so effectively that it is one of the quietest machines I have ridden. The frame is well designed and has a neat dress shield fitted and a well-made belt guard right from pulley to back wheel stays. The tank capacity is half gallon with a separate compartment for oil. Lubrication is effected by giving one charge of oil from pump to each half gallon of petrol. The carburetter is a Senspray. Twenty-six inch wheels are standard, and no one could wish for a simpler machine to ride.

If I may here suggest an improvement, footboards, already mentioned, are essential to the fair rider's comfort, and, in my opinion, a clutch should always be standard on a lady's mount. The two-stroke engine, if in tune, starts with the first push of the machine, but where no pedals are fitted a novice has either to have a push off or make a running mount, and this one is loth to do until one becomes perfectly familiar with the machine. Personally, this would not trouble me, as, being an "old hand," I can generally manage to climb astride anything on wheels, but one young lady of my acquaintance, who has yet to make her first running mount, when wishing to start, casts her eyes about for someone to whom she can apply for the necessary assistance.

The Connaught is another two-stroke that caters for the fair sex. A friend of mine who has recently invested in one is quite pleased with its pulling powers and generally good behaviour.

I cannot close without a word on the open framed Levis. The machine I had on trial some time ago was so satisfactory that I was quite sorry to part with it. Two firms who inform me they are shortly placing a lady's two-stroke model on the market are Messrs. Newman, of Birmingham, and the Clyno Engineering Co., of Wolverhampton.

A little tip that I have found of benefit on two-strokes is to shake a machine that has been standing all night. This removes the heavy oil from the bottom of the tank, and naturally gives a better mixture to start off with.



Mrs. Ernest Smith, of Saltley, Birmingham, and her new mount, a twin cylinder 4 h.p. Regal-Precision and sidecar. Mr. Smith, the maker of the Regal motor cycle, is seated in the sidecar.

The Action of a Two-stroke Engine.

IN spite of the fact that the two-stroke engine has become so popular of late and is appearing on the market under the protection of the names of the best known manufactures and designers, there are many who do not realise the extraordinary simplicity of the engine or the principle on which it acts. In consequence, a series of diagrams has been prepared with the object of explaining as clearly as possible the cycle of operations.

The diagrams show a transverse sectional elevation of an imaginary two-stroke, designed to show some of the most usual features of present-day machines.

Fig. 1 shows the piston at the top of its travel. It will be noticed that the lower edge of the piston is above the top of the inlet port and that gas is still flowing into the crank case and lower part of the cylinder, due to the partial vacuum caused in these parts by the upward movement of the piston before reaching its highest point.

To simplify the explanation the reader is asked to imagine that above the piston is a fully compressed charge on the point of being fired; how it got there will appear in due course. The force of the explosion taking place above the piston naturally drives it downwards with the following results. First the inlet port is closed by the lower edge of the piston, so that the gas, drawn into the crank chamber on the up stroke, becomes slightly compressed. Next, the upper edge of the piston begins to uncover the exhaust port, which, as is shown in fig. 2, opens somewhat before the transfer port. This reduces the presure of the exploded gases to something approaching atmospheric pressure before the transfer port is opened.

Fig. 3 shows the piston at the bottom of the stroke with both transfer and exhaust ports wide open. The arrows show the charge compressed in the crank case being transferred to the cylinder and taking the place of the previously exploded charge. The use of the deflector is now clearly seen, for it turns the incoming gases upwards, where they help to push out the exhausted charge, instead of shooting straight across the piston head and out of the exhaust port as would

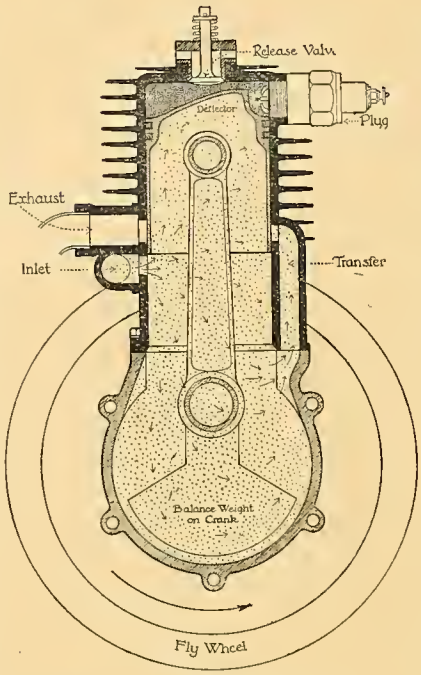


Fig. 1.
Compressed change on point of firing—Exhaust and transfer ports closed—Inlet port open showing gas filling crank case and lower part of cylinder.

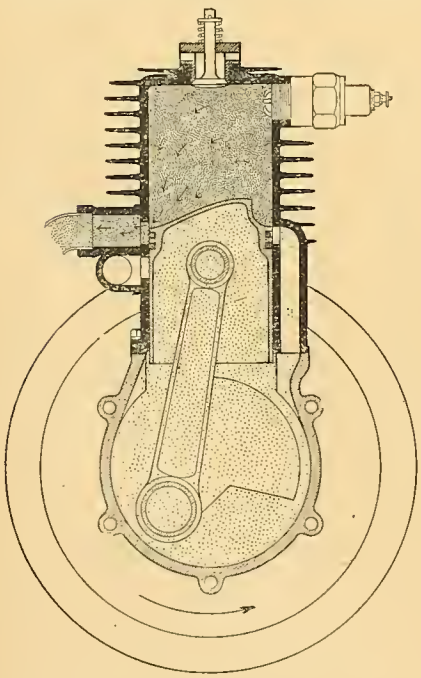


Fig. 2.
End of explosion stroke—exhaust port partly open—exhaust gases commencing to pass out—Inlet port and transfer port closed—Gas in crank case fully compressed.

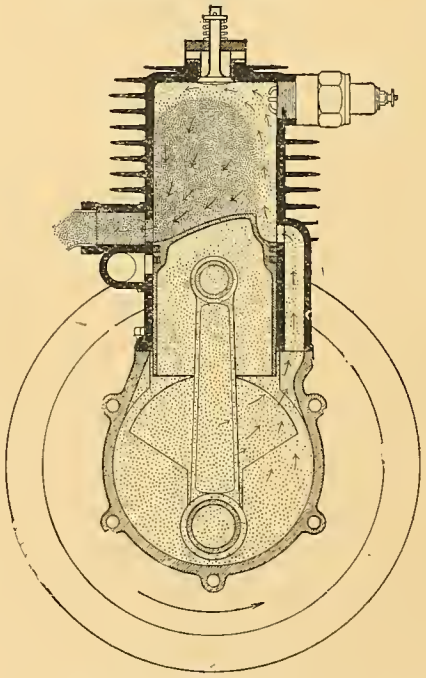


Fig. 3.
Piston at bottom—Exhaust and transfer ports open—Inlet port closed—Fresh charge passing into cylinder via transfer port and deflector plate, exhaust gases (shaded darker) passing out.

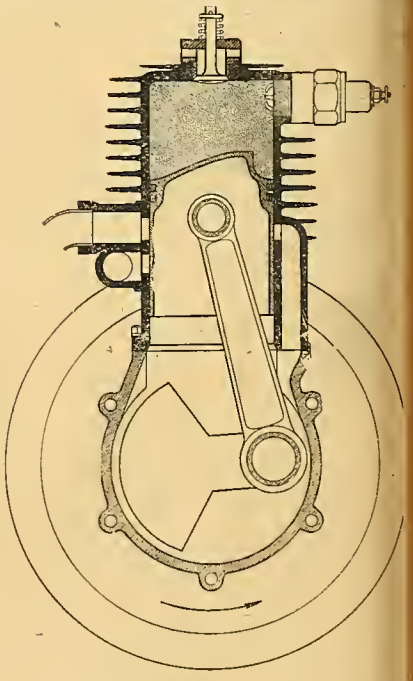


Fig. 4.
Piston rising—All ports closed—Fresh charge being compressed—Partial vacuum in crank case.

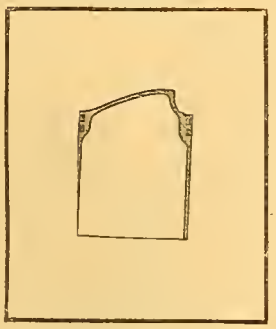
e Action of a Two-stroke Engine.—

ppen if there was no deflector. When the piston arts to ascend once more, firstly the transfer port is osed and then the exhaust port.

In fig. 4 the piston is part way on the up stroke th all three ports closed and the transferred charge ing compressed above the piston ready for firing, hile below the piston a vacuum is forming, the gative pressure of which will increase until the let port is uncovered by the lower edge of the piston, hen a fresh charge of petrol and air will be induced d the cycle will proceed as before.

This then shows clearly how an explosion takes ace once every complete revolution of the crankshaft, stead of every other revolution as is the case with e four-stroke type. It must not, however, be agined that double the power is produced, as, for rtain mechanical reasons, each explosion of a two-stroke is less powerful than that of a four-stroke of similar capacity.

CUT THIS OUT.



By placing piston on cylinder diagrams the port openings may be clearly seen in all positions of the piston

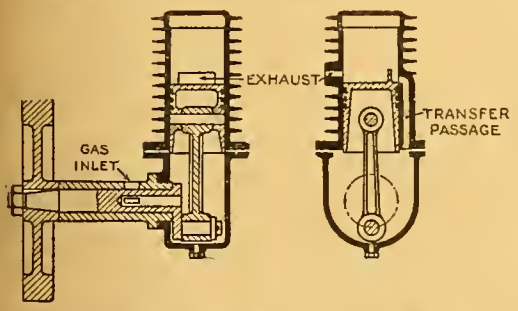
To follow the action of a two-stroke engine and the various port openings, cut out the drawing of the piston adjoining, stick it on a piece of card, and fit it inside one of the engine drawings which are given on the opposite page. By moving the piston up and down, the port openings will be seen, and it should be possible for the merest novice to acquire the principle of the two-stroke engine.

The Two-stroke Lightweight.

BY ERIC W. WALFORD.

TO the writer it seems that the two-stroke engine is almost ideal for lightweight machines, for a number of reasons.

The majority of riders of these machines are inexperienced, and the two-stroke engine, on account of e absence of valves, requires very little attention. he only two parts liable to become deranged are the agneto and the carburetter, and both can easily be etached from the machine and sent back to the makers r re-adjustment. The magneto runs at engine eed instead of half engine speed, as on the four-roke engine, so that at low engine speeds there is ore certainty of firing. The suction in the crank hamber suddenly acts on the carburetter, so that car-uration at low speeds is more certain. For this



The Ixion two-stroke engine, now twelve years old.

eason and for that mentioned in connection with the agneto, the two-stroke engine should be an easy tarter.

Another important point concerning the lightweight wo-stroke is that a larger belt pulley can be used han with the ordinary type of engine, so that the iny pulley usually employed on lightweights, with ts accompanying belt troubles, can be dispensed with. With the small engines likely to be used on light-weight machines cooling troubles are hardly likely to e met with, though with larger engines the general pinion is that water cooling is essential. To this nust be added that the two-stroke engine is lighter nd smaller for a given power—both important points n a small machine.

Many old motor cyclists will remember that in 1902 a lightweight machine with a two-stroke engine was produced. I refer to the Ixion motor, and it may be of interest to describe this, as it possesses some features very different from those almost universally employed in the modern two-stroke engine.

An Ancient Two-stroke.

From the drawings it will be gathered that crank case compression was used, with the usual transfer passage through which the gas passes and is deflected by means of a baffle on the piston up to the top of the cylinder. There is the usual bottom exhaust port, but gas entered the crank chamber through the hollow crankshaft. The crankshaft was bored out for a few inches and a radial slot was formed which came into register once per revolution with a port in the crankshaft bearing. Thus at the right time once per revolution the crank chamber drew in gas from the carburetter through this port and hollow crankshaft. Nowadays, nearly all successful motor cycle two-stroke engines such as are used on lightweights are of the three-port type, there being two ports above the piston, as in the engine illustrated, and one port in the cylinder wall, which is only uncovered by the piston when it approaches the top of its stroke.

The Ixion engine illustrated was fitted in front of the steering head of the machine, and a friction pulley attached to the flywheel was pressed against the tyre, the whole engine being rocked to move the pulley into and out of contact. I rode one of these machines once or twice. It was geared very low and did not compare at all favourably with the modern two-stroke lightweight. In fact, the one I used would not reach a higher speed than twenty miles an hour. A larger engine than this was eventually made, but it never met with any great success.

AN ILLUSTRATED BUYERS' GUIDE

(compiled by "The Motor Cycle") of 55 Two-stroke and Lightweight motor cycles will be found on pages 131 to 142 of this issue.

What Lightweights can do IN LAKELAND

By GEORGE D. ABRAHAM,
Author of "Motor Ways in Lakeland,"
"Mountain Adventures at Home and Abroad,"
"The Complete Mountaineer," etc., etc.

The two-stroke Clyno lightweight topping Hill Step on Honister Pass.

IT is over three years since a crowd of enthusiasts gathered on the heights of Honister Pass to watch the first ascent of the notorious hill by a sidecar. We all remember how, 'midst a cloud of smoke and a roar of engine, the Clyno wriggled and jumped up the fearsome gradient on the Buttermere side at the first attempt. There are also memories of innumerable motor cycles hurled at the shaly, slippery scarp by redoubtable riders who were loth to acknowledge defeat. Handicapped by high gears and single speeds, many a sportsman bit the dust, or would have done but for the utter stoniness of the road. The local opinion that no motor cycle could climb Honister Pass was almost justified. On that occasion only Vernon Taylor on a powerful single-cylinder Rudge made what might be called a clean and satisfactory ascent.

Since that record day and the one shortly succeeding it, when C. R. Collier mounted the pass on a Matchless sidecar machine, the place has lost none of its terrors. Motor cars stick regularly on the hill, and have to be rescued. Our proposal to include the climb in last year's Six Days Trials brought only a negative smile from the secretary of the A.C.U. It is still looked upon as the limit in the way of hills. Thus my suggestion, which came originally from the editor of *The Motor Cycle*, that lightweights might climb the pass was received locally with scant encouragement. "Utterly impossible!" was the remark of one enthusiast. How could engines little more than half the size of those used such a short time ago succeed? Yet again the impossible has been achieved, and now there are rumours in the air that a lightweight might climb Skiddaw, with its almost trackless steeps and heather frontage. Unlike Snowdon and Ben Nevis, there are no proper tracks or roads to the top of Lakeland's mountains.

These ultra-modern light machines are decidedly scarce in the vicinity of Lakeland, and the popular doubts of their capability in such a hilly country would doubtless largely account for this. Thus there was great difficulty in finding enthusiasts who would tackle the notorious hills. This seemed unnecessary modesty, for an O.K. had shown its abilities by clean ascents of Kirkstone Pass from Ambleside, and also Red Bank at Grasmere, despite a day of excessive moisture and mud. A 2¼ h.p. Triumph as well as a 2¼ h.p. Clyno climbed the old road up Honister Pass from Seatoller splendidly. The gradients here are severe and stony, while 1 in 4 and 1 in 4½ stretches are frequent.

Preparing for the Attack.

But my plans to get a representative number of lightweights on the westerly side of Honister Pass or on Buttermere Hause seemed doomed to failure. The O.K. had an unexpected appointment to fulfil, and another—or at least its rider—had married a wife and could not come. Thus, after another postponement through bad weather, we finally foregathered a few days ago at Buttermere Hotel, to find only a Connaught and a Clyno to represent the lightweight brigade. There were several big machines, a few quite suitable for the work in hand, so an interesting time was expected.

Over rain-sodden roads we had reached Buttermere by Lorton, having skidded up one side of Whinlatter Pass and slid down the other. The air was heavy with vapour and great mist curtains were unrolling themselves from the grey mountains which rose over the roadway. The village weather prophet was consulted when a slight rain began to fall. In characteristic dialect he answered guardedly: "Ay! ay! it'll mappen, donk and dezzle a bit, an' appen cast a snifter, but ther'll be nea greet pelt!" Southerners in the party were as puzzled with this as though it were some foreign tongue. Translated tersely, it meant there would be light showers but no great pelt or downpour, which was reassuring.

Thus first of all we set forth for Buttermere Hause. From the seat of a remarkably useful Rudge sidecar I had an excellent opportunity of realising the efficiency of a typical up-to-date lightweight. As we curled up into the misty heights, and climbed the long upper rise, where 1 in 4½ was the prevailing gradient and deep

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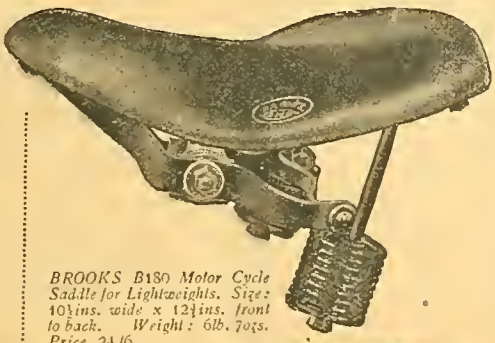
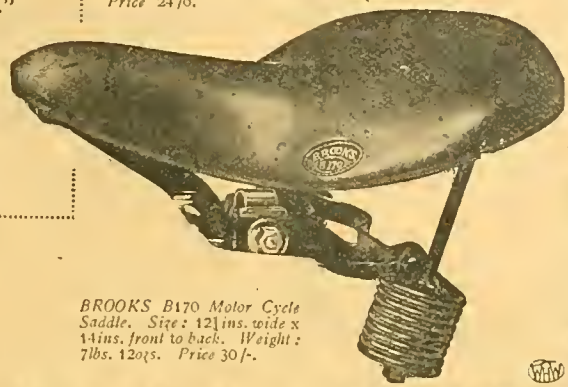


BROOKS B180 Motor Cycle Saddle for Lightweights. Size: 10½ins. wide x 12½ins. front to back. Weight: 6lb. 7ozs. Price 24/6.



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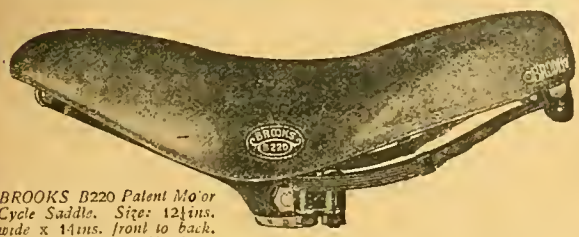

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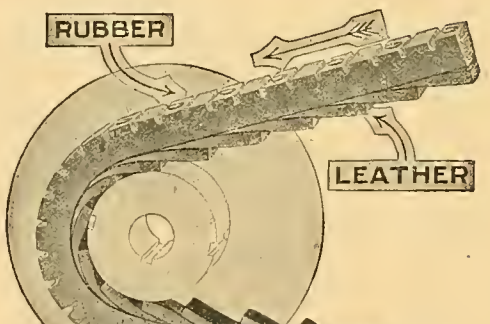

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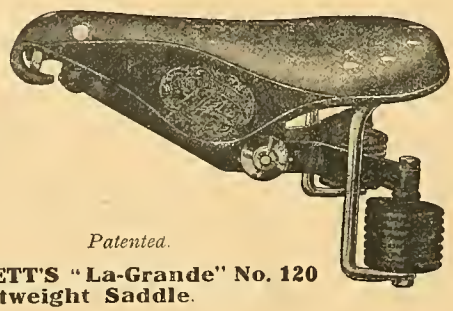

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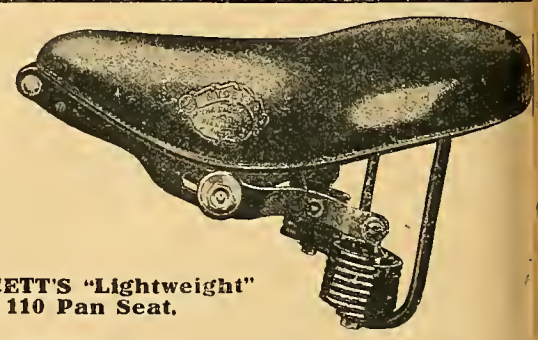


LYCETT'S "Lightweight" No. 110 Pan Seat.

What Lightweights can do in Lakeland.—

Crosswise-running ruts provided the prevailing surface, when there was a roar from below. It was George Braithwaite on the Clyno, and soon he whirred past us and up to the final zig-zag, negotiating this and the awkward ruts with a master hand, but never a foot. The Clyno took a weight of over thirteen solid stone up without a falter, and the slow, steady pull of the little engine was astonishing to those accustomed to the thrilling rushes of the bigger machines, which usually need skilful footwork on the hairpins. The contrast was soon in evidence, for Jeffreys, a famous north country speedman, came up next. But he jumped over the ruts carefully because the low-set crank case of his 8 h.p. Zenith had already one breakage plugged by a cork.

reached, but from the steeper side. The easterly approach to the famous pass was found in remarkably good condition, for the newly-surfaced road was as yet unspoiled by the chain-skidded wheels of the heavy coaching traffic.

As usual, loose shale about a foot deep was expected, but there was now splendid grip on the firm slope, despite the gradient of 1 in 3⅝. Those coming to Lakeland this season may be glad to know of this improvement. The distance from Keswick to Buttermere over the Hause and up the interesting Devil's Elbow is only eight miles; by Whinlatter Pass it is nearly double, whilst the usual roundabout route by Embleton, near Cockermouth, is upwards of twenty miles. Any lightweight as efficient as "the two C's" could tackle the Hause route easily, and since our visit

LIGHTWEIGHTS IN LAKELAND.

The Connaught nearing the crest of Buttermere Hause.

Nearing the top of Honister Pass. Honister Crag is seen on the left

Climbing the 1 in 3¾ gradient of Hill Step, Honister Pass.

Other "big guns" followed, and then all interest was concentrated on the ascent of the Connaught. The machine had yet to win its spurs on the biggest Lakeland hills, and its rider, D. R. Leitch, was new to motor-mountaineering, but the two tyros behaved splendidly. The "wash-outs" were negotiated slowly, and the pick-up of the engine on the intervening 1 in 4½ rises was remarkable. The final corner was taken more quickly, despite the short step of 1 in 3¾, and the little two-stroke finished in perfect style.

Then the descent into Newlands Vale was made, and thence the summit of the Hause was again

an O.K., with a yet smaller engine, and a 2¼ h.p. Triumph have made the crossing.

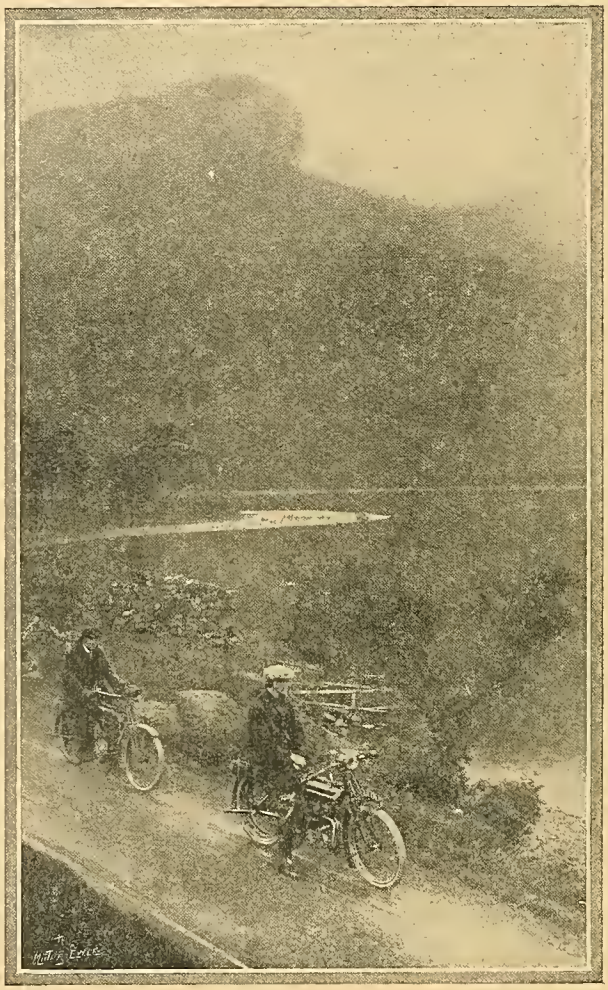
Then a slight shower chased us back into the dale, and along the shores of Buttermere we hurried Honister-wards. On such a day the approach was magnificent. The lake lay black as ink in the depths, and great clouds, the aftermath of a thunderstorm, surged savagely amongst the dark crags. Soon we entered the "narrows" of the pass, where grey cliffs plunged down on either hand, and the road darted up into the whirling mist. The Rudge, much overloaded and over-geared

What Lightweights can do in Lakeland.—

for such work, soon reached its limit on the steep, loose slope, so we walked up to Hill Step, the crux of the climb, to await the coming of the others.

What the Pass is like.

Some time ago the gradients of the Honister Pass on the Buttermere side were measured in close detail, and it may be interesting to give here the main points. First of all the surface is the impressive feature and a disturbing one withal for those who attempt to ride its rock-strewn roughnesses. In this respect it is no exaggeration to say that the road is a disgrace to the local authorities, and, considering its importance to the considerable coaching traffic which makes use of it daily, its neglect is difficult to understand. At the present time it is in an exceptionally unkempt condition, especially in the lower stretches. From Gatesgarth, the last farmhouse up the valley, to the foot of the real struggle, about $1\frac{3}{4}$ miles, the surface is good. Thence to the summit, 1,190 feet above sea level, the distance is threequarters of a mile, and the difference in level is about 550 feet. Steep and rough travelling is encountered immediately the bridge over the mountain torrent is crossed. A wide S turn culminates in twenty-two yards of 1 in $4\frac{1}{2}$ and six yards of 1 in 4. After an ensuing hundred yard stretch of 1 in 6 there comes a swerve to the right on a rise of 1 in 5, and beyond this the second bridge is approached up an easier portion of 1 in 10. This affords acceleration for the crux of the climb, which begins quickly with a gradient of 1 in $7\frac{1}{2}$, gradually becoming rougher and steepening to 1 in $5\frac{1}{2}$ for twenty-two yards. Now, on an incline of 1 in $4\frac{3}{4}$, there is a left-hand turn to the foot of Hill Step proper, which is gained over about fifty yards of 1 in 5. Hill Step itself is fairly straight with a slight swerve to the right in the upper part. The surface still grows rougher, and at the start up the "Step" the gradient of 1 in 4 to 1 in $3\frac{3}{4}$ makes the bumpy slipperiness felt unpleasantly. There is a fairly steady climb for fifty yards up the rise of 1 in 4, and then about twenty-two yards of 1 in $3\frac{3}{4}$ culminates in six yards of 1 in $3\frac{1}{4}$. After fifteen yards of 1 in 4 and 1 in $4\frac{1}{2}$, the rock-exposed, slippery, final stretch is approached. This notorious and dangerous bit is about twenty yards in length and begins with ten yards of 1 in 4. The middle part has a gradient of 1 in $3\frac{1}{2}$, and finally the six yard rocky portion inclined at an angle of 1 in $3\frac{1}{4}$ has to be surmounted. But now the gradient becomes more favourable and the surface loses some of its roughness. The upper part consists of an ascent of about 300 yards up an average gradient of 1 in 6, and just under the summit the last fifty yards steepen again to 1 in $4\frac{1}{2}$.



A halt on the shores of Buttermere Lake, with the clouds lifting off the lofty crest of High Crag.

Such was the problem the lightweights had to tackle. Few were hopeful of success, and when Jeffreys came up on the Zenith—but perhaps more correctly speaking, mostly in mid air, on account of the bumpiness—prospects seemed still blacker. The road thus cleared, a tiny black speck was seen to detach itself from the group of machines at the foot of the hill. It disappeared on the lower corners, but quickly came into sight again, flashing across the easier stretch below Hill Step. Leitch on the Connaught was soon recognised by the stubborn way he kept his feet on the footrests, even with the lively little machine leaping bodily on the shifting stones. On his first attempt, by good luck or good management, he avoided the roughest section, and whirred steadily up the front of Hill Step. The driving wheel spun helplessly for a moment, but with cool deliberation and regardless of the airy downward prospect, the rider found firm hold on the road close to the precipitous edge. Thus the final steepness was overcome, and we hurried upwards to congratulate the first lightweight rider to scale Honister Pass.

The Clyno came next, and the steadiness of its ascent was remarkable. Perhaps a previous knowledge of the soundest part of the surface accounted for this, and, after all, the experience of a motor mountaineer like George Braithwaite counts for something in the success of the machine on such a place. The steepness of the gradient seemed to have little effect so long as a grip could be found for the driving wheel. Some amusing and less graceful things happened when other experts were allowed to pilot the lightweights up the pass. Thus ended a strenuous and interesting day.

INSON

Triumph

h

DAYS TRIALS

own, embracing terrific hills,
n tracks, 50% of competitors
e of trouble encountered with
CN TYRES.

preciation from prominent riders:

E Guest, the most successful trial rider this year.

a Sirs,

If motor cyclists could only know what I know about your tyres ey wouldn't need to be bewildered about a host of tyre adverts. all ing "the best." I have won gold medals and several special cups is ear in all the leading trials, including both Six Days, and have yet experience a puncture. (Touch wood!)

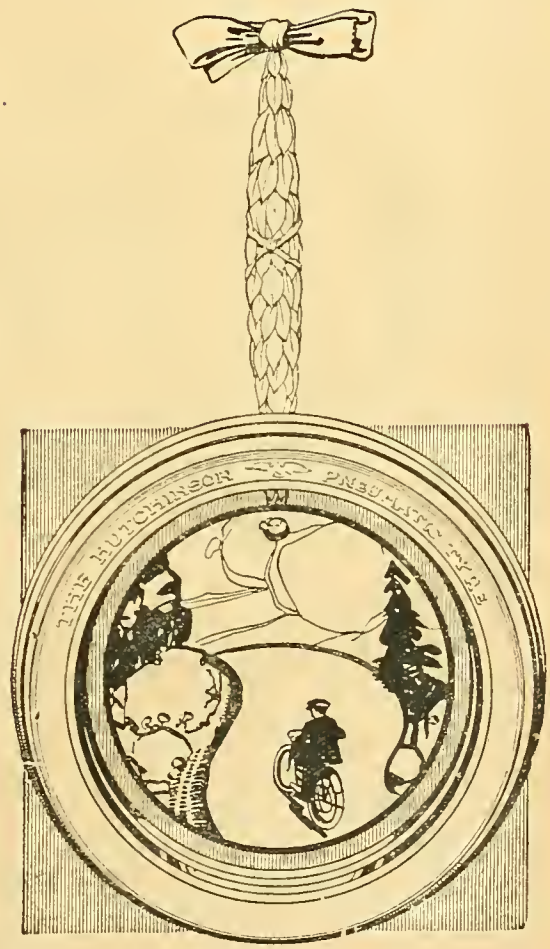
R. E GUEST.

tt. the successful Clyno rider.

ea Sirs,

I have been obtaining extraordinary results from your tyres, I in you should know of it. I have obtained Gold Medals in all the ng trials, including London—Exeter, London—Edinburgh, Scottish x ays, and English Six Days, and have never yet had a puncture ite of the appalling road surfaces.

G. NOTT.



lasinghall St., London, E.C.

this to riders of HUTCHINSON TYRES.

In answering this advertisement it is desirable to mention "The Motor Cycle."

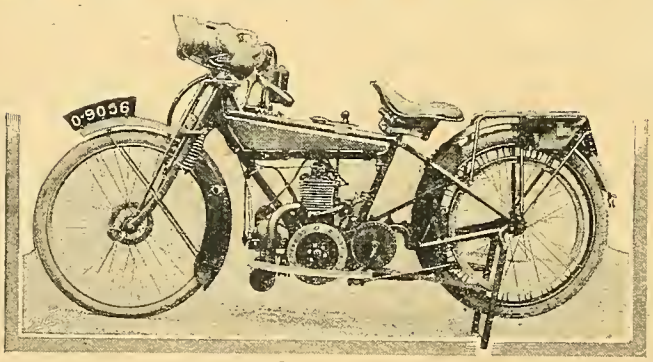
C3

Where a Lightweight Scores.—

phant conquest should be assured within a very brief period. The first problem is springing. Any motor cyclist who is also a push cyclist knows how unpleasant a bicycle feels at 10 or 15 m.p.h. by comparison with the heavy stable 3½ h.p. touring motor cycle. A somewhat similar sensation affects him when he drives a second-rate lightweight. The shocks and jars of the road are transmitted too intimately to the light frame, and his impression is that every detail "dithers" a little too rapidly. The best makers are mastering this difficulty. The little two-strokes seemed to ride the stony moorland tracks in the recent Six Days Trials quite as evenly as the heavier machines, and their riders were quite fresh after a gruelling day's rough-riding. All that is needed is sound fork design, light, stiff tubing, with perhaps more trussing and girdering than the weighty 3½ h.p. frame tubes demand, and saddles which are comfortable without being too heavy.

The Question of Keeping the Time.

The second and most thorny problem is power maintenance. A 3½ h.p. engine always has power in reserve, and when it is 50% below factory tune is still rideable. A 2 h.p. has a very narrow margin of reserve power, and if through poor design or workmanship, or by careless handling, its engine deteriorates so that only half or two-thirds of its normal efficiency is developed, the rider must continually re-



A DROPPED FRAME TWO-STROKE.

A new model two-stroke machine, which Messrs. Alldays and Onions are testing on the road with a view to adoption for 1915. It will be observed that the top tube is dropped similar to the Alldays T.T. model.

sort to his second or bottom gear, and occasionally fail to climb such hills as Birdlip. Here, too, great strides are being made. Metallurgy is better comprehended, so that valves and piston rings stand up well. The two-stroke, with its lubrication *via* the carburetter, has inspired the designers of four-stroke engines to devise small high speed power units which do not carbonise so rapidly as their prototypes. Carburation is improving with giant strides. The detachable items which affect engine efficiency, such as valve caps, are no longer so flimsy that they crumple up if they are properly tightened. Some of the smallest engines in the Scottish Trials were apparently producing their full power on the last day; the crackle of their exhausts had not become "woolly," but rang as sharp and tight as at the start. All this is vastly encouraging.

The Transmission Question.

The transmission bugbears, which vitiated the early lightweights, are things of the past. The two-step drive has banished the old dollar-diameter pulley and its resultant belt troubles; at least one baby machine got through the Scottish week without a single belt stoppage.

On the whole, I should identify the problems of providing a high standard of comfort for the rider and of designing all the tiny fittings so as to be vibration and fracture-proof as the most obstinate survivors of a dwindling catalogue of difficulties; and I should assert with confidence that the trade, as a whole, is laying masterful fingers on these familiar weaknesses.

The outlook, then, is in every way encouraging, and we may proceed to notice the special opportunities open to the baby machines.

Storage has already been dealt with. An ordinarily strong man can tuck a lightweight under his arm and carry it to the most inaccessible corner of a backyard; an old man or a young girl may throw its transmission out of gear and wheel it with consummate ease. Taking it into the road, starting it, and supporting it during stoppages are child's play. Its ease of handling will attract many tyros who shrank from the 200 lb. machines.

Economy is the real *clou* of the modern lightweight. First cost, however, fails to represent the full economy of the lightweight. After a run of a thousand miles the back tyre of a 3½ h.p. has no central studs left; the back tyre of a lightweight shows no real signs of wear after a similar distance. I inspected the rear tyre of one two-stroke lightweight after the Six Days Trial, and it looked as if it had done about 200 miles. The petrol consumption is about forty per cent. less than that of a 3½ h.p. and the transmission wears astoundingly well. Depreciation is small, because the first cost is low.

Lightweights for Lady Riders.

A side issue of distinct interest consists in the attitude of women towards the motor cycle, as it may be affected by the lightweight. The modern girl is hemispheres removed from her Victorian predecessors; she is growing more emancipated every day. There are thousands of golfing, tennis-playing girls with small private incomes and allowances, and there are distinct signs that the lightweight is appealing to them. The other day I saw a girl of 18 or so threading her way through the worst city traffic on a Levis, with her small brother on the carrier. I remember hearing a married woman practically hooted as she drove through a Midland town on her motor cycle only six years ago, but nobody even turned to stare at this slip of a girl piloting her double outfit through a busy street.

After many premature boostings and chequered vicissitudes, the baby machines are at length beyond question about to enjoy their triumph; and they will exercise a profound and far-reaching influence on the sport, industry, and pleasure of the nation.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose.

WHY I FAVOURED THE TWO-STROKE ENGINE.

By ALFRED A. SCOTT.

Mr. Alfred A. Scott needs no introduction to our readers. He may be described as the "godfather" of two-stroke motor bicycles, for it is undoubtedly due to his skill and untiring perseverance that the two-stroke motor cycle has gained such popularity. In the accompanying article Mr. Scott relates his early efforts with two-stroke engines, and why he favoured this type of motor. It is interesting to recall that the first description of the Scott was published in this journal on September 2nd, 1908, after its successes at the Sutton Bank and Newnham hill-climbs.

MY inclination towards the development of a practical two-stroke engine is no doubt due to early training and association with engineers manufacturing marine and high-speed steam engines, so that in turning my attention to the gas engine and consequently to the petrol engine, I was naturally attracted by the possibilities of the two-stroke cycle of operations by which the regular impulse, the simplicity of design, and the sound mechanical motions employed in steam engineering practice could be retained; in preference to the four-stroke with its irregular impulses and complication of valves, gearing, and cams. I do not mean to infer that in my opinion the four-stroke system is in any way defective or unmechanical; I am simply attempting to respond to the Editor's invitation to explain my early preference for the two-stroke system, and consequent neglect of the type universally adopted in the early days of motor cycles. My initial preference for the two-stroke was further strengthened by the reliable and excellent service obtained from a two-stroke gas engine designed by my brother (Mr. A. F. Scott, M.I.M.E.) and employed for many years in driving the machinery in my experimental workshop.

The writer

The two-stroke petrol engine first made a place for itself in marine work, being almost universally used for small sizes in America, and was considered eminently suitable for the purpose of driving a boat, where variation in load was not recognised and where absolute simplicity was desirable, and so long as it was confined to this field no serious attempt was made to design a two-stroke which would give the elasticity of control required for road work. I wish to avoid giving the impression that we are particularly indebted to American genius for the invention and development of the two-stroke. Priority in its invention and development can undoubtedly be attributed to Mr. Day, and in recognition of this I have frequently referred in previous articles to the Day cycle in contradistinction to the Otto cycle.

My First Two-stroke Bicycle Motor.

My first two-stroke engines were designed for marine work, and I found a decided advantage in experimenting with an engine on a boat where it was possible to make tests and obtain diagrams under working conditions.

My first bicycle motor was fitted to a Premier bicycle in 1901. The twin cylinders, 1⅞in. diameter, were made of steel tube with aluminium radiator flanges shrunk over the outside. Plain phosphor bronze bearings were first of all fitted, and later metallic bearings with floating gland joint. The engine drove the front wheel by friction contact with the tyre, a successful drive in dry weather, but useless in wet. I was delighted with my first ride on this machine, but found that the steel cylinders were quite impracticable, for, in spite of liberal lubrication, they scored badly and showed no signs of taking a polish. My next engine was a development of the same idea, but with cast iron cylinders 2¼in. bore. This engine eventually drove by belt to clutch counter-shaft and thence by chain to back wheel. One trembler coil was used, and the spark distributed to either cylinder by a simple device provided by fixing a projecting electrode on the piston head. Later on a plain coil with mechanical brake was used. A rotary contact-breaker was driven by link work from a pin placed midway on the connecting rod, and by deriving its rotary movement from the elliptical motion of the rod, a variable motion with quick and slow periods was devised, useful for the sudden interruption required in a mechanical contact-breaker. At the same time I extended the development by experimental work on a two-cycle marine engine 4in. × 4in., and by keeping this engine on the test for the greater part of a year derived useful information as to what could *not* be done. The engine was fitted with a large water-cooled brake wheel, so that it could be run at full load for any length of time without heating up. On the average this engine developed 10 h.p. at 800 revs. per minute and showed 85% mechanical efficiency.

Discovering the Curved Top Piston.

The present Scott type of piston with the now generally adopted curved top was developed during these tests, and many developments as to port proportions made and the effect observed by the brake and indicator readings. The satisfactory behaviour and proved efficiency of both the marine and the smaller motor bicycle engine convinced me of the superiority of the two-stroke for both purposes, and I decided to improve upon previous efforts and build a complete two-stroke water-cooled motor bicycle.

An accident on an early motor bicycle enforced some considerable leisure time, in which I was able to think the matter out and forecast what was wanted, and devise in its main outlines the machine associated with my name. The first complete edition of this machine (1908) had to depend upon coil ignition, but the substitution of a magneto greatly improved the rapidity of ignition and overcame the most annoying

Why I Favoured the Two-stroke Engine.—

of two-stroke troubles. It will be remembered that a twin-cylinder two-stroke firing twice every revolution consumed four times as much current as the single-cylinder engine of its time. This meant a big drain on accumulators, excessive wear on the platinum points of the mechanical break, and constant failure of the electrical equipment. The development of the magneto into the perfect machine of to-day has had a great influence in making the reliability of the two-stroke motor bicycle, where certainty and rapidity of ignition are particularly required. The absence of working valves on the two-stroke presented another difficulty. It was obviously necessary in producing a chain-driven two-stroke motor bicycle to provide some substitute for the usual valve lifter, since at that time all the early motor bicycles were controlled more or less by the valve lifter. This was met by providing a secondary exhaust port placed further up in the cylinder wall, which could be controlled by a lever on the handle-bar, so that the compression in the cylinder could be reduced at will. This half-compression lever was combined with a magneto cut-out switch, so that the engine could be completely controlled to the same extent as was possible with the ordinary valve lifter on the standard four-stroke motor bicycle.

Protests Against Two-stroke Engines.

At the outset the Scott motor bicycle was regarded as an elaborate freak by the motor bicycle world of that time, which could scarcely be expected to swallow all at once this combination of open frame, water-cooling, twin-cylinder, two-stroke, two-speed gear, kick starter, chain drive, etc., and in view of this natural conservatism, I was strongly advised to limit my ambitions and develop the two-stroke on the accepted lines of the ordinary belt-driven machine.

As far as the development of the two-stroke engine is concerned, there was no difficulty in proving immediately its efficiency in competition. I began the list of Scott wins at the Bradford club's hill-climb at Wass Bank, and then gaining three firsts on formula at the Coventry club's hill-climb at Daventry, evoked a storm of protest, with the unfortunate result that the A.C.U. was induced to impose a stiff handicap on two-strokes, which, although it did not completely stop the record of success, checked any further inducement to compete in hill-climbs, and thus materially delayed the general appreciation and recognition of the peculiar pulling power of the two-stroke engine.

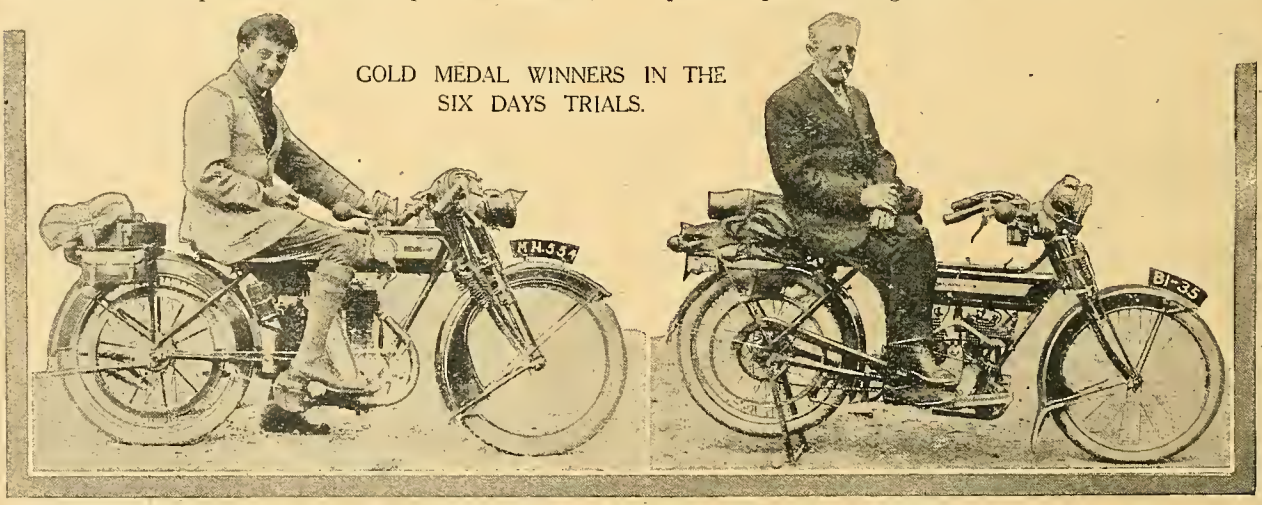
The question of exhaust naturally arises from comparison with the four-stroke, where a full stroke of the piston is spent in expelling the exhaust gases, and in addition a full stroke of the piston is utilised to draw in the fresh charge. In the two-stroke, where exhaust takes place towards the end of the stroke, the exhaust gases move under the influence of considerable pressure; in fact, a very persuasive influence to depart is exerted compared with the mild invitation extended to the contents of the carburetter. Taking into consideration the relative conditions of pressure, area and time, I feel that in some two-stroke engines at high speed this invitation to come inside must seem so casual and offhand that I can quite imagine the reluctance of the charge to enter the engine at all, and can sympathise with the natural attitude of the greater part of the mixture in remaining sullenly in the inlet pipe with a feeling of "The welcome on the mat ain't meant for me."

The Future of the Two-stroke.

In attempting to predict the tendency of future design, I would expect the ultimate success of the *simplest* means for attaining increased economy, control and power, and do not think that real improvement will be secured by the complication presented by double diameter pistons, additional displacer pumps, etc. I do not, for instance, see that any real practical advantage is gained by adopting a complicated and heavier design of engine in order to avoid the use of the crank case for compression of the charge. The crank case compression two-stroke engine, in spite of its defects, is irresistible on account of its simplicity, and I think that in future development this characteristic simplicity will be conserved.

I anticipate the successful application of the Diesel system in combination with water cooling to increase economy and efficiency of the two-stroke, and no doubt we shall depend in future upon some form of independent pneumatic ignition.

GOLD MEDAL WINNERS IN THE SIX DAYS TRIALS.



D. M. Brown (3½ h.p. Rover), who climbed every hill, gaining 196 marks plus a bonus.

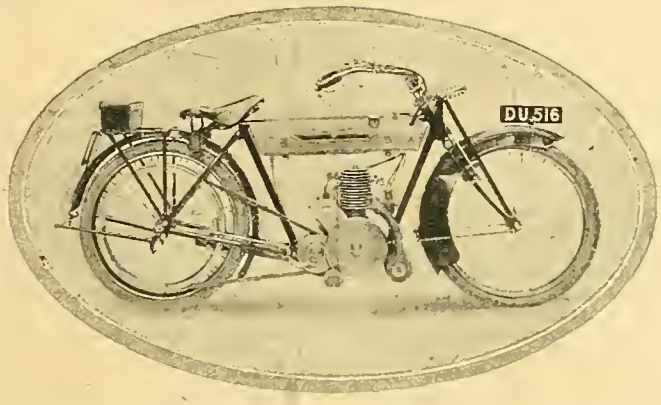
F. W. Applebee (3½ h.p. Motosacoche), probably the oldest competitor in the trial. His score was 189 marks plus a bonus.

Experiences with Two-stroke Machines.

THE CAPABILITIES OF THE JUNIOR TRIUMPH.

IN the spring we took delivery of a two-stroke Triumph, since when we have had no cause to regret our choice, as the only troubles up to the present have been of quite minor importance, such as chains getting out of adjustment and slight carbonisation.

The machine has now quite a long mileage to its credit, including several open reliability trials, but more particularly made up of short daily runs between home and the office. Sunrising Hill comes well within the range of the Triumph, as do most main road gradients. The two-speed gear box on the counter-shaft (giving ratios of 5¼ and 8¾ to 1) has always worked admirably, and the Bowden wire gear control from a lever on the handle-bars has needed no adjustment. Entirely enclosed magneto and transmission chains might be an advantage. The chains, which are protected only by dust covers, run at engine speed, and any grease is soon thrown off.



Dismantling the engine is simplicity itself, and the cylinder may be removed in a matter of minutes. All the controls, with the exception of the heel brake acting on the rear belt rim, are situated on the handle-bars, making the machine very easy to handle. Especially is this noticeable in traffic, when the low gear may be engaged and one is able to crawl along at a mere snail's pace with the engine slowly ticking over. On the other hand, with top gear in operation, a speed in the neighbourhood of the "forties" can be attained.

Starting up may be done by standing across the machine and paddling off, when the engine will fire in a few revolutions.

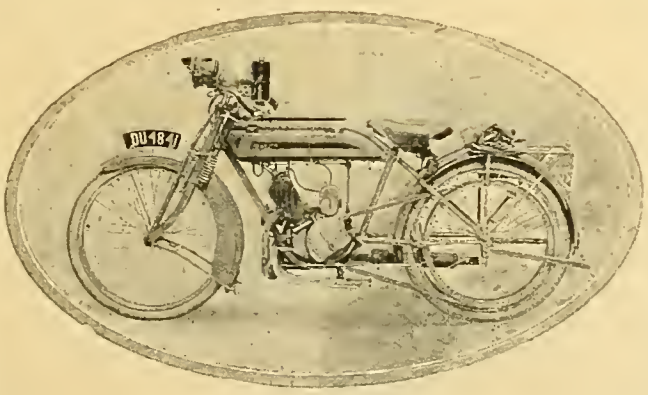
The Triumph is very light on tyres and belts, the former being still in excellent condition, and the latter having been shortened for the first time a week ago.

For best results a pure mineral oil should be used, and not compound oils, as the latter are liable to split up and cause carbon deposit. In the case of one brand of oil sent us for trial the float needle developed the troublesome habit of gumming.

The petrol consumption on an average is about 95 m.p.g., and one of the greatest virtues of the little machine is that it "two-strokes" regularly, even at slow speeds. The weight is approximately 130 lb.

2,000 MILES ON A CLYNO.

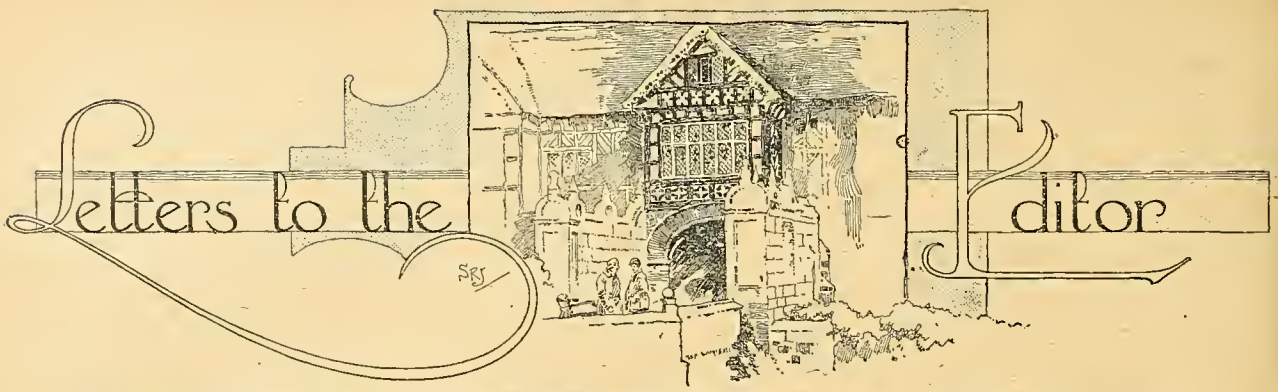
DURING February last one of our staff took delivery of one of the first batch of 2¼ h.p. two-stroke Clynos. The machine arrived complete in every detail, with lamp, horn, and Lea reflex rear light. From the very beginning it would run smoothly and well, and the power greatly improved as the moving parts ran in. The machine scales 152 lb. ready for the road, and it would be hard to find a more controllable machine to handle in traffic. The two-speed gear is simple and silent, and the handle-bar controlled clutch appears capable of being slipped indefinitely, added to which the engine will two-stroke quite slowly.



The two-stroke Clyno is by no means a toy, for it will average 25 m.p.h. over long distances; the machine in question has climbed all the well-known Cotswold hills which have been attempted, including Rising Sun and Portway hills, with ease, and will restart on the clutch on the worst pitch of Sunrising and at once pick up to a good speed on the grade. The petrol consumption with a Senspray carburetter and No. 28 jet is approximately 100 m.p.g. under fair conditions, and the oil consumption is particularly low. The belt runs over a 6in. front pulley, and consequently wear in this part is negligible, added to which the clutch shield helps to protect the belt from mud and water, and thus prevents slip to a large degree.

After about 2,000 miles of hard work the motor is in excellent condition, and shows no signs of undue wear in any part; the running is so smooth that nothing has worked loose, and the machine has proved most satisfactory in every respect.

As regards carbonisation, extraordinarily little deposit takes place on the cylinder head or piston, the worst point being the back of the deflector, which can be scraped by removing the transfer port cover and without detaching the cylinder. Like most small two-strokes, however, the under side of the piston carbonises fairly thickly, but this point has very little effect on the running of the engine. The removal of the cylinder is only a matter of a few minutes.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Four-speed Morgans.

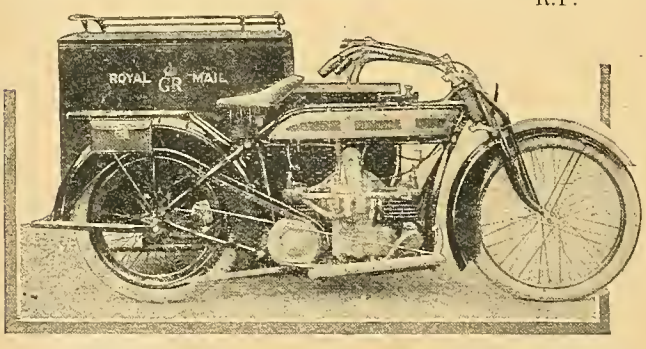
Sir,—I was surprised to read Mr. Morgan's letter about his quartette of four-speed Grand Prix machines in the Scottish Trials. As he states that the four-speed gear box is standardised, I should be interested to know whether he fits a gate or quadrant to the standard type, as some of the Scottish competitors appeared to be holding one gear lever in position, whilst their passengers prevented the front lever from jumping out of place. I am also surprised to read that three of the machines belonged to private owners. Messrs. Grout and Mundy made no secret of the fact that their machines did not belong to them, and Mr. Gibson is surely the partner of another well-known rider, Mr. Reg. Holloway, in running a garage at Torquay. Does not Mr. Morgan mean that he had only one private owner in the trials, viz., Mr. James, who, incidentally, was the sole survivor of the quartette NORTH-COUNTRYMAN.

Chills on the Abdomen.

Sir,—With reference to "Ixion's" paragraph on the subject of abdominal chills, on page 35 of your issue of July 9th, for a good many years I have adopted the practice of wrapping a long, wide, woolly scarf twice round my waist, and when pulled tight the tension in the knitting is sufficient to hold the scarf in place at the end to be tucked in. The scarf is worn under or over the waistcoat, and can be slipped on or off at a moment's notice.

This idea is really a modification of the waistband worn by the South American "Buffalo Bills," in the shape of a brilliant red silk sash, not as an ornament, but as a protection to the abdomen against the sudden change in temperature of intense heat in the daytime to intense cold at night, with a very short twilight in between. This sash is about four yards by one yard. This device has an advantage over the cholera belt worn next to the skin, as the latter, once put on, must be kept on until the weather becomes so intensely hot that it is impossible to wear it any longer. In other words, a wool scarf round the waist can be put on and off as occasion requires, but the cholera belt is, or should be, practically a permanent fixture.

R.P.



One of the 3½ h.p. three-speed Douglas Royal Mail sidecar outfits supplied to the Birmingham G.P.O.

Courtesy de Luxe.

Sir,—I would ask you to allow me to make public the following exceptional and unique treatment meted out to me by a well-known motor cycle firm, for I feel that such courtesy and consideration ought to be acknowledged.

My 1914 Indian bought in January had carried me all over the worst hills of Devon for three and a half weeks, and returning to my parish after a tour with my wife in the sidecar my gears smashed at Maidenhead. Blank despair seemed to face us, and a return by train, with visions of a heavy bill to meet on our return, seemed certain of fulfilment. As a last resource, I took the broken gears and went up to London, and asked to see the Indian manager.

My three months' guarantee ended more than two months ago, but this made absolutely no difference. The gentleman in question took me into the gear department and introducing me to the head of this department, requested him to do his utmost to enable me to catch the next train back from Paddington with a gear box in perfect condition. Tea was sent me while I waited, within an hour I caught my train, and we were on our way by 7.30 p.m., and reached my parish in Derbyshire by Saturday evening in time for my Sunday duty. The work was executed absolutely gratis.

I need add no disclaimer, for none is needed. It seems as though I, an ordinary customer, were treated in just the ordinary way according to this firm's splendid reputation.

(REV.) W. BATHURST SOOLE.

Suggested Double-purpose Machine.

Sir,—"H.J.W.P.'s" requirements are certainly not easy to fulfil, and I, personally, do not know of an engine of only 750 c.c. that will do 45.47 m.p.h. with sidecar for three hours on end on average roads, and capable of slow solo work. But then, all types of engines have not been experimented upon by me; still, if there is such a one, sufficiently tractable to ride solo at from 4-60 m.p.h. on top gear, I shall be very interested to hear of it.

My purpose in writing this is to inform "H.J.W.P." that a very good double-purpose engine is the Green-Precision, 499 c.c., water-cooled (radiator fixed to the cylinder). This engine is wonderfully flexible, whilst the makers guarantee it to develop 8 b.h.p. at, I think, 2,500 r.p.m. (which is very fair and not obtainable on the road), so that it may be assumed that a little extra power can be obtained under the highest pressure.

My machine, geared 4⅞ to 1, with coachbuilt sidecar and two passengers (total weight, 660 lb.), will average 40 m.p.h. on decent give and take roads so long as there is petrol in the tank. There is no loss of power after very hard work, neither does the water ever boil. Solo it will keep on, *ad inf.*, at 53-55 m.p.h., geared 4 to 1. The hub gear is very excellent, but there is ever the bugbear of slipping belts in wet weather. My S.A. has never given me trouble, in spite of very severe gruelling, both with sidecar and solo, but it *must* be oiled very frequently with best sperm oil.

Probably someone will say that an engine of the same capacity and air-cooled can equal, or even excel this. I should like to know if it will after running into the five figures and with all the original engine parts. I must add the usual disclaimer and remain

WATER-COOLED ENTHUSIAST.

Thunderstorms.

Sir,—I cannot agree with "X 37" that you are safe from being struck by lightning when in a motor car or riding a cycle. I only wish it were so. I have been in a car in which were four people sheltering from the storm on the summit of a hill in Derbyshire. The car was struck, and two of the occupants of the car were singed on their neck and back. One of the arms which holds the hood was twisted right round in the woodwork.

You are certainly insulated by the rubber tyres, but the power of the electricity is so great, surely a few inches of rubber will not prevent it going to earth, especially if the rubber is wet. It will jump the rubber exactly the same as it jumps the points on the plug.

I am writing this letter because it would be very serious if motorists had the impression they were quite safe when riding in a storm. W 3506.

Sir,—With reference to your esteemed correspondent "X 37" and his highly technical remarks *re* thunderstorms, may I humbly suggest that lightning is known to jump a three-mile spark gap at least. Will it hesitate or boggle at three inches? No!

I take it that most of your readers will agree that three inches is a very liberal estimate of the distance of an ordinary rim from the ground.

Also, will "X 37" please note that it may have been raining and the rubber may have been wet. R.N.

Sir,—I read with interest the remarks made by "X 37" in the July 2nd issue of *The Motor Cycle* regarding "Thunderstorms." I am not at all inclined to agree with "X 37" that in a thunderstorm "the safest place to shelter is on the machine itself, and, if a sidecar is attached, passenger and rider can cover themselves over with a gamp or sheet and defy the elements." "We are *doubly* insulated against lightning with rubber tyres and the air they contain," he also says.

It is not usual to have an overhead thunderstorm (which is the only one that matters) without rain—torrential rain; as evidenced all over London, and in many parts of the country, a week or two ago. In fact, a thunder cloud is a body of waterdrops charged at an enormously high electric voltage; much higher than that of any neighbouring clouds, and, of course, the earth's potential.

Assuming "X 37" to be sitting on his machine with sidecar attached, and in a stationary position, covered with a gamp or sheet for protection, in some open moorland, say, where there are no immediately neighbouring trees, and a thunderstorm is in progress immediately overhead. The machine or some parts of the combination would very soon become covered with rain, and this, being heavy rain, pools of more or less magnitude would form under all three wheels. The tyres would certainly become saturated enough to cause surface electric continuity to the water under the wheels. The rain would run down the spokes of the wheels, down and over the rims and tyres, to the same connecting point to earth. Where, then, is insulation of any kind provided for? The air insulation which "X 37" claims forms a *double* insulation in conjunction with the tyres, does not exist, simply because connection has already been made to earth by means of the escaping rain. Besides, the chances are, the rain, or pools, under the tyres will soon reach up to the rim on at least one of the wheels, and the fact of a sidecar being attached makes all the better earth.

Now, it is known that when a heavily charged thundercloud passes overhead it induces a charge of electricity in the ground beneath, and the tendency of this terrestrial charge is to get as near as possible to the atmospheric charge. This obtains with lightning conductors, which become "live" with the induced charge, right up to the aerial spikes. Nothing, of course, happens, as the charge in the conductor is at the same potential as that of the earth, unless the conductor is struck by the atmospheric current, in which event it will have accomplished its duty, and life probably.

In this instance (assuming the combination to be in open country) "X 37's" outfit would form the *lightning conductor*, and an excellent one too. The rain, being heavy, would cause better connection to earth the longer it lasted. The whole frame, engine, tank, wheels, handle-bars, sidecar frame, and wheel—in fact, all metallic connections that were continuous, would be thoroughly "saturated" by the induced current. "X 37" would observe no effect, as he and his passenger would be at the same potential or voltage as the earth. But it stands to reason that any flash of lightning in the immediate proximity of the outfit would be more likely to "jump" to its natural affinity, with which "X 37's" machine was charged, and leave a pretty effective illustration of "blazing a trail."

I do not know whether "X 37" gave enough consideration to, or knew enough about what he was writing; probably he thought more about the 40 m.p.h. "blind" through the watersplash. At any rate, I consider it my duty to do what I can to dispel *this* hallucination. To my mind, it is simply *begging* for trouble, and the sort of trouble that only happens once—certain death.

True, there is a great deal yet to be discovered as to the vagaries of lightning, but there are certain more or less rudimentary laws, which one should be in possession of, before rushing into print with statements, which are dangerous to thousands of motor cyclists who might be tempted to try the experiment. ALEC R. FRASER.

The Overseas Trial.

Sir,—Seeing there is so much comment on the Overseas trial of machines, I have submitted to you photographs showing the roads, or apologies for roads, which the machines have to face. COLMAR WOCKE.

Port Elizabeth, South Africa.

WITH A 3½ h.p. HUMBER IN SOUTH AFRICA.

Transporting the motor and sidecar across the stony bottomed Gamtoos Drift at Hankey.

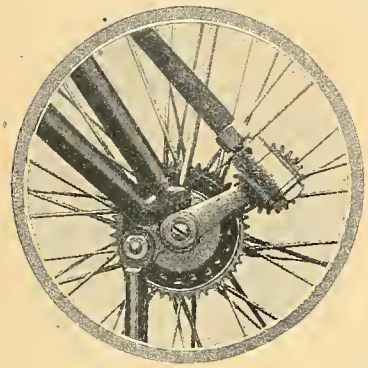
Scene on the road to Loerie. Roads which are more like ploughed fields than tracks to ride on.

Rear Lights.

Sir,—Replying to your correspondent, Mr. W. P. Cook, I can only say that the speed factor in these accidents is such an undeterminable matter that it is useless to argue on it. The point to consider is, that these fatal accidents have occurred and will occur again. It is for Mr. Cook to say whether splitting hairs on a point of law or the adoption of a sensible lighting regulation for all road traffic will lessen the risk of like accidents in future. A. B. BENNETT.

Speedometer Drives.

Sir,—With reference to "Ixion's" remarks in *The Motor Cycle re* fitting a speedometer. We have pleasure in enclosing you a photograph showing how the driving cog for Bonniksen speedometers is standardised on the Rudge motor cycle front hubs. There is no question of centralising in the lathe, for the cog-wheel is bored out to a fit for the hub flange and is then soldered in position.



RUDGE-WHITWORTH, LTD.

Marking System in the Scottish Trials.

Sir,—Unwilling as I am to enter into a newspaper correspondence, I feel I can barely allow "Ixion's" remarks, under this heading, to pass unchallenged.

Some of his statements are bound to lead to misconception, and the simplest way might be for me to explain the reason of the marking system adopted.

Since the inception of the Scottish Trials a gold medal has been given only to those who completed the course without loss of marks on time, and this must be counted as the chief factor in the allocation of gold medals. Any person who fails to come up to the requisite standard has failed in the main essential of the trial, viz., reliability.

This year, it is true, a subsidiary factor was introduced, namely, that competitors should climb a certain number of hills for which a certain number of marks were given, and the reason why an "Irishman's bonus," as "Ixion" rather aptly describes it, was deducted for the first loss of marks on time, was simply to avoid the possible case of where a silver medal winner might come to within one mark of the total possible, while a gold medal winner might have considerably fewer marks, or, paraphrasing the above sentence, the first loss of marks on time, which means the loss of a gold medal, was made sufficiently big to counteract any possible marks earned on hills.

Take the case where a competitor was one minute late and the penalty was only one mark, he would get 149 marks for reliability; he might climb all the hills which would give him forty-five marks, and he might lose no marks under the condition of machine heading, which would bring him out to a total of 194. A gold medal winner, on the other hand, would have to get 150 marks for reliability. He only requires to climb five hills, getting forty marks, making a total of 190, and he is allowed to lose fifteen marks under the Condition of Machine heading, and yet gain a gold medal, which would bring him out with a final figure of 175 as against the 194 marks got by the silver medal winner. Were the hill-climb marks allowed to be used as a set off against marks lost on reliability, it would be found that a machine would be able to get a gold medal on account of its hill-climbing capabilities even though it proved itself quite unreliable, and the purpose of the trial is to show a reliable machine, in the first instance, and in the second instance a good hill-climber.

I agree it is desirable that the public should have information regarding trials in as lucid and concise terms as possible, and I rather venture to think that the system of marking adopted in the Scottish Trials is adequate for this purpose. It may seem a hardship that a competitor should lose fifty-one marks for the first minute that he has lost on time, but it must be remembered that it is that minute which makes the difference between a gold medal and a silver medal, its value in marks varying according to the system of marking.

I must specially draw attention to the statement made by "Ixion," as follows: "The public will never realise that some unfortunate competitor who lost fifty-one marks in the Scottish Trials was guilty of no worse crime than being a minute early at a control, owing possibly to a discrepancy between watches, which the judges may refuse to admit on appeal."

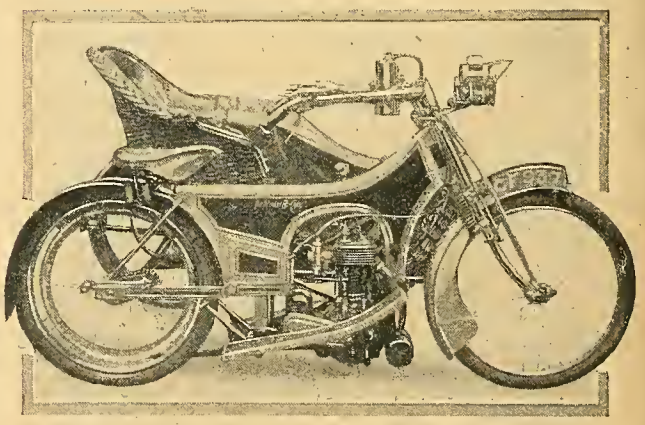
This is a totally misleading statement, from which it might be gathered that if a man arrives in a minute before or after a certain time he loses fifty-one marks; that is, in effect, that competitors must practically adopt what is known as the split second method of time. This is erroneous, and "Ixion" knows perfectly well, or ought to know, that there is a ten minute margin at each section, and provided a competitor comes in at any time within this ten minutes he loses no marks, which is a very different state of affairs from what the casual reader would gather from the above quotation. Incidentally, no competitor lost marks through being early.

The element of luck always enters into a trial, and I believe it is easier for a good man with a poor machine in any trial than it is for a poor man with a good machine to win a gold medal. Some people go the length of saying that 80% depends upon the rider and 20% on the machine, and in the cases "Ixion" cites it may have been a matter of luck that a loss of marks has been entailed. It may have been no fault of the machine and it may be no fault of the man, but the fact remains that marks on time have been lost, and that an adequate deduction from the total possible must be made for such loss so as to differentiate between those who have come up to the requisite standard and those who have not. CAMPBELL McGREGOR.

Pressed Steel Frames for Motor Cycles.

Sir,—Your article in the July 9th issue of your excellent journal to my mind strikes the keynote to future constructive principles for motor cycles. For two years I have used a pressed steel frame. Not only are all "brazing weaknesses eliminated, crystallisation of the tubes practically banished, and weight saved," but owing to the absence of tubes and lugs, which create inaccessible crevices, the machine can be cleaned by merely wiping the flat surfaces with a soft cloth.

The machine, of which I enclose a photograph, is built up with a special channel steel girder frame, and, judging from my immunity from fractures, which are continually occurring to tubular patterns, should be, and undoubtedly is, far stronger, of no greater weight, and decidedly neater in appearance.



The Midget Bicar mentioned in letter from J. H. Newson anent pressed frames.

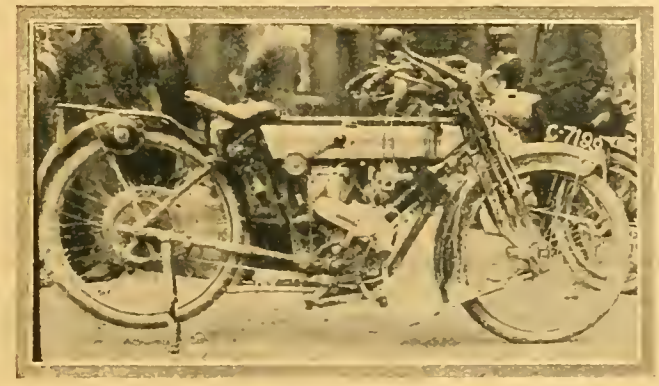
During the past two seasons I have run through the Midlands, and the machine has created quite a surprise and been most favourably commented upon. I am looking forward to the time when the petrol and oil tank of to-day will give place, as also, without doubt, will tubes and lugs, to the pressed steel frame and tank, a most serviceable combination, though at present little known.

J. HENRY NEWSON

Round the "Six Days" Course on a P. and M.

THERE has lately been a good deal of talk on the subject of "delivery tune," many wails having reached *The Motor Cycle* on the slip-shod manner in which some machines are turned out by makers. This, of course, is not as it should be, but the complaint does not apply to manufacturers generally, as the following will prove.

Our own vehicle not being geared low enough for freakish hills, we accepted the offer of Messrs. Phelon and Moore of a motor bicycle for the A.C.U. Six Days Trials. This machine was delivered by the Cleckheaton Works to Sheffield, and it was not until the day preceding the start of the trial that we saw the mount we were to ride. An inspection of the toolbags and general equipment of the machine revealed the fact that the P. and M. was turned out thoroughly in every detail. The severity of the Six Days Trials is now a matter of common knowledge, and even on the first fifty miles of the route when it rained smartly the mettle of the P. and M. was tested to the full, for on the moorland roads and grass-grown track we were constantly bumped out of the saddle, and it was soon clear that the rider would be the first to give out under such conditions. The trial has been described as "a test to destruction," but the numerous hills proved no match for the P. and M., though it is true we were stopped near the top of Littonstack when going well, due to a sidecar which failed and blocked the whole of the road. However, by a dig at the kick starter and pulling the low gear gently into engagement the machine was made to do the remainder of the donkey work under its own power.



The P. and M. machine we used, photographed as it finished the Six Days Trials.

A High Average.

A twenty miles an hour average over this year's Six Days Trials course has been stated to be next to impossible, but a good many critics who have attacked the trials organisers probably saw very little of the trial itself, but gained most of their impressions from those crestfallen competitors who dropped out. The P. and M. which we rode not only averaged its twenty miles, but more; indeed, it was absolutely necessary for us to do so to gain any true idea of the daily conditions and tests which the men had to undergo. After observing on one hill it was our practice to scurry ahead to the next, and that was where a fleet machine able to take every hill in its stride proved a boon. Two years ago we rode a P. and M. in the Six Days Trials; that was during the memorable week with Taunton as a centre, when Porlock proved the *pièce de résistance* on the last day, and it was the pleasant memories of the way our mount tackled the Somersetshire terror that led us to ride a P. and M. this year. Once again we are happy to state that our trusty mount successfully ascended every hill we encountered, Green Hill, Wirksworth, Jacob's Ladder, Cowdale, Trooper's Lane, Stoney Middleton, Scapegoat, Curbar, and many other curious sounding titles included. We consider that its best climb was up Lea Lane, in Shibden Dale. This hill, it will be remembered, was the one across which were deep gulleys and the surface smothered with large loose stones. Riding was certainly not a pleasure, for one required the agility of a cat to keep in the saddle, but the P. and M. as regularly as ever plodded its way up the hill, picking up again immediately after each gulley, in the crossing of which we found it necessary to raise the valve lifter. Few who did not see the trial can appreciate the difficulties and the strenuous nature of the course. The boulder-strewn surfaces, grass-grown cart tracks, constant hairpins on the roughest of hills, told their tale in weeding out sixty-seven of the hundred and thirty-two competitors, and those machines which did finish in most cases bore distinct traces of the trial they had undergone. Our P. and M. finished its six hundred miles gruelling in magnificent condition, not a nut being loose, and the rims were undented. The spring forks certainly squeaked slightly at times and often bumped on their stops due to the springs being compressed to the limit, but throughout the week the sum total of trouble was a puncture in the driving wheel on the third day and a brake bolt disappearing on the last day. As a matter of fact, we were not aware that the bolt connecting the band brake had disappeared, and did not discover it until descending a steep hill rather hurriedly when it was touch and go whether we could scrape round a corner. This incident was pointed out to the makers of the machine, but our words have not fallen on waste ground, for with characteristic enterprise Messrs. Phelon and Moore inform us that in future they intend to fit all such bolts with nuts and split pins.

As regards attention to the machine, this, shame to relate, had perforce to be cut down to a minimum, for after a long day's tiring ride dinner is tempting, and afterwards "copy" to catch the outgoing mail leaves little chance for attention to one's mount. But this is where the P. and M. excelled, for, despite the scant attention, it responded every morning to our beck and call, and it is not guilty of any whims or idiosyncrasies.

In speed the P. and M. is well able to hold its own with the majority of 3½ h.p. mounts, and will touch nearly fifty miles an hour. The petrol consumption was in the neighbourhood of 70 m.p.g., due to constant low gear work, but in oil consumption it is distinctly economical. G.S.

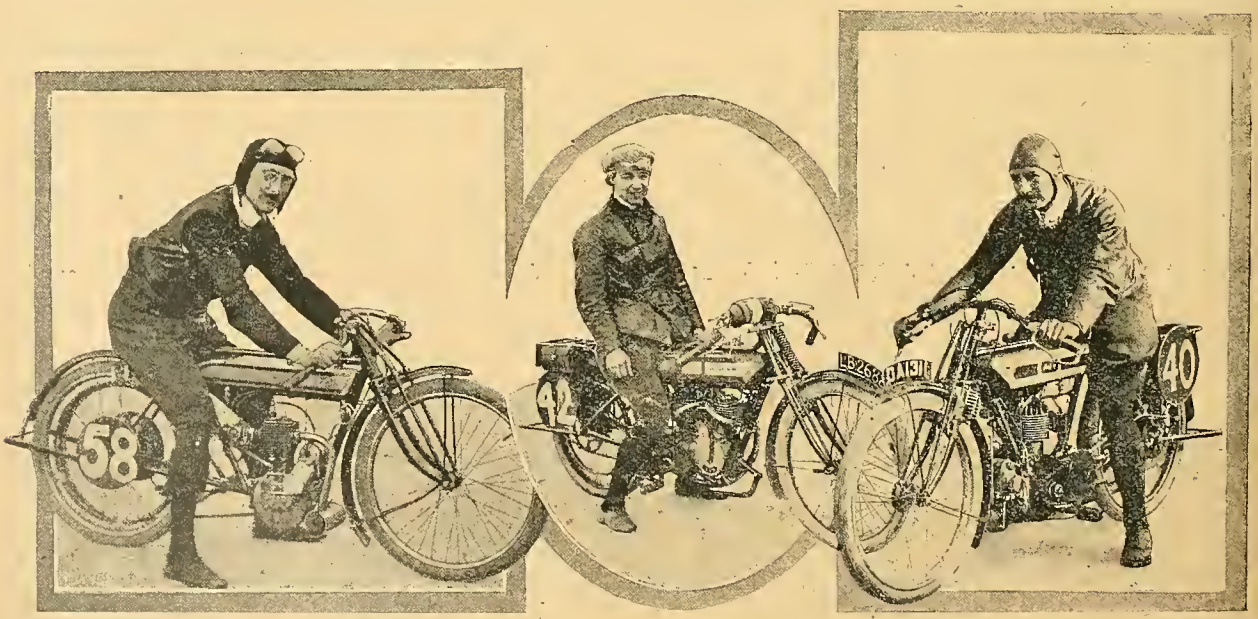
M.C.C. SIXTH ANNUAL RACE MEETING.

Competitors just past the starting line in the handicap cycle car event. In the foreground may be seen E. B. Ware (Morgan monocar), the ultimate winner, and F. White, who is driving a similar make of machine.

QUITE a large crowd was gathered together on Saturday last, at Brooklands, to witness the races organised by the Motor Cycling Club. Entries also were not lacking, but at the same time the number of riders in each race was not so large as to be unwieldy. Everybody who attends many race meetings or competitions knows how dull it is if long intervals separate each event. In this case, however, there was no such trouble, and everything went off without a hitch from the start of the first race to the prize distribution, which was performed by Mr. Charles Jarrott. In the first race G. Fletcher was the only entrant who failed to put in an appearance at the starting line. W. A. Jacobs (Singer), who was the first man to start, led for the whole of the three laps, and finished an easy winner. The A.J.S., which was in wonderful tune, was driven from scratch into second position by B. Haddock. Another Singer machine, ridden by J. P. Le Grand, had tyre trouble, but managed to start, although in the second lap the belt came off.

In the second race several competitors failed to put in an appearance. D. R. O'Donovan, who set up new records on a Norton on Friday, being a notable absentee. P. Shaw (3½ P. and M.) led in the first lap, followed closely by H. le Vack (3½ Motosacoche), who subsequently proved to be the winner, L. Mogridge (3½ Rudge), R. Charlesworth (3½ Motosacoche), and D. H. Noble (3½ Rover). Le Vack took the lead in the second lap and maintained this position to the end. An Indian won the third event and was piloted by S. F. Garrett. Whilst A. H. Hewitt was on his second lap it was noticed that his exhaust pipe had come adrift and was trailing on the ground. Plug trouble was also responsible for the retirement of S. R. Axford (Zenith).

A two lap race for machines with engines not exceeding 350 c.c. comprised the fourth event, which was won in fine style by B. Haddock (A.J.S.). G. Fletcher (Douglas) dropped out without completing a lap. C. R. Collier (Matchless) won the fifth race, which attracted a large number of riders. All the competitors started together and used machines with engines not exceeding 560 c.c. D. R. O'Donovan (Norton) would have won easily if his belt had not stretched, for he completed a lap at 70 m.p.h



SOME OF THE CLASS WINNERS AT BROOKLANDS ON SATURDAY.

(1) W. A. Jacobs (2½ h.p. Singer), winner of the 350 c.c. class.

(2) H. le Vack (Motosacoche), who won the second race for motor cycles between 350 c.c. and 560 c.c.

(3) B. Haddock (2¾ h.p. A.J.S.), winner of the fourth race.

Still Another Success.

GOLD MEDAL

FOR THE

CAMPION

IN THE

A.C.U. 6 DAYS TRIAL

Motor cycle and sidecar class (concluded July 11th), the highest award

GOLD MEDAL

was won by the all-conquering

CAMPION

ONLY ONE CAMPION ENTERED AND SECURED GOLD MEDAL.

However much more you may pay (and you can pay considerably more), you cannot get a more reliable motor cycle than the CAMPION, which is made in a model factory, by the most skilful mechanics in the trade.

Campion Motor Works

NOTTINGHAM.

The SINGER Smile

is born of "Singer certainty"—the certainty that banishes all thoughts of worry and makes the Singer ride entirely free of care.

Typical of the care-free Singer rider is the illustration reproduced below, the original of which is kindly sent us by J. D. Forbes, Esq., of Dundee, who says:—

"Here is an interesting picture—you can use it in any way you like. The bicycle portrayed I purchased about a year ago and it has gone nearly 3,000 miles without a semblance of Engine trouble.

No wonder that the owner's confidence is reflected in the youngsters' faces!

"The Singer Smile"—we should like to see you wearing it and sharing that perfect satisfaction which is responsible therefor.

Let us send you Booklet.

SINGER & CO., LTD., COVENTRY —17, HOLBORN VIADUCT, LONDON.

Ariel

DUAL SUCCESS

English Six Days Trial.

THREE GOLD MEDALS

AND

Two Silver Medals

The Motor Cycle, 9/7/14.

"The most remarkable performances were those of the three 3½ h.p. Sidecar outfits still left in the trial, viz., Watson's 3½ h.p. Ariel, etc."

English Six Days Trial, 1913.
TEAM PRIZE—
THREE GOLD MEDALS.

Scottish Six Days Trial.

FOUR GOLD MEDALS

AND

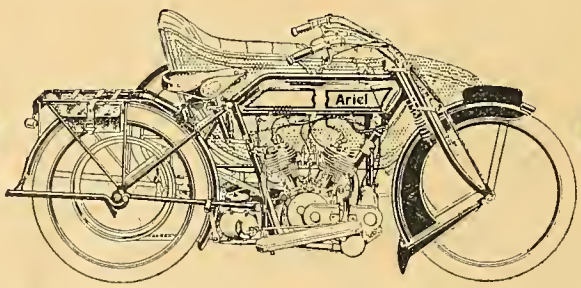
One Silver Medal

The Scottish Cyclist, 24/6/14.

AMULREE HILL—"Accounted for a good many failures. The Ariels all made a good show."

Scottish Six Days Trial, 1913.
TEAM PRIZE—
FIVE GOLD MEDALS.

ARIEL WORKS (Dept. A), BOURNBROOK, BIRMINGHAM



Start of the three lap multi-cylinder sidecar event, won by O. de Lissa (6 h.p. Motosacoche), who is seen on the timekeeper's right.

Exciting Finishes.

The next event was another win for S. F. Garrett on an Indian, though it is doubtful if he would have won if C. R. Collier had not been troubled with misfiring in one cylinder. S. A. Rowlandson (T.T. Rudge) put up a fine speed in the sidecar handicap, averaging over 50 m.p.h. from a standing start, and was followed home by Haddock's little A.J.S. All the machines in this event were fitted with single-cylinder power units. Another contest for sidecars followed for motor cycles with multi-cylinder engines over a distance of three laps. O. de Lissa (6 Motosacoche-M.A.G.) took the lead from the beginning and won easily. Event 9 was by far the most exciting race of the day and provided an extremely close finish. It was a light car handicap race and was just won by E. B. Ware on a Morgan monocar. A. Mariani (Tweenie) was second, and Lionel Martin (Singer) came home third from scratch, his average speed being 77.1 m.p.h.

In the event, No. 11, for the "Harry Smith" gold challenge cup, a splendid finish took place, and resulted in a win for C. R. Collier (Matchless), followed by B. Haddock (A.J.S.) and H. le Vack (Motosacoche). The invitation club despatch race was won by the Woolwich and Plumstead M.C.C., whose team consisted of H. Collier, C. R. Collier, H. V. Colver (Matchlesses) and F. J. Ellis (2¾ Enfield).

FORTHCOMING OPEN EVENTS.

Open Speed Contest at St. Andrews.

The Leven and East Fife M.C.C. will hold a series of speed contests at St. Andrews on the 30th inst., commencing at 1.30 p.m. There will be sixteen classes, the limit capacities being 350, 560, and 1,000 c.c. for motor cycles, and 600 and 1,000 c.c. for sidecars. Entries at increased fee will be received by Mr. A. H. Adamson, Glebefield, Leven, Fife, until the last post on Saturday, the 25th inst.

Liverpool-London-Liverpool.

An A.C.U. permit has been applied for by the Liverpool A.C.C. to hold an open trial from Liverpool to London and back on August 14th and 15th. It is proposed to allow competitors to start from Liverpool, London, or the Stonebridge Hotel on the Coventry-Birmingham road. This is said to be the first trial of its kind. Application should be made to Mr. E. F. Baxter, hon. sec., 5, Blantyre Road, Sefton Park, Liverpool.

Amateur Open Trial.

The Liverpool Amateur M.C.C. held an open trial for amateurs only on Saturday last over a sporting course in Cheshire, Staffordshire, and Derbyshire. The route was *via* Knutsford, Macclesfield, Swythamley Hill (observed), Buxton (lunch), Cowdale, Congleton, and Mow Cop. There were twenty-five starters. Of these three failed on Swythamley Hill and six on Cowdale, A. Kilgour (3½ Brough) and T. Carr (6 New Imperial) retired with broken sprocket and frame respectively. Every competitor who qualified for an award climbed Mow Cop without a stop. The surface of Swythamley Hill was very greasy after the recent rain, and Cowdale much cut up and loose, in consequence of the recent A.C.U. Six Days Trial.

We think a trial of this kind worthy of support from amateur riders.

The following are the awards subject to confirmation:

GOLD MEDALS.

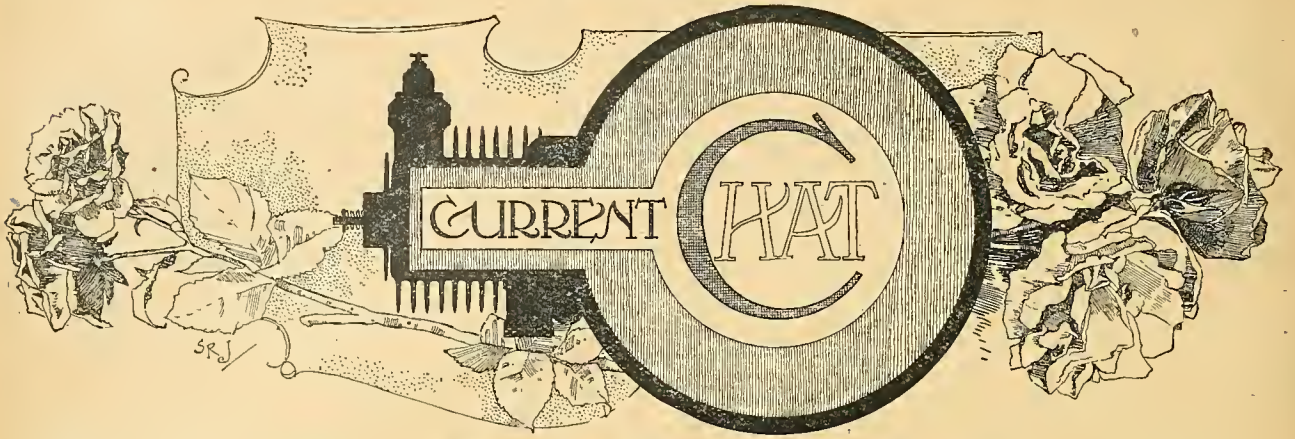
S. Howard 3½ Bradbury)	S. E. O'Hanlon (4 Triumph)
H. W. Hardwick (3½ Rudge)	D. Cole (3½ B.S.A.)
W. Hardwick 3½ Rudge)	H. D. Ashworth (4 Triumph)
H. R. Lane (8 Rex-Jap)	

SILVER MEDALS.

E. S. Taylor (7 Matchless)	A. J. Fryer (5 Rudge)
H. Barnes (8 Matchless)	

No team finished complete.

Two aspects of the last steep portion of Mow Cop, showing competitors in the Liverpool Amateur M.C.C. trial, on Saturday, nearing the summit.



TIMES TO LIGHT LAMPS.

July 26	... ...	9.0 p.m.
,, 25	... ...	8.58 p.m.
,, 27	... ...	8.55 p.m.
,, 29	... ...	8.52 p.m.

Police Trap.

We have received information of a police trap in the Avenue on the south-west side of Clapham Common.

A Belated Award.

We learn from J. Haslam that, after further consideration of his marks, the A.C.U. have awarded him a bronze medal for his performance in piloting a 3½ h.p. Premier sidecar round the A.C.U. Six Days Trials.

Exclusive News.

A two-stroke Singer will shortly make its appearance. It will have an engine of 2¾ h.p. and counter-shaft gear.

A 5 h.p. twin-cylinder Indian will be added to the Hendee range for 1915. The engine, frame, and general design will be much on the lines of the 500 c.c. Indian which ran so well in this year's Senior T.T.

Stanley is said to have got a Triumph which will attain a speed of 75 m.p.h., but is not satisfied yet.

A new horizontal twin, the production of a large firm of Midland manufacturers, will shortly make its appearance.

A Morgan with an M.A.G. engine of 1,100 c.c. has been seen under test on the road.

A Morgan four-wheeler is a possibility of the future. Such a machine has been on the road some time, but Mr. Morgan has decided not to market it next year, at any rate.

A twin-cylinder two-stroke motor cycle engine, with the cylinders set in tandem, is nearing completion in a Midland factory.

Two well-known makers of twin-cylinder cycle cars will adopt four-cylinder engines as standard in 1915.

The Scott Co will shortly introduce a lightweight two-stroke.

Two important firms, new to counter-shaft gears, have experimental models on the road, viz., the Rover and Hazlewood. Both gears are of the three-speed variety.

A Precision two-stroke engine may be expected before long.

It is considered by a reliable authority that a new and compact magneto-dynamo machine, which has just been completed, will revolutionise the lighting of motor-cycles next year.

The Buyers' Guide.

The two-stroke and lightweight buyers' guide which we publish in this issue contains particulars of no less than 37 two-stroke machines at present on the market, and advance details of one which will shortly be introduced.

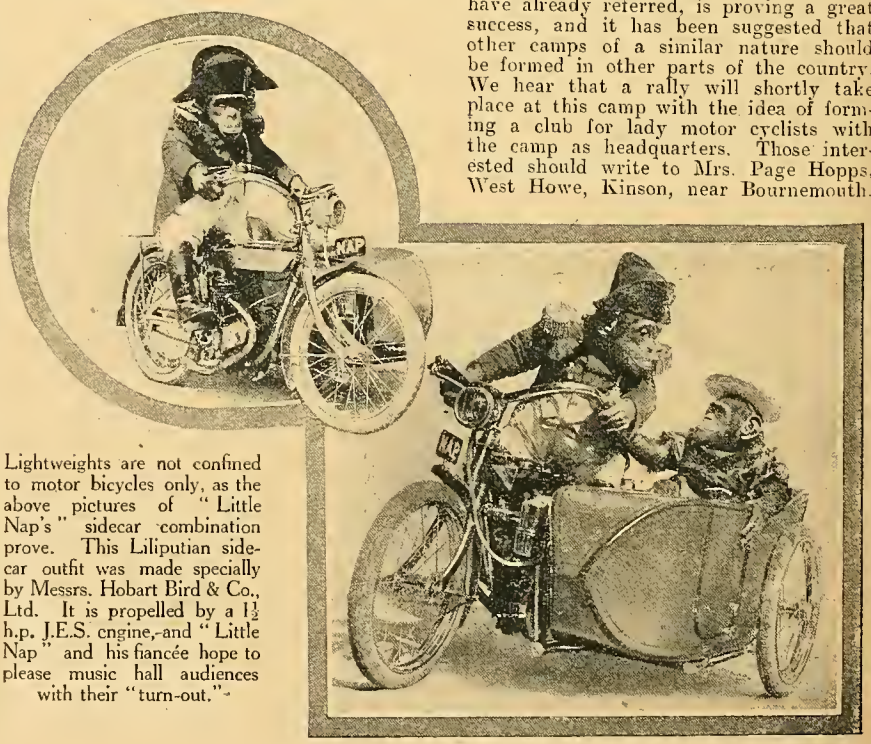
A Motor Cycle as Prize.

The first prize in the drawing held in aid of the Warrington Charities will be a new 3½ h.p. James motor cycle, twin-cylinder, three-speed, free engine clutch, and chain drive, value sixty guineas.

North Wales Championship.

The championship of North Wales in connection with the Mersey M.C. Colwyn Bay speed trials was won by J. H. Fox (5 h.p. Matchless sc.) for the second year in succession.

The championship was open to riders of any type of vehicle, and was therefore run on handicap. R. F. James (3½ h.p. N.S.U.) accomplished fastest time.



Lightweights are not confined to motor bicycles only, as the above pictures of "Little Nap's" sidecar combination prove. This Liliputian sidecar outfit was made specially by Messrs. Hobart Bird & Co., Ltd. It is propelled by a 1½ h.p. J.E.S. engine, and "Little Nap" and his fiancée hope to please music hall audiences with their "turn-out."

SPECIAL FEATURES.

ILLUSTRATIONS AND SPECIFICATIONS OF 55 TWO-STROKE AND LIGHTWEIGHT MACHINES.

THE ACTION OF A TWO-STROKE ENGINE ILLUSTRATED BY DIAGRAMS.

12 YEARS OF LIGHTWEIGHT DESIGN.

The Handicap on Two-strokes.

In September, 1909, we suggested that the handicap on two-strokes (it will be remembered that under the old regulations of the A.C.U. the capacity of a two-stroke engine was multiplied by 1.25, or, if it was water-cooled, by 1.32) should be removed, and that machines of both types should compete on equal terms. This was subsequently done, and has undoubtedly had a considerable effect in the perfecting of the two-stroke engine.

The Motor Cyclists' Camp.

The motor cyclists' camp at West Howe, near Bournemouth, to which we have already referred, is proving a great success, and it has been suggested that other camps of a similar nature should be formed in other parts of the country. We hear that a rally will shortly take place at this camp with the idea of forming a club for lady motor cyclists with the camp as headquarters. Those interested should write to Mrs. Page Hopps, West Howe, Kinson, near Bournemouth.

Cycle Car Trial Postponed.

The cycle car and light car trial arranged by the Coventry and Warwickshire M.C. for Saturday next has been postponed owing to the sparse entry received.

Registration Marks.

The County of London has added yet another index mark to the already long list in use, namely, L.M.

The County of Essex will in future use the letters HK, in addition to F.

International Six Days Trial.

Only three countries have so far entered for the Motor Cycle Manufacturers' Union 200 guinea international trophy, which will be competed for in conjunction with the Six Days Trial from Grenoble, August 3rd to 9th next. The entries so far received for this event total about 70.

An Incident of the Six Days Trial.

We have the assurance of P. Platt that he had not the slightest trouble with his 6 h.p. Bradbury engine in the Six Days Trials, so that the reference in our report to a senzure must have been due to confusion in the competitors' numbers, which were usually very dusty and dirty toward the end of the day.

What to do in a Thunderstorm.

Some interesting information is to be found in our correspondence columns this week respecting the best course to take if caught in a thunderstorm. No danger need be apprehended from a storm at a distance of more than a mile; sound travels at about 1,140 feet per second; therefore, if the flash is seen four or five seconds before the thunder is heard no notice need be taken. It is unwise to shelter under trees, though a tree at a short distance is a protection rather than otherwise, and it is advisable to stand clear of the machine. Finally, if overtaken by a storm in open country, the safest but wettest plan is to lie prone upon the ground.

A.A. and M.U. Notes.

The annual meeting of the Automobile Association was held on July 15th at the Hotel Cecil, London. Mr. W. Joynson-Hicks, M.P., the Chairman of the A.A. and M.U. Committee, presided.

In presenting the annual report, Mr. Joynson-Hicks stated that they could congratulate themselves upon the extraordinary growth of the Association.

He had asked the secretary to get out figures for a week's work of the Automobile Association, and the return before him was for the week ending July 11, and among interesting items in that return were: New members, 936; letters received, 13,119; letters sent out, 20,999; summonses defended, 135. 14,247 members were warned by the A.A. road patrols in the interests of themselves and all road users. 1,006 routes were supplied to members proposing to tour at home or abroad, and 1,307 members received plans showing the best way through towns.

Four retiring members of the Committee, Mr. S. F. Edge, Mr. John Kennedy, Mr. Charles McWhirter, and Mr. P. A. Sharman, retired in accordance with the rules governing the Association, and offered themselves for re-election. They were unanimously re-elected, as also were the auditors, Messrs. Newson-Smith, Lord, and Mundy.

FUTURE EVENTS.

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July 25.—Streatham and District M.C.C. Open Hill-climb.
" 25.—B.M.C.R.C. Race Meeting.
" 25.—Dublin and District M.C.C. Open Race Meeting at Portmarnock.
Aug. 3-9.—F.I.C.M. INTERNATIONAL SIX DAYS TRIALS. Grenoble as a centre.
" 14-15.—Liverpool A.C.C. Open Trial to London and Back
" 15.—French Grand Prix Motor Cycle Race near Le Mans.
" 15.—Essex M.C. Race Meeting at Brooklands.
Sept 6-9.—ANGLO DUTCH TRIAL IN HOLLAND
Nov. 23-28.—Motor Cycle and Cycle Car Show at Olympia.

Competitions in New Zealand.

In a recent sidecar trial held by the North Canterbury Motor Cyclists' Club there were twenty-six entries. Several well-known makes of motor cycles turned out, and, in spite of a fairly hilly course, eighteen finished. The first three places were taken by: H. Jones (6-7 h.p. King Dick), A. B. L. Smith (5-6 h.p. Clyno), and J. Michael (4 h.p. Triumph).

A.C.U. Notes.

INTERNATIONAL CYCLE CAR RACE.—The following are the entries which have been received for the International Cycle Car Race to be held in the Isle of Man on September 24th next. Intending entrants should note that entries close at ordinary fees on the 29th inst.

RIDER AND MACHINE.

H. Alexander (10 Calthorpe Minor).
A. Alexander (10 Calthorpe Minor).
F. Burgess (10 Calthorpe Minor).
T. V. West (10 Calthorpe Minor).
Trevor Roscoe (10 Morris-Oxford).
Thos. B. Andre (8-10 Marlborough).
Gerald T. Mayne (10 Calthorpe Minor).
Vernon Busby (8 Morgan).
Marcel Violet (6 Violet-Bogey).
W. Douglas Hawkes (10 Victor Precision.
——— (10 Victor Precision).

T. Stevens (James), who was the only single-cylinder sidecar driver to gain an award in the Six Days Trials, "tacking" across a gully on Don Hill, Stocksbridge

Week-end Speed Trials.

Since our "Club News" page went to press a telegram reached us from the Sheffield and Hallamshire M.C.C. asking us to withhold their speed trials results as an error had been discovered in one of the timekeeper's watches.

Should Trials Courses be Severe?

The Yorkshire press does not look with favour on the "fuss," as they call it, which is being made in connection with the Six Days Trials course. The *Sports Special* of Sheffield quotes extracts from our leading article of last week concerning the number of gold medal winners.

Streatham Open Hill-climb.

A large number of entries have been received for the open hill-climb of the Streatham Club, which will take place on the Straight Hill at South Harting next Saturday. There are twenty classes.

The Twin P. and M. in this Issue.

Following upon our exclusive descriptions of the new Lea-Francis sidecar combination, the new 7 h.p. twin Rudge, and numerous two-stroke lightweight machines, we are able to publish this week the first illustrated description of the new 6 h.p. 90° twin P. and M., which is to have four speeds.

The International Trial.

An interesting entry for the F.I.C.M. Trials, with Grenoble as a centre, from August 3rd to 9th, is that of Maurice Greenwood, of Todmorden, with a 2½ h.p. two-stroke Connaught.

Another two-stroke rider in the International Six Days Trials will be A. G. Fenn, who is to be mounted on a 2¾ h.p. Levis, with Enfield two-speed gear.

A late entry was received from R. G. Parker, who, it will be remembered, successfully rode a Norton in the Paris-Nice Trial. This time he will be mounted on a Triumph machine.

Main Contents of this Issue.

This special issue, which is greatly enlarged, in addition to the usual features, contains an article by G. D. Abraham on hill-climbing in Cumberland, entitled:

"What Lightweights can do in Lakeland." Page 106.

"Why I Favoured the Two-stroke Engine," by A. A. Scott. Page 111.

"Where a Lightweight Scores," by B. H. Davies. Page 109.

An illustrated Buyers' Guide of fifty-five two-stroke and lightweight machines. Pages 131-142.

"The Action of a Two-stroke Engine," with diagrams. Page 104.

"Through Feminine Goggles," by Miss May Walker. Page 102.

"The Progress of Lightweights from Year to Year (1903—1910)." Page 125.

"New P. and M. 6 h.p. Twin-cylinder." Page 122.

"Round the Six Days Course." Page 117.

The different week-end events are also described and illustrated as usual.

Police Traps.

We are informed that a police trap is being worked between Padbury and Buckingham on the Buckingham-Winslow road, and there are rumours of another on the Buckingham-Aynho road at Finmere, about four miles from Buckingham.

THE INTERNATIONAL SIX DAYS TRIAL.

About 70 Entries and 3 International Teams: Great Britain, France, and Switzerland.

THANKS to the supineness of the Union Motocycliste de France, we are still unable to give anything like a complete list of entries. These closed at ordinary fees on the 11th inst., and all that has been sent to us by the French governing body is a list of manufacturers and private owners who have entered. No mention is made of the machines, and the list is certainly not complete, as many names of drivers are missing. Entries finally close at double fees next Saturday. It will be noticed that of the sixty-four names given in the appended list twenty-seven, or nearly half, are English. Up to the present only three International teams have been entered for the Motor Cycle Manufacturers' Union 200-guinea trophy.

Owing to the French body having kept the A.C.U. in ignorance of the names of the English entrants up to the eleventh hour, the latter institution will find it difficult to make satisfactory travelling arrangements. But those English riders whose names are given herewith are being circularised by the Union, and those who are travelling by road will, through the courtesy of the R.A.C., receive a route to Grenoble, made out with the clearness and accuracy for which its touring department is famous, while a car bearing two officials of the F.I.C.M. will leave Havre about 8.30 on the morning of the 30th inst. for Grenoble, and those who require a pilot may follow it. It must be distinctly understood, however, that as it is urgent for the occupants to arrive in Grenoble as early as possible, the car cannot wait for any who drop behind, and the suggestion has been made by *The Motor Cycle* merely to help those who care to take advantage of the offer. All who travel by road should take a French Michelin Guide with them to aid them in selecting hotels on the route.

SWISS INTERNATIONAL TEAM.

Progin (350 c.c. Motosacoche)	Lavanchy (500 c.c. Motosacoche)
Gex (350 c.c. Motosacoche)	

FRENCH INTERNATIONAL TEAM.

Naas (500 c.c. Clement	Violet (Violet-Bogey cycle car)
Cuzeau (500 c.c. Terrot)	

CLASS A.—Up to 350 c.c.

—— (Peugeot)	—— (Alcyon)
—— (Peugeot)	—— (N.S.U.)
—— (Clyno)	*T. C. de la Hay (Sunbeam)*
P. S. Brady (Douglas)	—— (Austral)
—— (Terrot)	Maugis (Douglas)
—— (Terrot)	—— (Motosacoche)
Frank May (A.J.S.)	A. G. Fenn (Levis)

Up to 500 c.c.

—— (Peugeot)	R. W. Follet (Triumph)
—— (Peugeot)	Vernon-Busby (Sunbeam)
—— (P. and M.)	L. A. Bollack (New Hudson)
G. A. Gregson (Bat)	—— (Motosacoche)
C. P. Finn (Enfield)	Grappelon (——)
—— (Terrot)	Willoughby (Zenith)
—— (Terrot)	A. J. Sproston (Sunbeam)
M. C. Breese (B.S.A.)	Karldon (Zenith)
—— (Clément)	Graham-Price (Bat)
—— (Clément)	—— (Ariel)
—— (Clément)	*E. H. Lees (A.B.C.)
—— (Gladiator)	H. F. Edwards (Bat)
—— (Gladiator)	*W. F. Newsome (Triumph)*
J. Stuart White (Bradbury)	*A. E. Catt (Triumph)
—— (Alcyon)	*F. Dover (Premier)

CLASS B.—Sidecars up to 500 c.c.

—— (Gladiator)	Vassal (Herdtlé et Bruneau)

Up to 750 c.c.

Frank Smith (Clyno)	P. Münch (Motosacoche)
Clifford Wilson (Quadrant)	

Up to 1,000 c.c.

C. R. Collier (Matchless)	—— (N.S.U.)
H. V. Colver (Matchless)	F. L. Bassett (Bat)
R. A. Bishop (Enfield)	*G. Hunt (Campion)

CLASS C.—Cycle Cars.

H. F. S. Morgan (Morgan)	—— (Chater-Lea)
—— (Violet-Bogey)	Vincent (Violet-Bogey)
—— (Baby Peugeot)	—— (Bedelia)
—— (Baby Peugeot)	—— (Bedelia)
—— (Baby Peugeot)	

The names in italics indicate the English team, and those marked with an asterisk, while they do not appear on the official list, have either sent their entries to the U.M.F. or have signified their intention of so doing.

Entries definitely close at double fees on Saturday next. The trial is from August 3rd to 9th, the total distance being 981 miles.

IRISH END-TO-END NOTES.

(A description of the run will be found on page 126b).

One of the weaknesses of the regulations of the Irish End-to-end Trial was that while it was possible for a man who was an hour late to obtain an award, if a rider was found to be a few seconds in advance of the ten minutes allowed on the maximum scheduled time he was disqualified. At the secret check at Tipperary quite a number of men were caught in this way. Hugh Gibson was amongst the number, and F. L. Dooley. The latter, believing it was useless to go on, retired at Dublin, but Gibson proceeded. Complaints were made by several of the men that all the riders were not checked at the same place. As Gibson's margin of error was only ten seconds, it will be readily seen that a few yards either way might account for it.

One of the most severe parts of the course was the observed hill near Kenmare. It is on the old road from Kenmare to Killarney, and proved a very much more severe ascent than the Ballaghabeama Pass. The gradient was steeper, and the surface was quite as rough. The nearest approach to it was the "staircase" in the Six Days Trial.

The first day's run was somewhat marred by accidents, which put an end to the chance of de la Hay, the Sunbeam rider, and Clancy (2¾ h.p. Douglas). Both came to grief at the same spot, but one was not in any way responsible for the accident of the other. De la Hay came round a sharp bend of the road at a very fast pace, and, finding the corner blocked by some riders in front, he took to the grass on the inside without observing that it concealed a very deep gulley. He got a nasty fall, and his machine was too much injured to permit him to continue. Clancy came to grief in a somewhat similar way at the same place. Wilhelmj, who was following on a sidecar machine, in a very sportsmanlike manner took both the riders back to Killarney, where they received medical attention, and were able to proceed to Dublin by train. Wilhelmj was very late at the Limerick control in consequence, but doubtless he will not be penalised for his sportsmanlike action.

"Sou'-Wester" (2¾ h.p. Douglas), who, by the way, will be a competitor in the Grenoble Trials next month, was very unlucky with tyres. He put in no less than four new tubes on the first day.

J. Parkes (6 h.p. New Hudson sc.) had a peculiar experience. In going over a culvert he caused the partition between the petrol and oil departments of his tank to come adrift, and the contents got mixed. It did not interfere with his running, but he was thirty-four minutes late in arriving in Dublin, being unable to make up the time which he lost in the earlier part of the day.

Out of thirty-nine starters only one rider used a single-geared machine. This was J. F. A. Day, on a 2½ h.p. Sun-Villiers. It will be recalled that the same rider used a single-geared machine in the recent Irish twenty-four hours, and succeeded in winning an award.

Ballaghabeama Pass did not prove by any means as severe a test as was anticipated. In fact, but for the roughness of the surface it would have given little trouble, even to the sidecar drivers. Under normal conditions the scenery in the neighbourhood is strikingly beautiful, but we feel that few riders in the trial were able to appreciate this aspect of the district, as the ascent of the pass was made by most of the men in a steady downpour of rain.

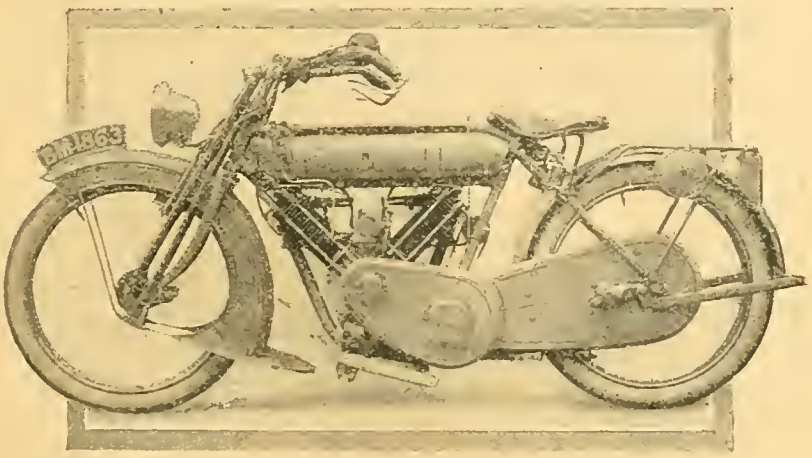
A NEW 750 c.c. TWIN P. & M.

Entirely New Design, embodying a 90° Engine of 6 h.p., Four-speed Gear, and Automatic Carburetter.

RUMOURS of a twin P. and M. have been prevalent for some time, and it was recently our good fortune to have an opportunity of inspecting one of these interesting machines at the premises of Messrs. Phelon and Moore, Ltd., 4, Percy Street, Tottenham Court Road, W.C. It will be seen from the accompanying photograph that the 90° twin engine is very neatly stowed away in the frame. The front cylinder assumes the position taken up by the cylinder in the case of the single, while the rear one is similar but not quite the same as the other, and is not interchangeable with it.

Two interesting features of the engine are the method of driving the magneto and the exhaust valve lifter. The former is brought about by a bevel formed on the back of one of the two to one gear wheels which transmits the power through a shaft to skew gearing on the magneto. The drive is silent and effective, and is easily accessible, as will be seen from the accompanying photograph, which shows the case with hinged lid for protecting the mechanism. With regard to the exhaust valve lifter, on the end of the shaft is a toothed wheel meshing with teeth cut on part of the periphery of two cam wheels. When the lever is pulled over, the cams are raised and come into action with the valve raising levers. It is interesting to note that all the tappets are fitted with rollers.

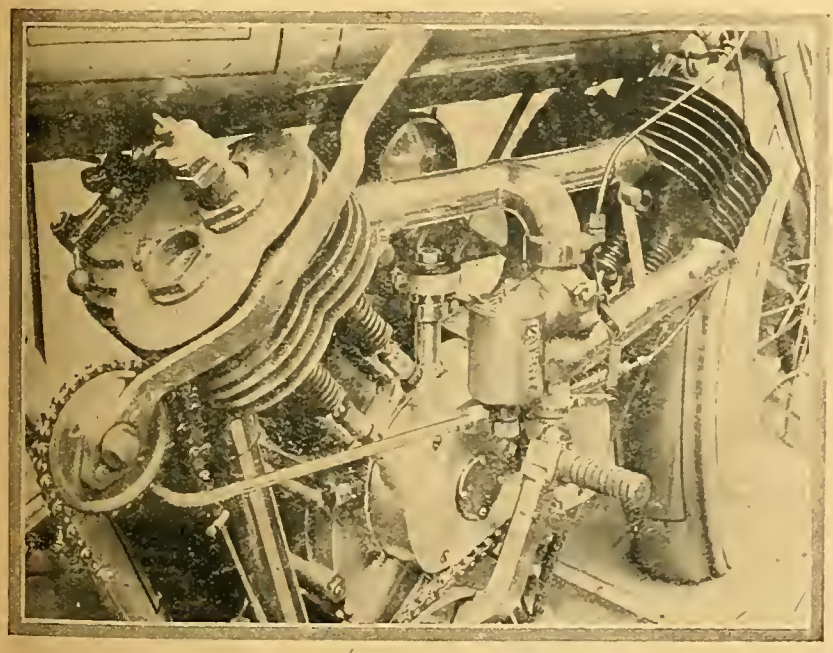
The bore of the engine is 76 mm., and the stroke is 82 mm., giving a c.c. of 750, and the engine is called 6 h.p. Oil is delivered to the front cylinder, and as the space between the baffle plates in the back is larger than that in the front, the back cylinder gets plenty of oil. The tank holds two gallons, is well designed, and looks by no means too large for the machine. The ordinary form of P. and M. two-speed gear is fitted, but a four-speed gear is in preparation, which consists of an ordinary P. and M. two-speed gear and a two-speed dog clutch gear box fixed to the bottom bracket—an ingenious and simple arrangement which should work admirably.



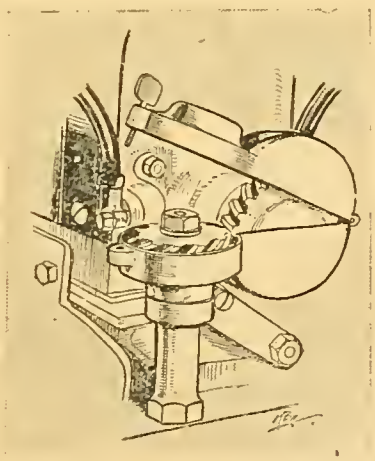
Transmission side of the new twin-cylinder 6 h.p. P. and M., showing position of magneto, and cylinders set at 90°.

The engine is arranged in the same way as a single, so that it can be swung forward and the cylinders removed.

Messrs. Phelon and Moore have been studying the question of a twin for a good many years, and they have now succeeded in bringing out a handsome and thoroughly practical article. It has not, however, quite reached its final stages, though only a few detail improvements have to be added. The carburetter is the Claudel-Hobson, which gives an ample amount of flexibility to the smooth running engine, but we understand that a different type will be fitted as a standard. Other P. and M. features, such as the front fork, chain cases, kick starter, brakes, etc., have been retained practically without alteration.



Valve side of the 90° 6 h.p. twin-cylinder P. and M. engine, showing Claudel carburetter

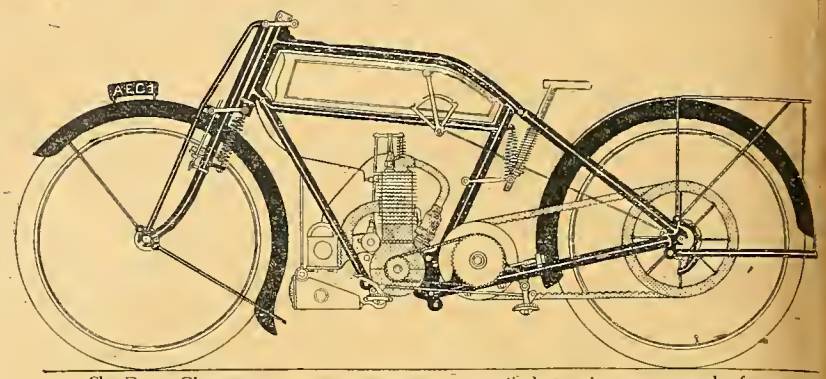


Worm drive to the magneto on the new P. and M.

A Twin Two-stroke with Four Valves.

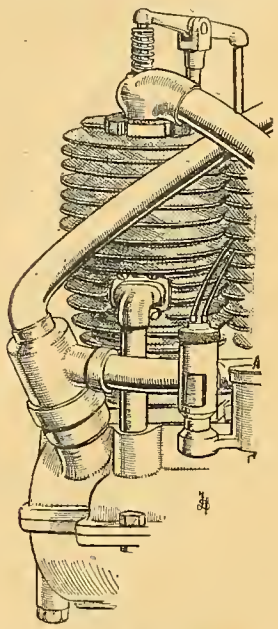
An Interesting Combination of Valve Principles.

THERE is under construction, in Coventry, at the present time a most interesting two-stroke motor cycle. The designer, Mr. Every-Clayton, of St. Mary's Villa, Hanley Swan, Worcester, is working on a somewhat unusual principle, for, combined with the usual two-stroke principle, there is a rotary valve and a mechanical inlet valve to each cylinder. It is anticipated that the greatly improved results will more than counter-balance the increased complication. The cylinders are both vertical and are set across the frame, the cranks being set at 180°. The mixture is drawn into each crank case through a rotary distributer valve, and a certain amount is transferred in the usual way through a comparatively small diameter pipe. The main charge, however, is transferred from the opposite crank case through the distributer valve, and finally passes through a mechanically operated inlet valve in the head of the cylinder. The exhaust ports are arranged in the usual manner. The arrangement of the double transfer pipe system obviously allows of a long inlet period, while the admission of gas from the cylinder head helps to scavenge the cylinder.

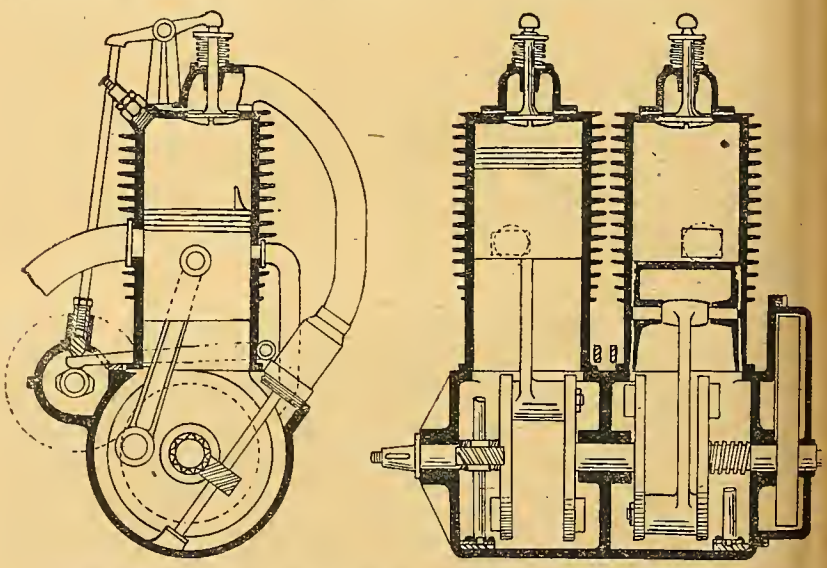


The Every-Clayton two-stroke, which has a two-cylinder engine set across the frame. Note the counter-shaft and large driving pulley.

The constructional details of the engine are of some interest, for the crankshaft is built up, four internal flywheels be used. The crank case is split horizont and carries the camshaft across the fr while a chain drive is used to the coun shaft. The rotary valves are driven skew gear direct from the crankshaft, a plain bearings are used throughout. final drive is by belt, and a hub gear v probably be used. The frame has the tube slightly sloped.



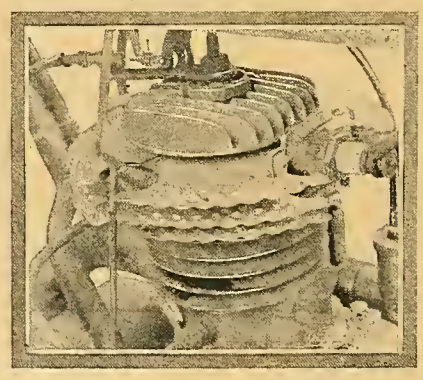
Part of the Every-Clayton twin-cylinder two-stroke showing the rotary distributer valve case, overhead inlet valve and auxiliary transfer release.



Diagrammatic views of the Every-Clayton engine showing the skew gear drives for the rotary valves and mechanically operated inlet.

A NEW RADIATOR FOR AIR-COOLED ENGINES.

An air-cooled engine with special cooling flanges is now no uncommon sight, for it is fairly generally realised that, though the standard cylinder ribs are good conductors, they do not dissipate the heat as quickly as might be. Messrs. Mills, of 15, Conway Road, Southgate, N., have recently introduced a method by which a series of aluminium plates of peculiar studded form are connected into a continuous heat dissipating chain by hooks and springs. The aluminium segments have tongues of the same material riveted to them, and are pressed firmly between the ribs, and are connected as explained above. Three rings are recommended for most engines, but those whi have no ribs on the head may fit a four We hope to carry out experiments as the efficiency of the "Koolah" fins they are called on a modern two-stro



THE WESTOVIAN MOTOR CYCLE.

A new motor cycle which is bei marketed at a very attractive price the Westovian, made by R. V. Hea and Son, 24, Catherine Street, Sou Shields. The power unit is the Precisio and various powered engines from 2½ h. to 4¼ h.p. are fitted. The equipment the machine is very thorough, and t specification embraces nothing but t best fitments.

The Progress of Lightweights from Year to Year

Extracts from Commentary Articles in "The Motor Cycle," 1903 to 1910.

ALTHOUGH the early type motor cycles were really lightweight machines as we now know them, the fact that they were generally fitted with inefficient engines, troublesome systems of transmission (belts and fasteners a few years ago were not the good now obtainable), and the absence of change-speed gears soon brought them into disfavour. The more efficient heavyweight quickly replaced the lightweight, but every sound writer realised to the full that the lightening process was only a question of time, and that gradually, but surely, an efficient lightweight would be evolved. Motor cyclists have to thank (1) the high-tension magneto, (2) the improvement in engine efficiency generally, (3) the adoption of spring forks, (4) the production of reliable change-speed gears, and (5) the perfecting of the two-stroke engine for hastening the arrival of really efficient lightweight motor cycles.

Many recruits to the pastime are apt to look upon the lightweight as something new, and, though in its new guise it is certainly different from its original prototypes, the lightweight is actually the oldest type of machine, and its progress may be followed from year to year by a perusal of the extracts from *The Motor Cycle* given below. Incidentally, our pages provide the only record by which the history of the lightweight may be traced, as for six years *The Motor Cycle* was the only journal devoted to the encouragement of the pastime and the improvement of the breed of motor cycles generally. We did not hesitate to criticise when we considered such criticism desirable. The fruits of our spade work are now being reaped by all and sundry, the motor cycle movement having grown to proportions few ever dreamed it would attain.

From "The Motor Cycle," November 11th, 1913:

"A fairly light machine which can be pedalled with comparative ease for a short distance is, on the whole, preferable to a heavy cycle for city work, and if it has a low frame, it can be rapidly mounted and dismounted with slight trouble."

Issue of September 26th, 1904, page 925:

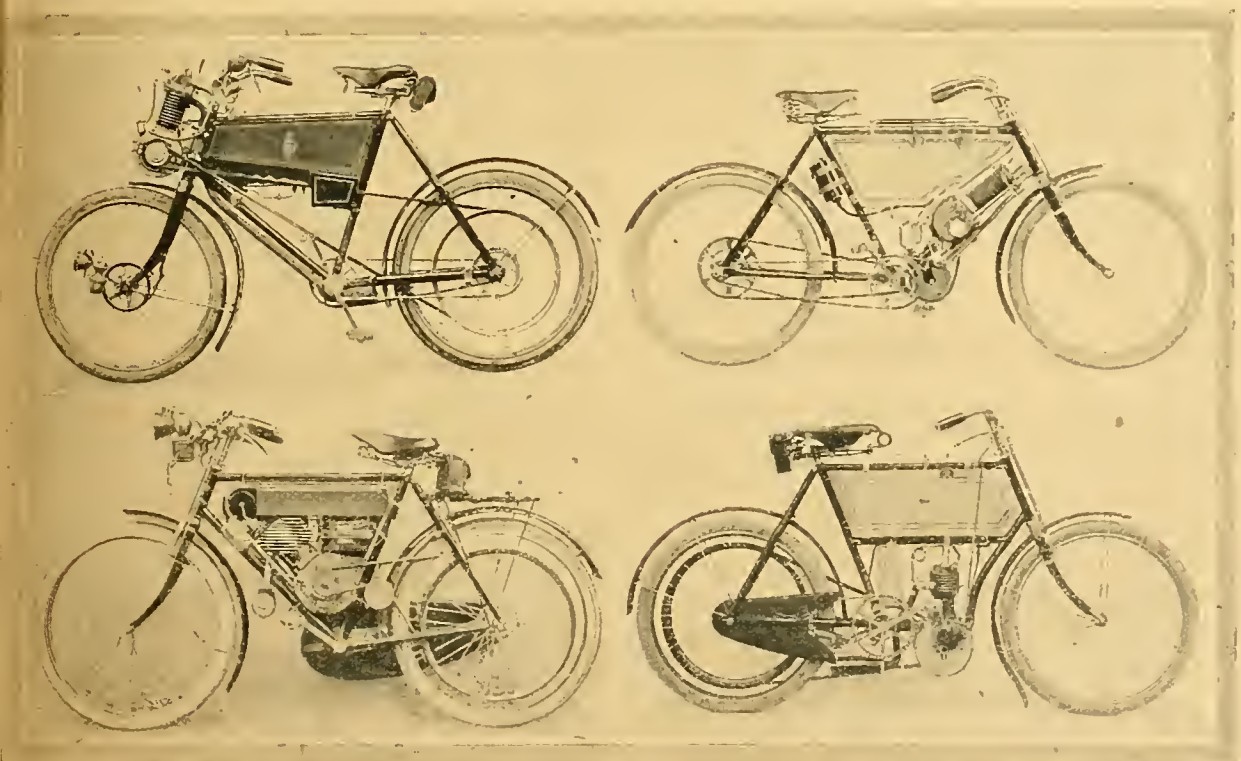
"There is no novelty in seventy pound machines; they were made two years ago, exhaustively tried, and found wanting, and one of their first defects was excessive vibration. The motor bicycle can be, and will be, lightened, but the first aim should be—and it has been with the majority of makers—efficiency and a reasonable margin of strength. The lightening process will be gradual, and not seventy pounds at a time. Weight is a great drawback, but it is at present the lesser of two evils."

Issue of February 20th, 1905, page 160:

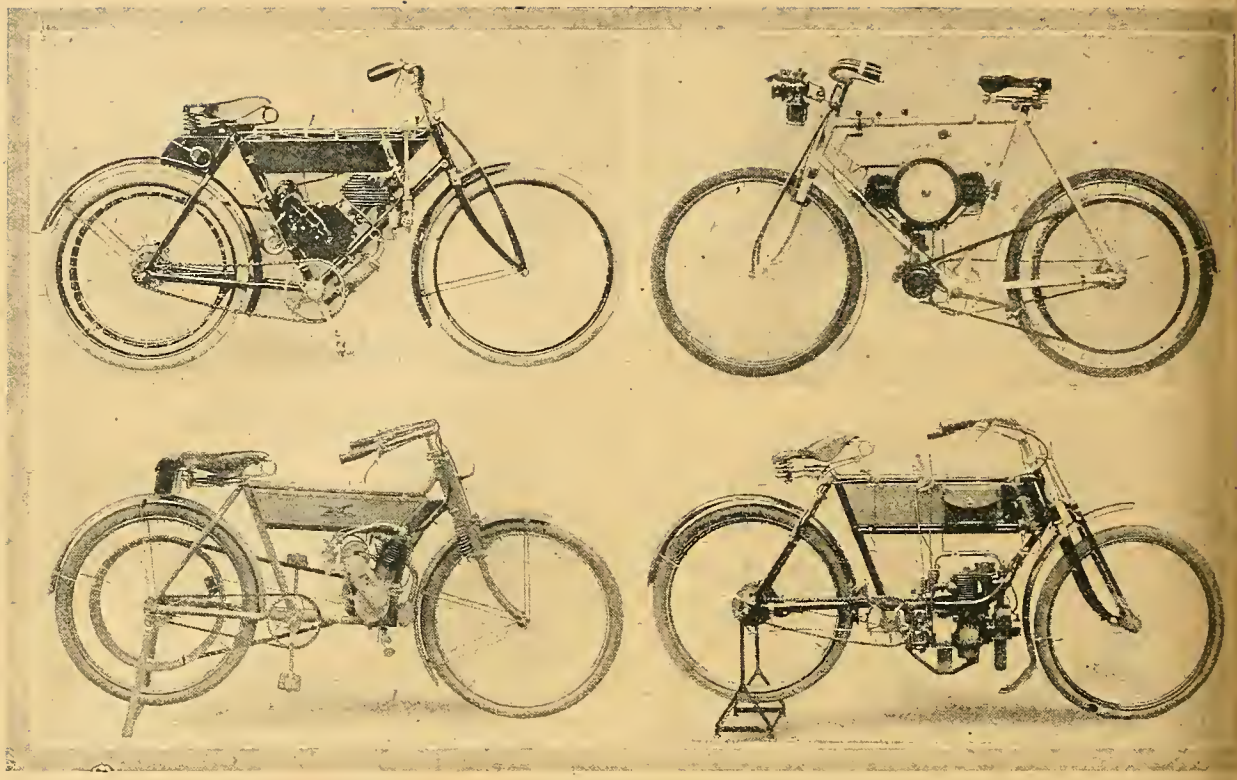
"Firstly, *The Motor Cycle*, as all practical riders do, advocates Efficiency spelt with a big E.

"Secondly, it advocates flexibility.

"Thirdly, it advocates simplicity, coupled with easy means of control.



(1) A lightweight which was much in vogue ten years ago was the belt-driven Werner. Note how the belt is crossed near the steering head
(2) Another early type which scored a great success was the single cylinder 1¾ h.p. Clement Garrard, which had chain drive and a two-speed gear
(3) Looking at the above photograph, one would hardly credit that this well designed featherweight—the Motosacoche—is ten years old
(4) The lightweight Ariel, which ranked as one of the foremost machines in 1904.



A FEW SPECIMENS OF LIGHTWEIGHT DESIGN, 1906 TO 1910.

(1) The 1¾ h.p. single-cylinder N.S.U. of 1908. (2) The horizontally opposed twin-cylinder Fairy, one of the most up-to-date lightweights of its time (1906) and the forerunner of the 2¾ h.p. Douglas. As may be seen the chain and belt drive was a feature of this machine, as well as the countershaft clutch operated by a Bowden control. (3) Another featherweight machine was the single-cylinder Wolf, which was fitted with external flywheel and enclosed chain drive to the magneto. (4) One of the earliest types of single-cylinder F.N. with two-speed gear and shaft drive.

"Fourthly, it advocates ample strength.

"And lastly, it distinctly states on every available opportunity that it would like to see the modern motor bicycle weight less than it does at present.

"Put into a nutshell—what we wish to say is, we intend to do all we can to foster the go where-you-please machine."

A.C.C. Lightweight Trial Abandoned in 1905.

Issue of March 13th, 1905, page 227:

"We should be very sorry indeed to see a trial for lightweight machines abandoned entirely, and we have every hope that the Auto Cycle Club will include a class for machines weighing under 100 lb., all on, in the 1,000 miles trial."

Issue of February 26th, 1906, page 1273:

"The weight and change-speed gear questions are the problems of the future, but every day brings the ideal motor cycle nearer."

"Ixion," on March 5th, 1906, page 1301:

"I quite expect that by 1909 I shall sit a mount that fears no hill, can do 45 miles per hour on the level, and run very smoothly, while not exceeding 130 lb. all on. In course of time the petrol turbine may come, and we shall obtain the same attractions on a mount scaling 75 lb."

Issue of December 25th, 1907, page 1022:

"Now what is wanted is that some of the enthusiasts who regularly own two machines should give the lightweights a trial next year, and by riding them publicly in an odd trial or two, and by sending their experiences to *The Motor Cycle*, inform a tardy and incredulous public that wherever weight has hindered the progress of motor cycling, the impediment cannot any longer be alleged."

Issue of January 15th, 1908, page 45:

"The 1907 Stanley Show has made it quite clear that a really efficient lightweight, low-powered motor bicycle must be in future added to the popular and successful classes. This is a great advance, and it is obtained by two parts of the machine. The engine is a great deal more efficient, and very light and efficient magnetos have been substitute for small batteries. . . . Several of the light machin now on the market are thoroughly reliable and efficie touring mounts."

"Ixion," issue of September, 1908, page 707:

"As soon as the lightweight is as efficient as the 130 l and 160 lb. machines, it will enter upon a tremendous vogu . . . It is, to my mind, very absurd to pretend that t lightweight cannot within a short time prove itself t equal of its heavier compeers in all respects, speed alo excepted."

Issue of October 27th, 1909, page 817:

"Another healthy bantling of the trade is the ligh weight. It continues to equal the performances of t second-rate roadsters in the big reliability trials. . . If a lightweight is put in the hands of a steady-goin driver, it will give faithful service, and only needs certai transmission improvements to make it the equal of standard tourist mount."

Olympia Observations.

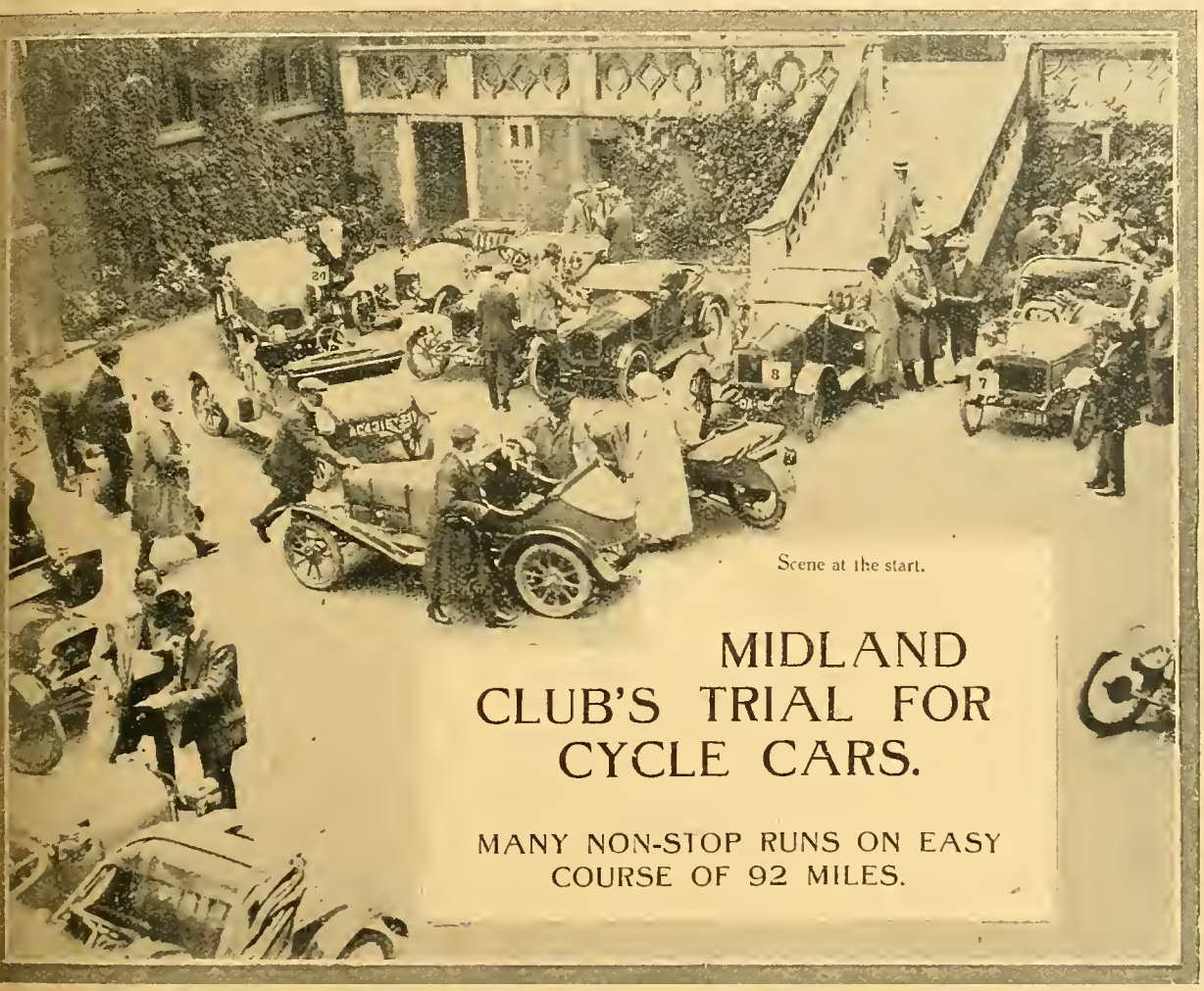
"One can now buy a machine with a comparativel tiny motor with the knowledge that it will climb an main road hill, simply through the agency of the emergenc gear."

Issue of November 24th, 1910, page 1143:

"I never saw such a taking selection of lightweight There are a baker's dozen, any one of which should promis us a really jolly time, and I am more than ever incline to devote a large percentage of valuable time to ridin lightweights."—B. H. DAVIES.

"Ixion," Issue of August 25th, 1910, page 810:

"My last convert to our common hobby is a wholesal grocer. On my advice, he invested in a good 1¼ h.p. 80 lb lightweight, which is powerful enough to take all the hills i a moderately undulating neighbourhood. His travelling cost are reduced by seventy-five per cent., and his rounds onl occupy two to four hours, as against six to ten.



Scene at the start.

MIDLAND CLUB'S TRIAL FOR CYCLE CARS.

MANY NON-STOP RUNS ON EASY COURSE OF 92 MILES.

GOLD medals were cheap on Saturday in the first open competition for cycle cars organised by the Midland Light Car Club. Twenty-four competitors started from the Midland Wheel Club's premises at 2.30 p.m. over a ninety-two miles course destitute of test hills, with the sole exception of Ankerdine, a half-mile climb averaging about 1 in 8.

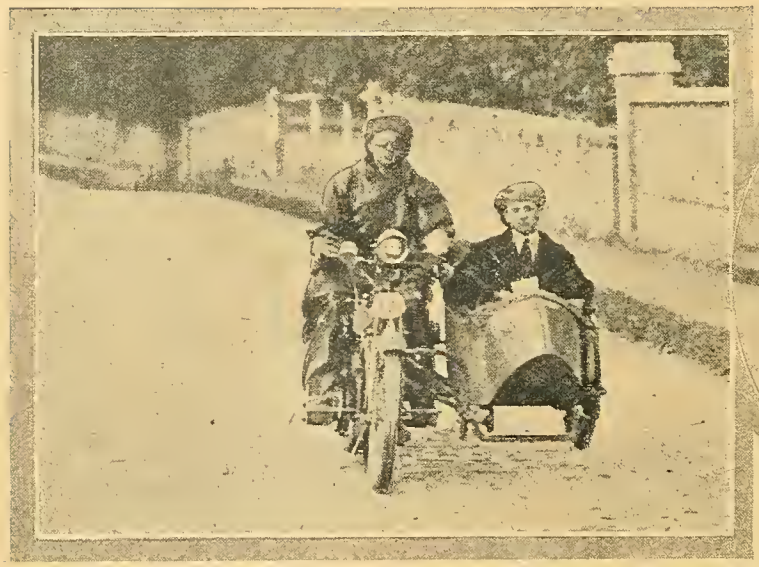
There were several in the competition who took part in the Six Days Trials, and naturally they looked upon it as a tea party. There were tests, however, to catch the unwary, notably the stopping and restarting test on Rose Hill, Redhal, where Mrs. Powell (Humberette) accidentally stopped her engine in engaging the clutch. A Horstmann stopped on Ankerdine, where the majority of the water-cooled vehicles boiled merrily, two others went off the course, but, except for punctures, there was nothing left to trouble the competitors. Oliver was driving a Morgan with an M.A.G. air-cooled engine, and it so happened that on Ankerdine he found himself side by side with H. F. S. Morgan, whose runabout had a water-cooled overhead valve J.A.P. The pair automatically opened out and disappeared from view side by side in a cloud of dust. Burgess's Calthorpe, however, was agreed to be fastest on the hill. Anderson's Humberette which had Harcourt radiators to the air cooled cylinders, went up on middle gear. Sambidge, who suffered an early puncture, sped up the hill with ease.

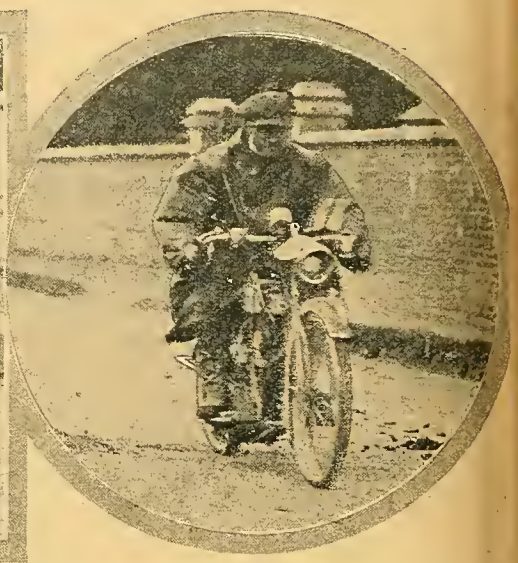
A flexibility test followed the tea interval, and after a few competitors had passed a constable appeared and seemed quite concerned to see the little cars crawling along at snail's pace in the slow test and proceeded to examine all licences and inspect numbers. Morgan and Busby, on Morgans, made the best show of the lighter type vehicles to all appearances, though Mrs. Powell and Martin Anderson handled their Humberettes with much skill. The remainder of the run was *via* Bromyard and Worcester over easy main roads, and at the finish there was a weary wait for the consumption to be checked. The most economical machine was Busby's Morgan, which equalled 52.6 m.p.g. The engine is a J.A.P. and the carburetter an Amac

The results issued late the same evening were as under, twelve gaining gold medals and seven silver medals.

		Consumption. Gals.	Pts.	Ozs
WINNER OF THE PRESIDENT'S CUP: M. Anderson (Humberette).				
GOLD MEDALS.				
M. Anderson (Humberette)	Non-stop	1	7	0
F. Burgess (Calthorpe)	Non-stop	2	4	0
Miss Morgan (Morgan)	Non-stop	1	7	0
G. L. Colomb (G.W.K.)	Non-stop	1	7	0
Miss Roper (Enfield)	Non-stop	1	7	7
V. Busby (Morgan)	Non-stop	1	6	0
F. S. Whitworth (A.C.)	Non-stop	2	3	0
H. T. Miller (Crescent)	Non-stop	2	3	0
H. F. S. Morgan (Morgan)	Non-stop	2	1	0
P. J. Evans (Standard)	Non-stop	2	2	0
H. Hillick (Standard)	Non-stop	2	3	0
R. D. Oliver (Morgan)	Non-stop	2	5	0
SILVER MEDALS.				
J. D. Stevens (Morris-Oxford)	Non-stop	2	3	0
J. T. Chance (Alldays Midget)	Non-stop	2	6	0
J. Hands (Melen)	Non-stop	3	0	0
A. W. Rowley (Morris-Oxford)	Non-stop	3	1	0
G. Sambidge (Morgan)	Puncture	2	0	0
Mrs. Powell (Humberette)	Stopped engine (restarting test)	2	2	0
R. V. C. Brook (Enfield)	Ran out of petrol	3	6	0
NO AWARD.				
J. S. Johnson (Horstmann)	Stopped on two hills.	2	6	0
H. B. Fenwick (Enfield)	Puncture	-	-	-
J. Percox (Enfield)	Retired	-	-	-
H. C. Grover (Swift)	Went off course	-	-	
A. T. Warne (Warne)	Went off course	-	-	-

Irish End-to-end Reliability Trial.





(1) F. M. Summerfield (6 h.p. New Hudson sidecar) leaving Dublin. (2) J. Stewart (2¾ h.p. Douglas), who enjoys the distinction of having competed in all the Irish End-to-end trials. He is considered a likely winner.

THE annual Irish End-to-End reliability run, promoted by the Ulster Centre of the Motor Cycle Union of Ireland, was held on Thursday and Friday, the 16th and 17th inst., starting from Mizen Head in County Cork. Hitherto the trial has been a one-day affair, but it was felt by competitors and promoters alike that the riding of 390 odd miles with only one stop was more of a test of endurance of the riders than of the reliability of the machines. On the present occasion it was decided to extend the trial over two days, and the distance was increased by the inclusion of Killarney and Limerick in the first day's ride, whilst on the second day, instead of finishing at Fair Head, the ride was continued to Belfast, the total mileage being 505¾. The route from the start was hilly, and at the end of seventy miles the first test hill was encountered, a portion of the mountain pass of Ballaghabeama being observed. The ascent did not seriously trouble the solo machines, but some of these with sidecars attached found difficulty in getting up. At Killarney, the first open check, Armstrong (3½ Triumph), Granger (6 Bradbury sc.), Longton (3½ Alldays), Parkes (6 New Hudson sc.), Summerfield (6 New Hudson sc.), Phillips (2¾ Douglas), Francis (3¼ Lea-Francis), Fitzgerald (2¾ Levis), Black (5 Rudge), and Wray (5 Clyno) were late. Gibson (2¼ Clyno), the first man to arrive, was considerably ahead of schedule. At Limerick the majority of the riders had made up their time, Parker, Black, and Beattie (2¾ Sunbeam) being the late arrivals. There were secret checks near Tipperary and Monasterevan. At the former several of the men were found to be more than the permissible ten minutes ahead of time and may therefore be disqualified. Thirty-two riders arrived in Dublin at the completion of the first day's run, and all of these were within the limit of tim with the exception of Parkes who lost his way near Killarne

The second day's ride was plain sailing until the test hil were encountered near Fair Head, and a goodly percentag failed to make clean ascents of the Green Hill, Dan Nanc and Isear. Those who failed to make clean ascents were Armstrong (Triumph), Greene (3½ Rudge), Summerfield (Ne Hudson), Chambers (3½ B.S.A.), Francis (Lea-Francis), Alle (2¾ Douglas), Browne (3½ Rover), Cox (3½ Douglas), Da (2½ Sun), Beattie (2¾ Sunbeam), Fox (3½ Rudge), and Hosfor (3½ Rover). Fitzgerald evidently took a different route an avoided the hills as he failed to put in an appearance.

Those who finished and were timed in at Fort Willian Belfast, are :

Armstrong (3½ Triumph)	Woods (3¼ B.S.A.)
Greene (3½ Rudge)	Fitzgerald (2¾ Levis)
Gibb (2¾ Douglas)	Maldon (2¾ Sunbeam)
Cameron (3½ Triumph)	Browne (3½ Rover)
Longton (3½ Allday)	F. Smith (Clyno)
Fairell (4 Triumph)	Cox (3½ Douglas)
Summerfield (6 New Hud on sc.)	Day (2½ Sun)
Gibson (2¼ Clyno)	Dwyer (4 Triumph)
"Sou' Wester" (2¾ Dou_la_)	Wilhelmj (5-6 Bradbury)
Chambers (3½ B.S.A.)	Beattie (2¾ Sunbeam)
Phillips (2¾ Douglas)	Henderson (5 Rudge)
Bees (4 L.M.C.)	Fox (3½ Rudge)
Francis (3¼ Lea-Francis)	Hosford (3½ Rover)
Allen (2¾ Douglas)	Gregson (4½ Bat)
Stewart (2¾ Douglas)	Jones (3½ B.S.A.)

The result will not be declared for a few days, as th committee have to verify the returns from the variou controls. It was pretty generally understood that th winner will turn out to be either F. Smith (Clyno) or J Stewart (Douglas), and that the team prize will go to th B.S.A. trio.

More Records Beaten.

O'Donovan on a 3½ h.p. Norton lowers the Five and Ten Miles Times.

ON Friday, the 17th inst., D. R. O'Donovan, riding a 3½ h.p. single-cylinder Norton of 490 c.c. (79 × 100 mm. bore and stroke), made a successful attempt on the flying five mile and standing ten mile times. The day was fine and warm and there was a slight breeze. The Norton was in fine fettle and clocked 3m. 57⅕s. or 75.88 m.p.h. over the five miles, thus breaking the previous record held by G. E. Stanley (3½ h.p. Singer) by 2.77 m.p.h.

The standing start ten miles took O'Donovan 8m. 11⅕s., which works out at 73.29 m.p.h., and beats Stanley's previous record by 2.9 m.p.h. The Norton's fastest lap was made at 76.07 miles per hour

The speed of 3½ h.p. machines is steadily creeping up, and to lower the previous five mile record b 2¾ m.p.h. is a feat worthy of special note. Th Norton's performance is likely to draw some of ou crack riders from their shells, though we hear of severa who propose to make attempts on existing records a the B.M.C.R.C. meeting on Saturday next. Th machine was fitted with Binks carburetter, Ruthard magneto, Continental tyres, Lyso belt, and use Pratt's spirit. The new records stand for classes C and D.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Kent to Devon.

How would you advise me to go from Ashford in Kent to Ilfracombe? My machine is of 6 h.p. with a sidecar. What would the distance be?—C.J.H.

ur best route would be to go from hford through Charing, Maidstone, rotham, Sevenoaks, Westerham, Reie, Redhill, Dorking, Guildford, Hogs ck, Farnham, Odiham, Basingstoke, dover, Ludgershall, Upavon, Devizes, owbridge, Wells, Glastonbury, Bridgter, Williton, Minehead, Porlock, Lynuth, Ilfracombe. The latter part of s route is exceedingly hilly, and if u would prefer a less hilly route we uld advise you to go from Bridgwater Taunton, and then *viâ* Milverton, mpton, South Molton, and Barnstaple. e distance for the first route is approxitely 240 miles, while the latter is out 20 miles longer. The scenery is y fine, but the Devon roads rather gh in parts.

Stiffness in the Engine.

I have a 3½ h.p. two-speed machine, and lately the engine has taken to squeaking as soon as it begins to labour at all, but it never knocks; for instance, if I cut-out for a corner on a gradient it will squeak when picking up again. It will squeak on a hill before I change down to second gear, and, in consequence, I have to change down some time before I should do in the ordinary course. As soon as I change down the squeaking ceases. I ought to mention this is all with a sidecar, because, when riding solo there is no labouring at all as the machine is really a powerful one. I thought it might be the exhaust valve sticking in the guide through heat, but I do not think that this is so. I should be much obliged if you could help me to trace the noise.—H.P.L.

e squeaking may be caused through a y bearing or through the exhaust lves being stiff in their guides. A little ucklead round the stem would help tters. It is obviously impossible for us say exactly what the trouble is. The ly thing to do is to examine every rt of the machine with scrupulous care, ing that no grit has worked into the ppets, that the valves work freely in ir guides, and that the bearings are perly lubricated

Difficulty in Starting.

Recently I purchased my first motor cycle, a 2¾ twin, with automatic inlets. The machine was thoroughly overhauled by a friend, and for some weeks I had nothing to complain of. I now have considerable difficulty in starting, often having to run the machine a good distance before it will fire, and at other times it will start off with just a sharp push. Is it possible that the oil I use is too thick? If you could tell me how to remedy this fault I should be greatly obliged. I set the levers correctly, the plugs are clean, spark advanced, and I inject paraffin, but being still a novice I do not know what else to do.—BEGINNER.

As your machine is fitted with automatic inlet valves, it is therefore necessary for you to see that the springs have not weakened in any way. Also test the inlet pipe for air leaks, for if such are present it would make it very difficult for you to start. You had better get the assistance of a mechanically-minded friend to assist you in this work. Also, see that the make and break points of the magneto and the points of the sparking plug are clean.

Faulty Running of Old Engine.

I have an old (alleged 3½ h.p.) long-stroke single-geared motor cycle which I have been running with a sidecar since last Christmas on a gear of 5½ to 1. Of course, it will not take hills of any severity, but lately there has been a falling off of power and slight overheating. The machine will not accelerate smartly, and it appears as though the engine cannot obtain enough gas. I have, however, tested the carburetter and found it in order. The engine is timed correctly. I have cleaned the silencer out, the engine is fairly clean, both the valves have been ground in, and the spark appears to be all right. Do you think stronger valve springs would make an improvement?—F.C.N.

It is quite probable that the valve springs are somewhat weak, and that better running could be obtained by fitting new ones. Again, the symptoms you complain of point to bad carbonisation, and it would be as well to check this point. Also, if the plug has been used very long the electrode might have become somewhat thin through burning, and so cause pre-ignition, the results of which are overheating and sluggishness.

J. L. Norton (3½ h.p. Norton sidecar) on the rough surface of the old road over Cooks Study—which was skirted in the A.C.U. Six Days Trials. Although shown on the Contour map this portion was not followed as the road is now disused.

Front Cylinder Overheats.

Will you kindly suggest some reasons for the front cylinder of my small V twin becoming so much hotter than the back cylinder? The fins are very wide, and it surely gets the cooler air. Could a twisty exhaust pipe account for it? —G.S.O.

We do not think that the twisty exhaust pipe will account for the overheating, although of course the more directly the gases are led to the silencer the better. Probably the overheating you complain of is due to the carburetter being badly fitted to the front cylinder, thus causing an air leak, and to the back cylinder getting its unfair share of oil. A small oil baffle plate to the back cylinder might improve matters.

Uneven Wear of Belts.

I run a well-known make of 4 h.p. machine with a sidecar, but find that belts are a very difficult proposition on account of rubber peeling completely off the side of the belt next to the machine. I removed one in March and fitted a new 1in. belt, but, although no great mileage has been done, this is going in the same way and looks like being completely cleaned of rubber on the inside. Apparently there is no reason for this except general wear. The sidecar is quite evenly adjusted, and I can only put the trouble down to belt imperfection. What is your opinion?—A.T.

If your pulley is drilled out in any way for lightness on the side on which the belt wears the most, it is undoubtedly the cause of this defect. If not, in all probability you are running with the belt out of line. We do not think you can put it down to imperfection of the belt, as we have had a great deal of experience with rubber belts of various makes and have always found them give most excellent service.

South Wales to Land's End.

Will you kindly furnish me with a route from Swansea to Land's End and back, returning by a different route. I ride a 3½ h.p. single-geared machine. What gear had I better use for the Devon hills?—J.A.W.

We believe there is a service of steamers from Swansea to Ilfracombe. If so, we should recommend you to go across the Bristol Channel, and then go through Barnstaple, Bideford, Hartland, Stratton, Bude, then straight along the main road to Tintagel Head; after that, through Wadebridge, St. Columb, Mitchell, Redruth, Camborne, Hayle, Penzance, Land's End. You could return through Marazion, Helston, branch off to the Lizard, if you feel so disposed, then go through Penryn, St. Austell, Lostwithiel, Liskeard, Callington, Tavistock, Okehampton, Bow, Crediton, Tiverton, Taunton, Bridgwater, Axbridge, then turn off for Cheddar Gorge, then go through Bristol, whence there is a service of steamers to Cardiff. From Cardiff you reach Swansea *via* Cowbridge and Bridgend. You had better use a 5 to 1 gear for the Cornish and Devonshire hills, and on occasions you may require a lower ratio.

New Piston Required.

I own a 1912 3½ h.p. single-cylinder, and I have been breaking a great many piston rings. Can you give me a reason for this, and advise how to avoid it? There is also a knock when the machine is at speed, both on the level and down hill, but never on up hill work.—H.B.

The piston is far too slack, and it would be better for you to obtain a new one. By running the engine with too much clearance between the piston and the cylinder walls a very great strain is imposed on the rings. Also you have some wear in the bearings, either the big end or the small end, so that it will probably be necessary for you to have these seen to and rebushed.

A Tour in Scotland.

Could you give me the route from Reading to Edinburgh, *viâ* Oxford, Banbury, etc.? Could you also give me a few interesting places to visit, such as Loch Lomond, and the way to each place, and information concerning accommodation, if possible?—D.W.H.

We should advise you to proceed from Reading, through Shillingford, Dorchester, Oxford, Deddington, Banbury, Stratford-on-Avon, Alcester, Bromsgrove, Kidderminster, Bridgnorth, Wellington, Hodnet, Whitchurch, Tarporley, Warrington, Wigan, Preston, Lancaster, Kendal, Penrith, Carlisle, Longtown, Langholm, Hawick, Selkirk, Galashiels, and thus to Edinburgh. Loch Lomond can be easily reached by going from Edinburgh, through Linlithgow, Stirling, to Kippen, over the Aberfoyle Pass to Inversnaid. Your best plan would be to get the Auto Cycle Union or the A.A. and M.U. to work out this route for you, when they will supply you with a guide book of the districts you wi to visit, and all information you desir We regret we cannot undertake to wor out route cards, etc., for you; we mu leave this to the touring departmen of the motoring organisations, who mal a speciality of this kind of wor although we are always glad to supp routes from place to place.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"W.I." (Ledbury).—7 h.p. India Ease of starting by means of electric outfit. Comfort on bad roads.

"W.S.M." (Orkney).—1914 4 h. Triumph. Starting, reliability, durabilit Also Hopley sidecar with folding chass

"Phœnix" (Perthshire). — Hend Special Indian with sidecar, particular as to efficiency of electric starter a lighting.

"A.W.K.M." (Jersey).—Standard tw Indian with sidecar. Reliability, hi climbing, petrol consumption, electr lighting, two-speed gear, clutch, etc.

"T.M." (Sussex).—Wear and durabili of Pedley, John Bull, Dunlop, and Ly Reliable belts, especially on 1913 3½ h. Zenith-Gradua clutch model; also Bin and Senspray carburetters

"S.P." (Gloucester).—New Imperi Jap 2½ h.p. two-speed, and St Villiers two-stroke single gear. Rel bility, petrol consumption, hill-climbi speed, etc.

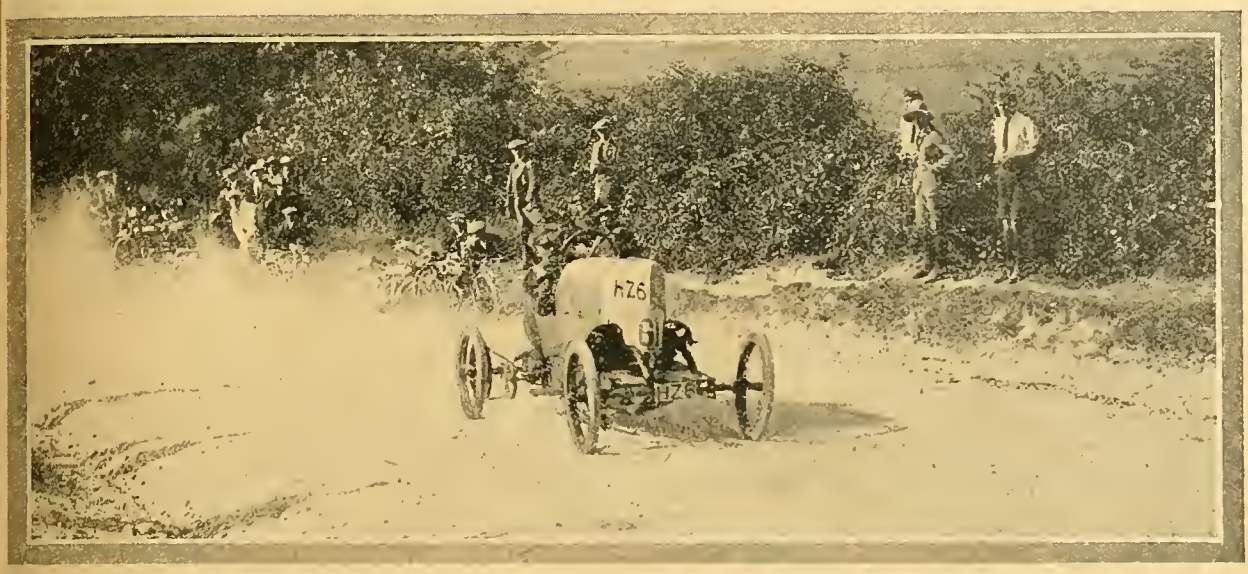
"J.H.G." (Manchester). — Reliabili hill-climbing, and comfort of 7 h.p. Indi (Hendee Special), with Montgomery spri frame or standard sidecar; 8 h Williamson (water-cooled); 7 h.p. F. and 3¾ h.p. Scott with a Canoelet Luxe sidecar or standard.

A.C.U. SIX DAYS TRIALS.

W. G. Ayling (1½ h.p. two-stroke Dayton), who took to the pathway on Lee Hill, Shibden Dale on account of the stony road surface and deep gullies.

THE CYCLECAR CLUB'S HILL-CLIMB.

Successful Event at South Harting. Fastest Time by Four-wheeled Air-cooled Monocar.



A 10h.p. belt-driven G.N., with a curious form of racing body, is seen making a good ascent in Class VI

THE annual hill-climb organised by the Cyclecar Club was held on South Harting Hill on Saturday last in glorious weather. There was an excellent entry list, and, with the exception of one long delay, caused by an accident, the event was run off pretty promptly. Vehicles of all types took part, from the crude and curious to the comfortable and costly, and formed an imposing display after the event, when they were ranged up in Petersfield on both sides of the road near the Dolphin Hotel. Many motor cyclists were present to witness the event. There was only one entrant in Class I. for standard touring cycle cars under 750 c.c., and he did not start. Class II., for standard touring light cars and cycle cars, was well supported, and as regards speeds the G.N.'s were *facile princeps*. Godfrey, who ran second as regards time, had his belts so slack that they flopped about and almost touched the ground, and the same may be said of the Adamson. A good ascent was made by the 8 Thurlow, a short wheelbase three-wheeler.

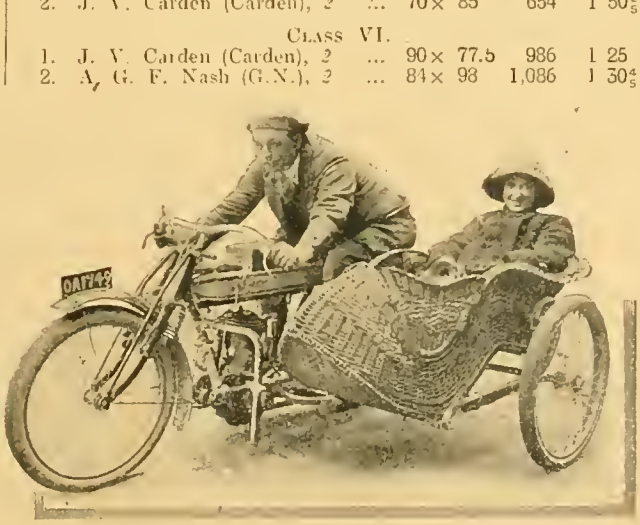
The Ladies in Trouble.

In Class III., for standard touring light cars over 1,100 c.c. and under 1,500 c.c., two of the Calcott drivers made the grievous mistake of changing up too early, while in Class IV., for lady drivers of standard touring machines, three out of five of the fair competitors came to a standstill, Miss Price's Mathis owing to a fault in the petrol feed, Miss Portwine (A.C.) stopped her road wheels for a second while changing gear, and Miss Douglas (de P.), who came to a complete stop. Class V., for standard touring monocars, produced the real excitement of the afternoon. At the beginning of the S bend Holzapfel (Carden) had a bad skid, and at the next turn skidded again in the other direction, and turned over with the machine on the top of him. He was not seriously injured, but was rather badly cut about the face, and the accident caused a considerable delay. In this class and the next the behaviour of the Cardens, which were fast, excited considerable comment, and it was observed that they took the corners sometimes on two wheels, sometimes on three (and even on one!), while one spectator said that before Holzapfel's spill both inside wheels of the machine were in the air for some time. In Class VI., for racing vehicles, the Buckingham blew out a plug.

It will be noticed that Carden made the fastest time of the day in this event. The hill is 1 mile 73 yards long, has an average gradient of 1 in 12, and a maximum gradient of 1 in 7.3. The surface was somewhat loose.

The results on time were got out promptly, and were as follow:

	Driver and car.	mm.	c.c.	m. s.
	CLASS II.			
1.	A. G. F. Nash (G.N.), 2-cyl.	84×98	1,086	1 51⅘
2.	H. R. Godfrey (G.N.), 2 ..	84×98	1,086	1 59⅘
	CLASS III.			
1	D. Cohen (Bugatti), 4 .. .	65×100	1,327	1 55⅖
2.	E. A. Lippold (Calcott), 4 ...	65×110	1,460	2 37⅕
	CLASS IV.			
1.	Mrs. Warren-Lambert (Warren-Lambert), 2	88×90	1,095	2 52⅖
2.	Miss Portwine (A.C.), 4 ...	59×100	1,096	3 9⅗
	CLASS V.			
1.	W. E. Humphries (Carden), 2	70×85	654	1 29⅖
2.	J. V. Carden (Carden), 2 ...	70×85	654	1 50⅖
	CLASS VI.			
1.	J. V. Carden (Carden), 2 ...	90×77.5	986	1 25
2.	A. G. F. Nash (G.N.), 2 ...	84×98	1,086	1 30⅘



Dan Bradbury on his 3½ h.p. Norton sidecar, on which he won four firsts in the Sheffield and Hallamshire M.C.C. speed trials last Saturday. This is the last of a series of three speed trials in which Bradbury has made the best aggregate performance both on time and formula.

"THE MOTOR CYCLE" LIST OF CLUB EVENTS.

July 25th.—Exeter and District M.C.C. Reliability run to Newquay.
„ 25th.—Lincolnshire A.C. (Motor Cycle Section). Knock-out hill-climb at Scamblesby.
„ 25th.—Matlock and District M.C.C. Hill-climb.
„ 25th.—Dublin and District M.C.C. Race meeting at Portmarnock.
„ 25th.—Woolwich, Plumstead, and District M.C.C. Run to Crown Point, Igbtham.
„ 25th.—Kilmarnock and District M.C.C. Run to Loch Lomond.
„ 25th.—Streatham and District M.C.C. Night trial for Dobson Cup, and club run to Bookham.
July 25th.—Cardiff and District M.C.C. and Newport and District M.C.C. Inter-club trial.
„ 25th.—Castleford M.C. Paperchase.
„ 25th.—Plymouth and District M.C.C. Run to Cheesering *via* Tavistock and Callington, starting at 2.30 p.m.
„ 29th.—Folkestone and District M.C.C. Cricket match on Dymchurch Sands, 2.30 p.m.
„ 29th.—Middlesbrough and District M.C.C. Old crock hill-climb.
„ 30th.—East Essex M.C.C. Run to Clacton.

Ashford and District M.C.

A motor club has been formed for Ashford (Middlesex) and district. Those who wish to join should write to the hon. secretary, Mr. G. E. Coppard, Clarendon Road, Ashford, Middlesex.

Plymouth and District M.C.C.

A hill-climb was held at Moorshop Hill recently and proved most successful. There were thirty-five entries, and the results were :

Sidecar Class (up to 1,000 c.c.)—1, T. D. A. Chapman (8 Bat), 2m. 1½s. ; 2, L. A. Brand (6 Hobart), 2m. 8½s. ; 3, H. L. Heal (8 Alldays), 2m. 4s.
Solo (up to 350 c.c.)—1, E. J. Jarvis (2¾ Douglas), 1m. 50s. ; 2, S. Foot (2¾ Douglas), 1m. 52s.
Solo (up to 500 c.c.)—1, Lieut. Barry (3½ Triumph), 1m. 18s. ; 2, Lieut. Sandford (4 B.S.A.), 1m. 24s. ; 3, W. L. Bowden (3½ Sunbeam), 1m. 33½s.
Solo (unlimited).—1, P. H. T. Hoare (8 C. and H.), 1m. 1½s. (fastest time on record) ; 2, T. Trinaman (7-9 Indian), 1m. 12½s. ; 3, H. L. Heal (8 Alldays), 1m. 17½s.

Scottish Border M.C.C.

A hill-climb was held at Lanton Hill on the 4th inst. in glorious weather. Results :

Class I.—Up to 350 c.c., on Formula, open : A. H. Alexander (2¾ Douglas).
Class II.—Up to 350 c.c., on Formula, experts barred : T. L. Purdour (2¾ Douglas).
Class III.—Between 350 and 600 c.c., on Formula, open : E. F. Gilbanks (3½ Rover).
Class IV.—Between 350 and 600 c.c., on Formula, experts barred : E. F. Gilbanks (3½ Rover).
Class V.—Between 600 and 1,000 c.c., on Formula, open : Percy E. Tolfree (6 Zenith).
Class VI.—Between 600 and 1,000 c.c., on Formula, experts barred : J. B. Innes (7 Indian).
Class VII.—Any Machine, on Time, open : J. B. Innes (7 Indian).
Class VIII.—Up to 350 c.c., on Time, open : A. H. Alexander (2¾ Douglas)
Class IX.—Up to 600 c.c., on Time, open : E. F. Gilbanks (3½ Rover).

Abergavenny and District M.C. and C.C.C.

The opening reliability trial over a distance of fifty-four miles was held on the 16th inst., the route being through Longtown, Hereford, Ross, and Skenfrith. Results : 1, H. Richmond (6 Enfield sc.), 100% ; 2, L. Jones (6 Enfield sc.), 75% ; 3, H. H. Evans (2½ New Hudson), 74%.

Hamilton and District M.C.C.

A petrol consumption test was held recently with the following result :

		Fig. of merit.	M.P.G.
1.	A. Torrance (3½ Premier)	1196	136.4
2.	G. Semple (3½ Premier)	1120	130
3.	H. Street (3½ Rover)	991	117.8
4.	J. Burners (3½ B.S.A.)	882	92.2

Sheffield and Hallamshire M.C.C.

The last of a series of three flying kilometre trials held by the Sheffield and Hallamshire M.C.C. took place on the 18th inst. The provisional results are as follow :

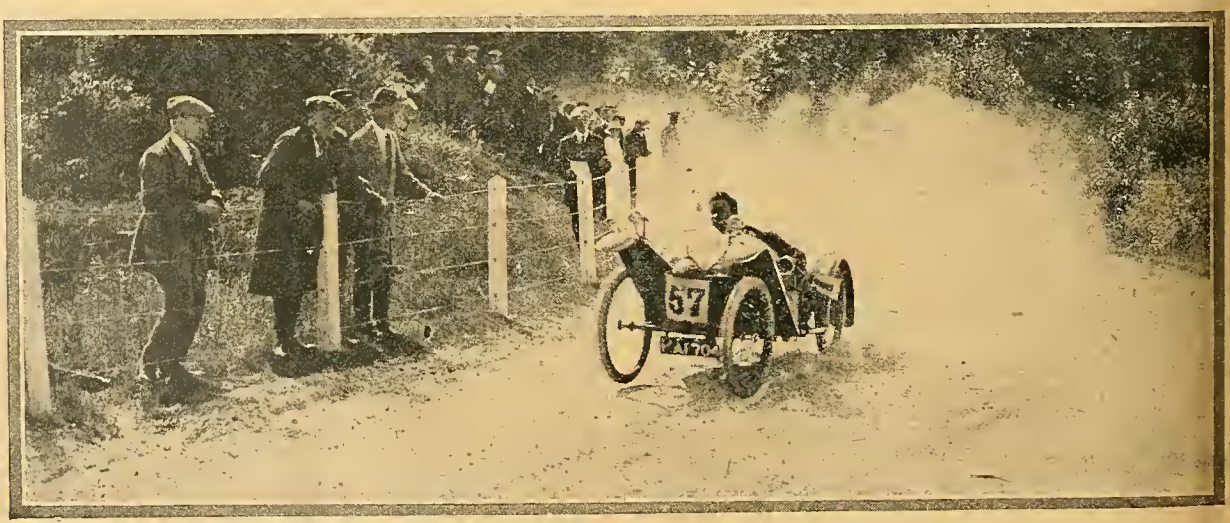
Class II. Lightweights up to 350 c.c. (on formula).—1, R. Cecil (2¾ N.U.T.) ; 2, R. M. Davy (2¾ Enfield) ; 3, T. Barber (2¾ Douglas). Fastest time : R. Cecil.

Class III. Touring Singles, 500 c.c. (on formula).—1, D. Bradbury (3½ Norton) ; 2, R. Flint (3½ Norton) ; 3, L. Lambert (3½ Norton). Fastest time : R. Flint.

Class IV. T.T., 500 c.c. (on formula).—1, D. Bradbury, 3½ Norton ; 2, R. Flint (3½ Norton) ; 3, L. Lambert (3½ Norton). Fastest time : D. Bradbury.

Class VIII. Sidecars (on formula).—1, D. Bradbury (3½ Norton). Fastest time : G. Wilkin (8 Rex-Jap). Fastest time of the day : R. Cecil (7 Indian).

D. Bradbury wins a gold medal for the best aggregate on formula, also a gold medal for time aggregate.



THE SOUTH HARTING HILL-CLIMB OF THE CYCLECAR CLUB.
W. E. Humphries (5 h.p. Carden) rounding the second bend. Note that the inside wheel is off the ground.

The Motor Cycle Buyers' Guide

Illustrations and Specifications

(Alphabetically arranged)

OF

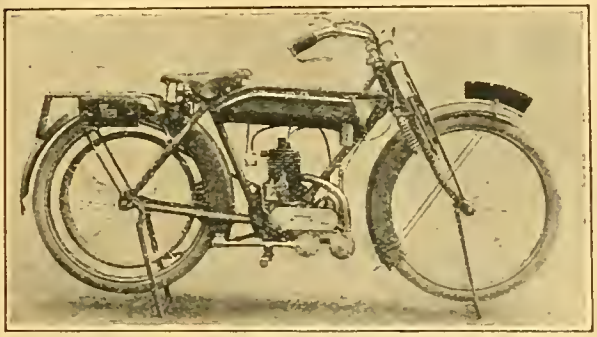
55 TWO-STROKE AND LIGHTWEIGHT MOTOR CYCLES.

This issue being specially devoted to two-stroke and Lightweight motor cycles, we give below a list of 37 two-stroke machines on the British market, and 18 lightweight motor cycles fitted with four-stroke engines of a less capacity than 300 c.c This list, which we have compiled in collaboration with the makers, will, we feel sure, be of considerable service to our readers, particularly prospective buyers, who will find, arranged in alphabetical order, the specifications of all the principal machines of the types mentioned, and their prices, together with a photograph of each. Whilst every effort has been made to ensure accuracy in every detail, we cannot hold ourselves responsible for any mistake which may have crept in.

ALLDAYS.

ngine	70×70 mm., two-stroke, 269 c.c.
nition	U.H. magneto, chain-driven.
arburetter	Senspray or Amac.
ransmission	Belt.
imensions	Height of saddle from ground, 30in. Ground clearance, 5½in. Wheelbase, 48in.
ubrication	Oil and petrol mixed.
ther Features	Druid or Saxon forks.
rice	£25 5s.; 33 guineas with two-speed gear.
ther Models	292 c.c. engine, two-speed counter-shaft, drip-feed lubrication.

Alldays and Onions, Ltd., Fallows Road, Birmingham.



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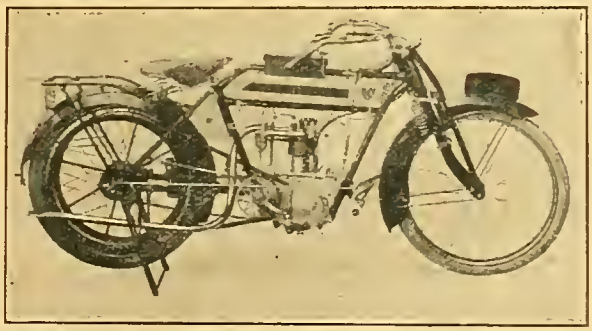
ALP.

ngine	2 h.p. Alp. 62×85 mm., 257 c.c., overhead inlet valve, four-stroke.
nition	Alp magneto, placed behind engine.
arburetter	Automatic Alp.
ransmission	Belt, ¼in., over adjustable pulley.
imensions	Height of saddle from ground, 30in. Ground clearance, 10in. Wheelbase, 51in.
ubrication	Internal hand pump.
ther Features	Druid forks. Footrests. Foot-operated brake. Tyres, 26×2. Weight, 106 lb.
rice	23 guineas.

Moto-Reve Co., Ltd., Alp Eng. Works, Alperton, Middlesex.



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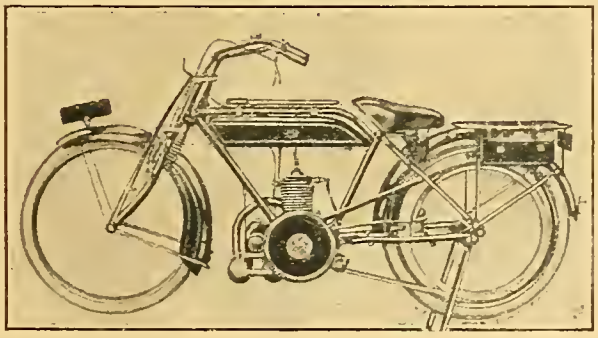
BOWN-VILLIERS.

ngine	2¼ h.p. Villiers, two-stroke, 269 c.c.
nition	High-tension magneto.
rburetter	B. and B. or Amac.
hange Speed	Two-speed in counter-shaft.
ransmission	Dunlop belt.
ubrication	Oil mixed with petrol.
ther Features	Druid forks. Dunlop or Continental tyres, 26×2.
rice	£35, or single-geared £27 10s.
ther Models	Similar machine fitted with 2 h.p. Precision unit.

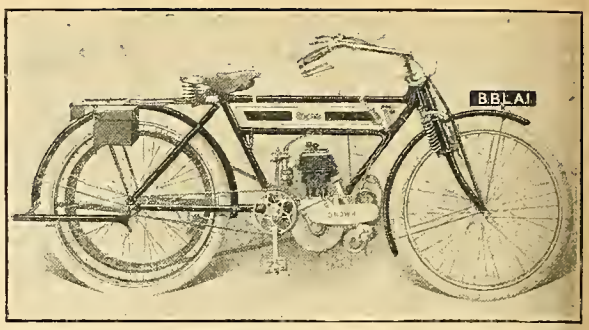
Bown Manufacturing Co., Snow Hill, Birmingham.



BROWN.

Engine . . 2½ h.p. four-stroke, 292 c.c.
Ignition . . Bosch magneto, chain-driven.
Carburetter . B. and B.
Transmission . Dunlop ⅜in belt, adjustable pulley.
Dimensions . Height of saddle from ground, 31½in. Ground clearance, 4½in. Wheelbase, 52½in.
Lubrication . Hand pump.
Other Features. Druid spring forks.
Price . . £36.

BROWN BROS., LTD., Great Eastern Street, London, E.C.



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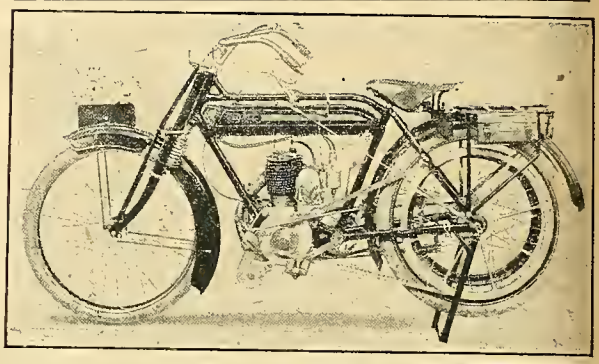
CALCOTT.

Engine . . 2½ h.p. Calcott, 292 c.c.
Ignition . . Bosch magneto, gear-driven.
Carburetter . B. and B.
Change Speed . Sturmey-Archer three-speed.
Transmission . Belt.
Dimensions . Height of saddle from ground, 34in. Ground clearance, 6½in. Wheelbase, 49in.
Lubrication . Hand pump.
Other Features. Druid forks.
Price . . 33 guineas.

CALCOTT BROS., LTD., Coventry.



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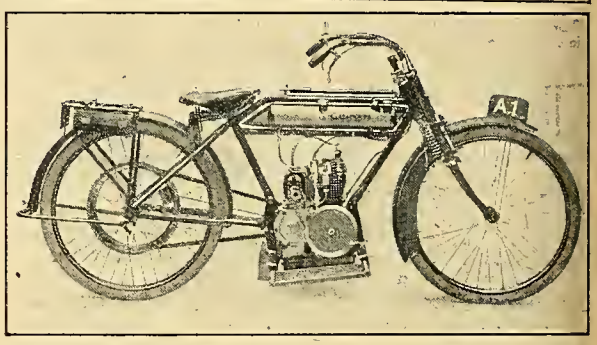
CALTHORPE.

Engine . . 2 h.p. four-stroke, 170 c.c., overhead horizontal valves.
Ignition . . U.H. magneto.
Carburetter . Amac or B. and B.
Change Speed . Counter-shaft integral with crank case, 7 and 17 to 1.
Transmission . Belt.
Dimensions . Height of saddle from ground, 29½in. Ground clearance, 5½in. Wheelbase, 52in.
Lubrication . Hand pump.
Other Features. Druid forks.
Price . . £26 5s.

CALTHORPE MOTOR CYCLE CO., Barn Street, Birmingham.



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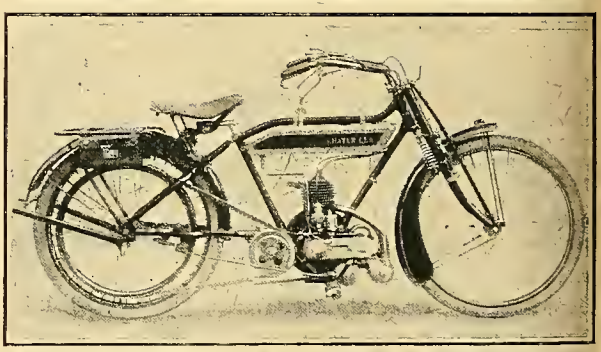
CHATER-LEA.

Engine . . 2¼ h.p. two-stroke, 269 c.c.
Ignition . . U.H. magneto, chain-driven.
Carburetter . Senspray.
Change Speed . Counter-shaft gear box, 5¼ and 10 to 1.
Transmission . Chain and belt.
Dimensions . Ground clearance, 4¾in. Wheelbase, 52in.
Lubrication . Oil mixed with petrol.
Price . . £36.

CHATER-LEA, LTD., 74-84, Banner Street, E.C.



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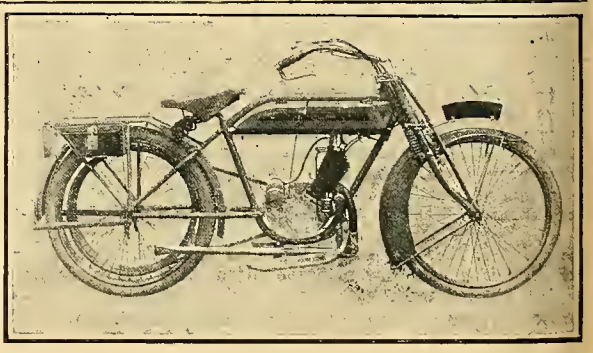
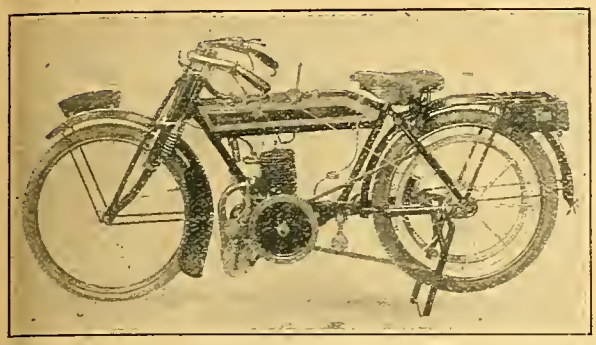
CLYNO.

Engine . . 2¼ h.p. two-stroke, 269 c.c.
Ignition . . Ruthardt magneto, gear-driven.
Carburetter . Clyno-Amac.
Change Speed . Counter-shaft two-speed, gears 5¾ and 10⅓ to 1.
Transmission . Gear and belt.
Dimensions . Height of saddle from ground, 29in. Ground clearance, 6in.
Lubrication . Oil mixed with petrol.
Other Features. Druid forks. Lucas lamp and horn. Rear light.
Price . . £40. Single-speed, £30.

CLYNO ENGINEERING CO., Wolverhampton.





CONNAUGHT.

Engine	2½ h.p. two-stroke.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac or Senspray.
Change Speed	Fixed gear, Albion two-speed or Sturmey-Archer three-speed.
Transmission	Belt or chain and belt.
Dimensions	Height or saddle from ground, 30in. Ground clearance, 7in. Wheelbase, 48in.–
Lubrication	Oil mixed with petrol.
Other Features	Druid forks. Hutchinson tyres.
Price	£33 10s. £41. £44. Kick-starter, £45.

BORDESLEY ENGINEERING CO., LTD., Birmingham.

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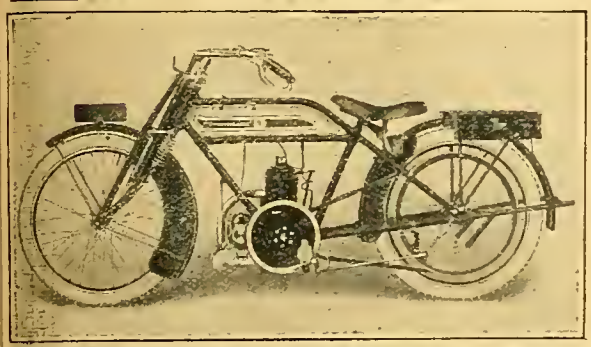

COVENTRY EAGLE.

Engine	2½ h.p. two-stroke, 269 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Senspray.
Change Speed	Counter-shaft two-speed, gears approximately 5½ and 10½ to 1.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 26in. Ground clearance, 4½in. Wheelbase, 50in.
Lubrication	Oil mixed with petrol.
Other Features	Druid forks.
Price	37 guineas. Single-speed, 29 guineas.

COVENTRY EAGLE CYCLE AND MOTOR CO., Foleshill Road, Coventry.

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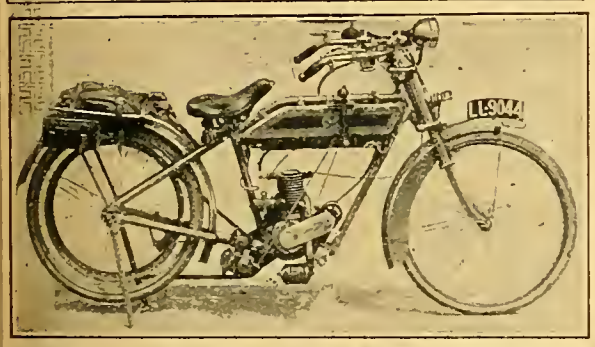

DAYTON.

Engine	1½ h.p. two-stroke, 57×63.5 mm., 162 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac.
Change Speed	Two-speed gear box, gears 6 and 13 to 1.
Transmission	Belt and chain.
Dimensions	Height of saddle from ground, 30in. Ground clearance, 3¾in. Wheelbase, 52in.
Lubrication	Oil mixed with petrol.
Other Features	Druid or Saxon spring forks.
Price	23 guineas. Single-speed, 23 guineas. Popular model, 20 guineas.

CHAS. DAY MFG. CO., LTD., 221-2, High Street, Shoreditch, E.

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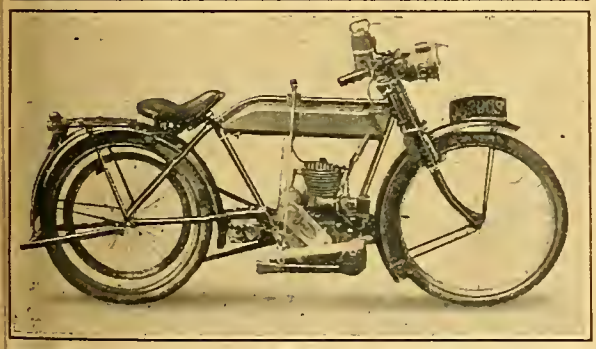

DUNKLEY.

Engine	Dunkley two-stroke, 75×79 mm., 349 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Senspray.
Change Speed	Two-speed counter-shaft.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 30in. Ground clearance, 6in. Wheelbase, 52in.
Lubrication	Drip-feed, semi-automatic.
Other Features	Druid forks.
Other Models	2 h.p. four-stroke engine, 170 c.c. 27 guineas

DUNKLEYS, LTD., Jamaica Row, Birmingham.

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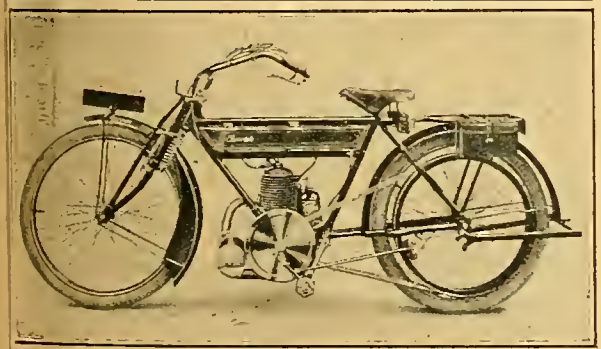


ELSWICK.

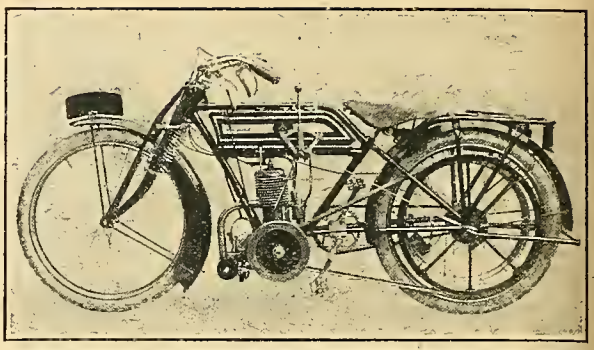
Engine	2 h.p. two-stroke, 269 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac or Senspray.
Change Speed	Fixed gear.
Transmission	Belt.
Dimensions	Height of saddle from ground, 30in. Ground clearance, 5in. Wheelbase, 50in.
Lubrication	Oil mixed with petrol.
Other Features	Girder spring forks. Full set tools, etc.
Price	£24. Three-speed, £34 10s.
Other Models	Similar machine with 2 h.p. Precision unit, incorporating two-speed gear. £30.

ELSWICK CYCLES AND MFG. CO., Barton-on-Humber.

FAIRFIELD.

Engine . . 2½ h.p., 270 c.c., two-stroke, three-port type.
Ignition . . Bosch magneto, chain-driven.
Carburetter . Amac.
Change Speed . Fixed, 6 to 1, also Armstrong three-speed, 6½, 8½, and 13 to 1.
Transmission . Dunlop ¾in. belt, h.b. controlled clutch.
Dimensions . Height of saddle from ground, 27in. Ground clearance, 5½in.
Lubrication . Oil mixed with petrol, and hand pump.
Other Features. Druid forks. Dunlop 2in. tyres.
Price . . £29 single-speed. £37 three-speed gear model.

ALFRED FORSTER, Warrington.



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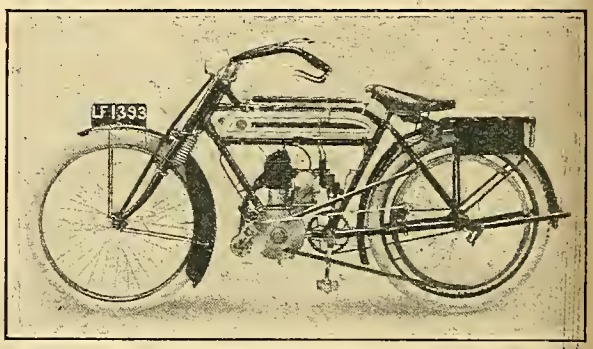
GAMAGE.

Engine . . 2¾ h.p., 70×76 mm., 292 c.c., four-stroke.
Ignition . . Bosch magneto.
Carburetter . B. and B.
Change Speed . Single-speed or three-speed Sturmey-Archer hub.
Transmission . ⅞in. belt.
Dimensions . Height of saddle from ground, 32in. Ground clearance, 5in. Overall length, 6ft. 8in.
Lubrication . Pump.
Other Features. Druid spring forks.
Price . . Single-speed model, £29 10s. Three-speed model, £38 10s.

A. W. GAMAGE, LTD., Holborn, London, E.C.



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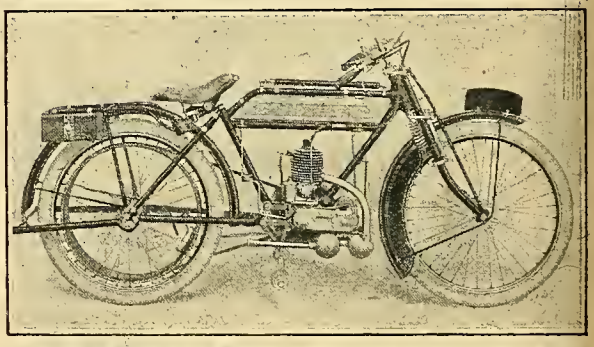
GERRARD.

Engine . . 2½ h.p. two-stroke Villiers, 269 c.c.
Ignition . . U.H. magneto, chain-driven.
Carburetter . Senspray.
Change Speed . Two-speed counter-shaft.
Transmission . Belt or chain and belt.
Dimensions . Height of saddle from ground, 30in. Ground clearance, 4in. Wheelbase, 47½in.
Lubrication . Oil mixed with petrol.
Other Features. Druid forks, pan seat.
Price . . 25 guineas single-gear. Two-speed £33.

GERRARD ROAD MOTORS, 162, Hagley Road, Birmingham.



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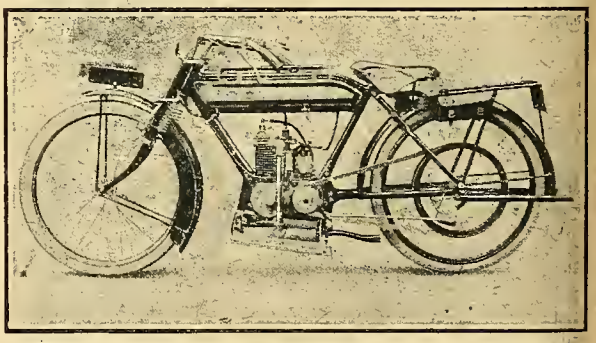
GRANDEX-PRECISION.

Engine . . 2 h.p. Precision four-stroke, 170 c.c., 60×60 mm.
Ignition . . U.H. magneto, chain-driven.
Carburetter . B. and B. or Amac.
Change Speed . Two-speed in crank case, gears 6½ and 13 to 1.
Transmission . ¾in. belt.
Dimensions . Height of saddle from ground, 27in. Ground clearance, 6in. Wheelbase, 50in.
Lubrication . Hand pump.
Other Features. Druid or Saxon forks.
Price . . 25 guineas.

GRANDEX-PRECISION MOTOR CO., 86, Gray's Inn Road, W.C.



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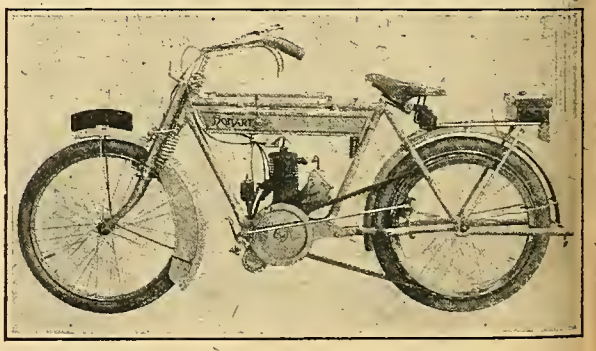
HOBART.

Engine . . 2¼ h.p. two-stroke, 225 c.c.
Ignition . . Ruthardt magneto, enclosed drive.
Carburetter . Senspray or Amac.
Transmission . Dunlop ¾in. belt.
Dimensions . Height of saddle from ground, 29½in. Ground clearance, 6½in. Wheelbase, 48in.
Lubrication . Oil mixed with petrol.
Other Features. Druid patent forks. Moseley tyres.
Price . . 25 guineas.

HOBART BIRD AND CO., LTD., Coventry.



IMPERIAL METRO.

Engine . . 2½ h.p., 269 c.c., two-stroke.
Ignition . . Ruthardt magneto, chain-driven.
Carburetter . Amac.
Change Speed . Single-speed or two-speed counter-shaft, 5½ and 10 to 1.
Transmission . Belt or chain and belt.
Dimensions . Height of saddle from ground, 30in. Ground clearance, 8in.
Lubrication . Oil mixed with petrol.
Other Features. Druid or Brampton's Biflex spring forks.
Price . . 30 guineas. Two-speed model, £38 10s.

METRO MFG. AND ENG. CO., Adderley Road, Saltley, Birmingham.

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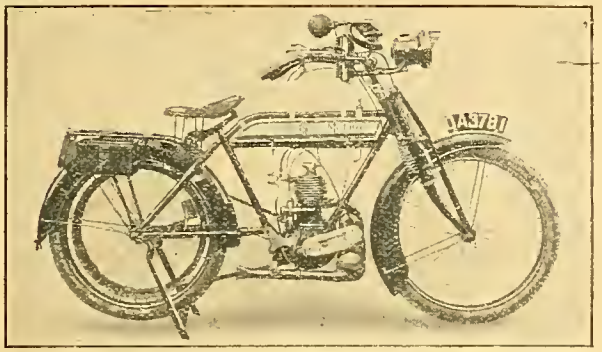

INVICTA.

Engine . . 2½ h.p. two-stroke, 269 c.c.
Ignition . . U.H. magneto, chain-driven.
Carburetter . Senspray.
Change Speed . Single-speed, 5½ to 1.
Two-speed Jardine gear, 5½ and 8¾ to 1.
Transmission . Belt or chain and belt.
Dimensions . Height of saddle from ground, 26in. Ground clearance 4in. Wheelbase, 48½in.
Lubrication . Oil mixed with petrol.
Other Features. Druid forks.
Price . . Single-speed, 28 guineas. Two-speed, 35 guineas.

A. BARNETT AND CO., West Orchard, Coventry.

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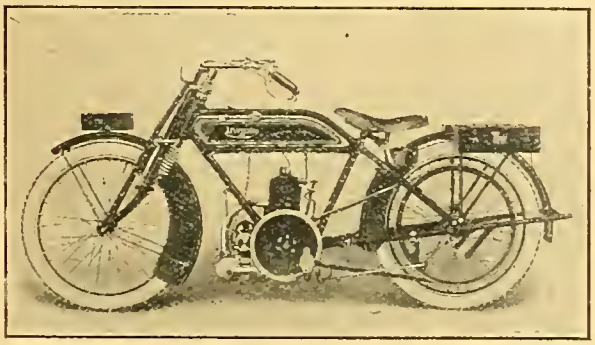

IVY.

Engine . . 2¼ h.p. two-stroke, 224 c.c.
Ignition . . U.H. magneto, chain-driven.
Carburetter . Senspray.
Change Speed . Two-speed counter-shaft or S.-A. three-speed hub.
Transmission . Ivy belt or Renold chain and Ivy belt.
Dimensions . Height of saddle from ground, 29in. Ground clearance, 6in. Wheelbase, 50in.
Lubrication . Oil mixed with petrol.
Other Features. Dunlop 2in. tyres. Weight, 100 lb.
Price . . £26 5s. fixed engine. £31 10s. two-speed. £36 5s. three-speed.

S. A. NEWMAN, LTD., Ivy Motor Works, Aston Cross, Birmingham.

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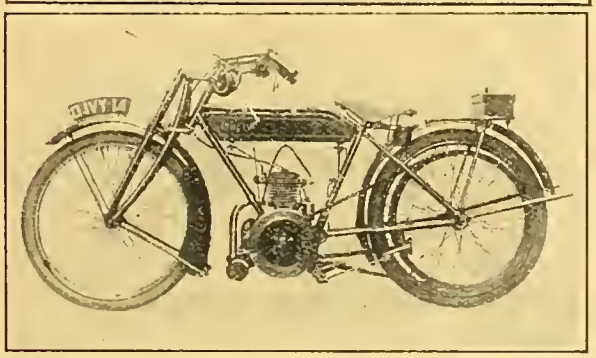

IXION.

Engine . . 2½ h.p. two-stroke, 269 c.c.
Ignition . . U.H. magneto, chain-driven.
Carburetter . Amac.
Change Speed . Counter-shaft two-speed, gears 5½ to 1 and 10 to 1.
Transmission . Chain and belt or belt.
Dimensions . Height of saddle from ground, 30in. Ground clearance, 6in. Wheelbase, 51in.
Lubrication . Oil mixed with petrol.
Other Features. Druid forks. Continental tyres.
Price . . Fixed gear, £26 5s. Two-speed, £32 10s.

IXION MOTOR MFG. CO., Great Tindal Street, Ladywood, Birmingham.

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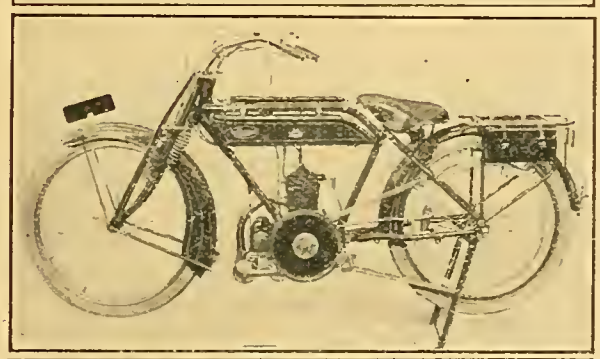
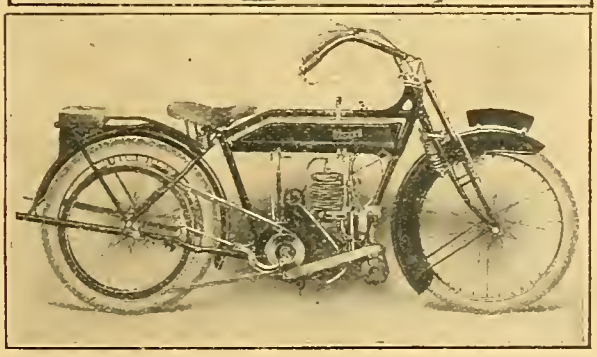
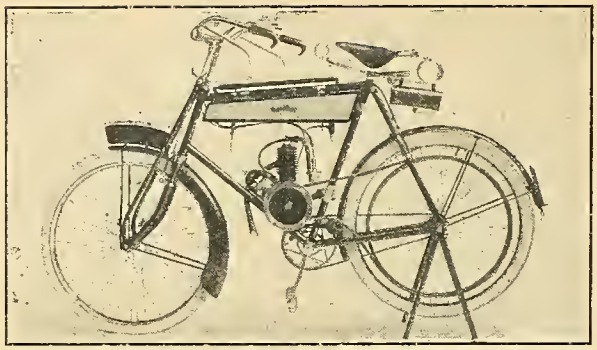


JAMES.

Engine . . 2¼ h.p. two-stroke, 226 c.c.
Ignition . . Bosch magneto.
Carburetter . Senspray.
Change Speed . Counter-shaft two-speed, 5½ and 10 to 1.
Transmission . Chain and belt.
Dimensions . Height of saddle from ground, 28in. Ground clearance, 5in.
Lubrication . Forced feed to main bearings and oil in petrol.
Other Features. Druid forks, enclosed driving chain.
Price . . 35 guineas.

JAMES CYCLE CO., LTD., Greet, Birmingham.





J.E.S.

Engine	1 h.p., 2in. × 2¼in. four-stroke, 116 c.c.
Ignition	Fischer magneto, gear-driven.
Carburetter	J.E.S., single lever.
Transmission	Belt.
Dimensions	Ground clearance, 6in. Wheelbase, 43in.
Lubrication	Hand pump.
Price	20, 22, and 23 guineas.
Other Models	Attachments to fit to push cycles, 12 and 14 guineas.

J. E. Smith, the J.E.S. Motor Works, Gloucester.

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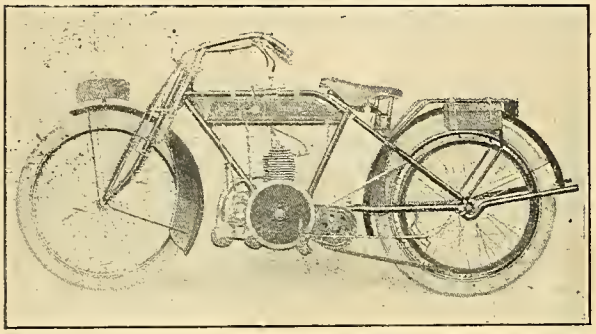

JUNO.

Engine	2½ h.p. two-stroke Villiers, 269 c.c.
Ignition	U.H. magneto.
Carburetter	B. and B.
Change Speed	Single-speed or two-speed counter-shaft.
Transmission	Belt.
Dimensions	Height of saddle from ground, 31in. Ground clearance, 6½in. Wheelbase, 52in.
Lubrication	Oil mixed with petrol.
Other Features	Druid forks.
Price	£26 5s. and £33.

Metropolitan Machinists' Co., Ltd., 248, Bishopsgate, E.C.

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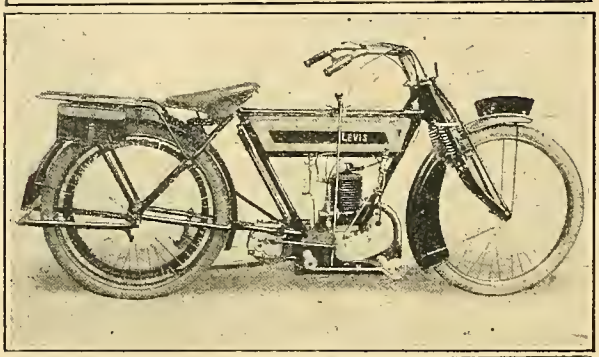

LEVIS.

Engine	2½ h.p. two-stroke, 293 c.c.
Ignition	Bosch magneto, chain-driven.
Carburetter	Amac or Senspray.
Change Speed	Single-geared, all belt drive. Albion two-speed, 5½ and 10 to 1.
Transmission	Belt or chain and belt.
Dimensions	Height of saddle from ground, 29½in. Ground clearance, 4½in. Wheelbase, 50in.
Lubrication	Levis system, semi-automatic.
Other Features	Druid forks. Large tank.
Price	£38 10s. Two-speed, £45.
Other Models	Baby Levis, 211 c.c., single-gear, £33 10s.

Butterfields, Ltd., Stechford, Birmingham.

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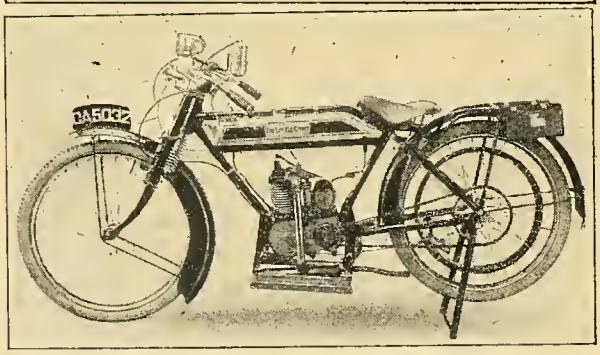

LITTLE GIANT.

Engine	2 h.p. two-speed Precision unit, four-stroke.
Ignition	U.H. magneto, chain-driven.
Carburetter	B. and B. or Amac.
Change Speed	Two-speed gear in crank case, gears from 7 to 25 to 1.
Transmission	Belt or chain
Dimensions	Height of saddle from ground, 28in. Ground clearance, 4in. to 8in. Wheelbase, 52in.
Lubrication	Hand pump.
Other Features	Druid forks. Hutchinson tyres. Weight about 110 lb.
Price	25 to 30 guineas.

Little Giant Motocyclette Co., 101, High Street, Uxbridge

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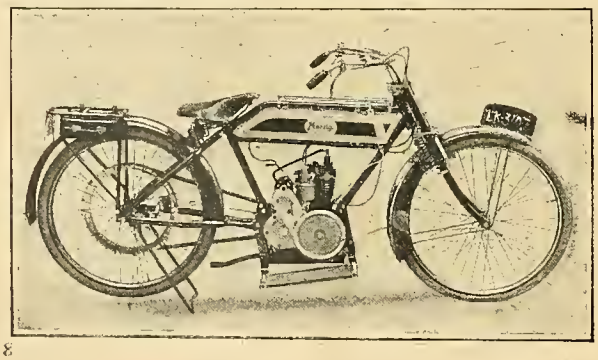


MARTIN.

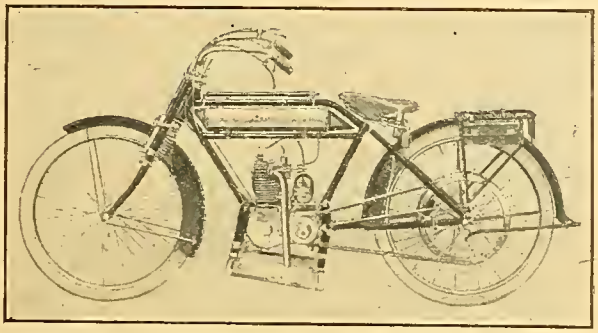
Engine	2 h.p. four-stroke, overhead valves.
Ignition	U.H. magneto, enclosed chain drive.
Carburetter	B. and B.
Change Speed	Two-speed, incorporated in crank case, gears 6 to 1 and 20 to 1.
Transmission	Gear and belt.
Dimensions	Height of saddle from ground, 29in. Ground clearance, 5in. Wheelbase, 49in.
Lubrication	Hand pump.
Other Features	Druid forks. Pedley belt. Michelin tyres 26 × 2.
Price	25 guineas.

Cars and Motor Sundries, Ltd. (Martin Dept.), 175 Shaftesbury Avenue, London, W.C.

MEAD.

Engine . . 2 h.p. Mead-Precision, 60 mm.×60 mm., 170 c.c., four-stroke.
Ignition . . Eisemann magneto, chain-driven.
Carburetter . Amac.
Change Speed . Two-speed gear, incorporated in power unit, 6 and 12 to 1 to 8 and 16 to 1.
Transmission . Pedley belt.
Dimensions . Height of saddle from ground, 29½in. Ground clearance, 4½in. Wheelbase, 50in.
Lubrication . Hand pump, enclosed in tank.
Other Features. Druid forks. 26×1¾ Michelin tyres.
Price . . 25 guineas.

MEAD CYCLE CO., 11-13, Paradise Street, Liverpool.



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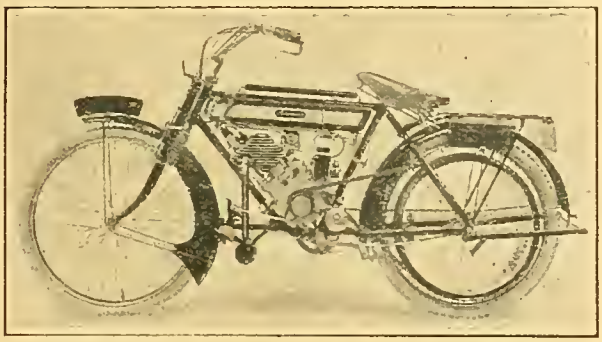
MOTOSACOCHE.

Engine . . 2½ h.p. M.A.G. four-stroke.
Ignition . . Bosch magneto, gear-driven.
Carburetter . Motosacoche.
Change Speed . Infinitely variable, between 5 and 9 to 1.
Transmission . Belt.
Dimensions . Height of saddle from ground, 30in. Ground clearance, 8in. Wheelbase, 50in.
Lubrication . Splash.
Other Features. Druid forks.
Price . . Fixed gear and free engine, 30 guineas. Change-speed gear and free engine, 34 guineas.

MOTOSACOCHE, LTD., Dumont Works, Willesden Junction, N.W.



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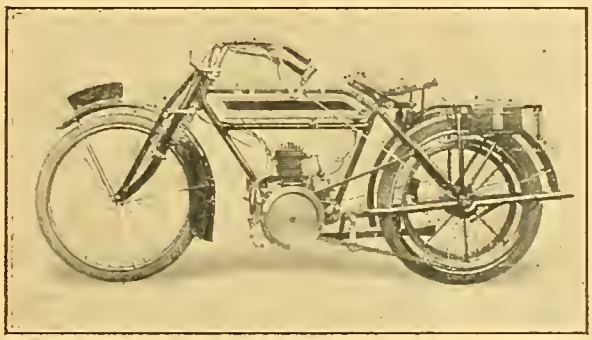
NEW COMET.

Engine . . Two-stroke, 210 c.c.
Ignition . . U.H. magneto.
Carburetter . Senspray.
Change Speed . Two-speed counter-shaft (extra).
Transmission . Belt or chain and belt.
Dimensions . Height of saddle from ground, 29½in. Ground clearance, 5½in. Wheelbase, 50½in.
Lubrication . Oil pumped into petrol.
Other Features. Druid forks.
Price . . £25 and £28.
Other Models . Two-stroke engine, 350 c.c., £33 to £41 10s.

A. H. HADEN, Princip Street, Birmingham.



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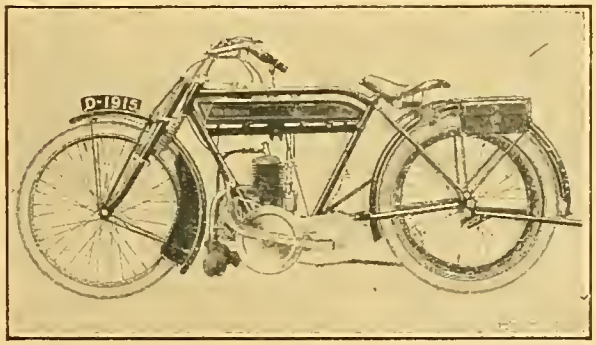
NEW HUDSON.

Engine . . 2¼ h.p. two-stroke New Hudson, 62×70 mm., 211 c.c.
Ignition . . Bosch magneto, chain-driven.
Carburetter . B. and B.
Change Speed . Counter-shaft two-speed, 5 and 9 to 1.
Transmission . Chain and belt.
Dimensions . Height of saddle from ground, 28½in. Ground clearance, 4in. Wheelbase, 51in.
Lubrication . Automatic drip-feed.
Other Features. Druid forks. Aluminium footboards. 5in. mudguard to rear wheel.
Price . . Model D, £37 10s. Model C, £33.
Other Models . Similar machines, single-geared, belt-driven, £27 5s. and £31 10s.

NEW HUDSON CYCLE CO., Summer Hill Street, Birmingham.



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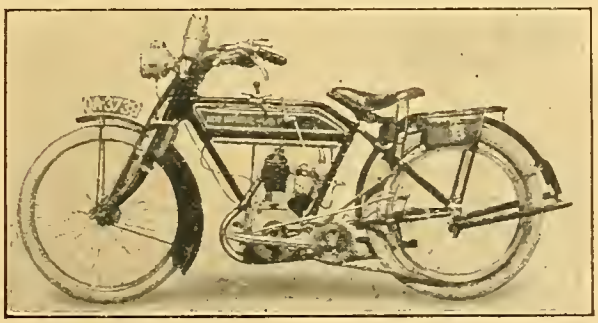
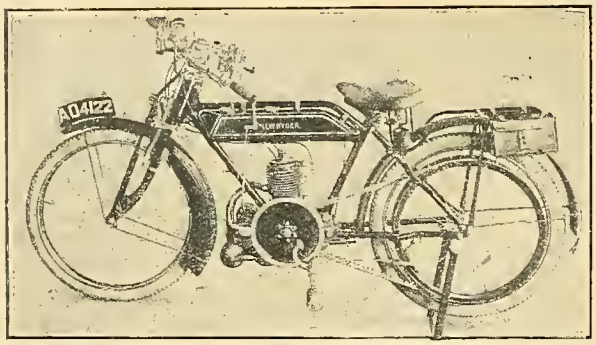
NEW IMPERIAL.

Engine . . 2½ h.p. four-stroke J.A.P., 292 c.c.
Ignition . . Bosch magneto.
Carburetter . Amac or B and B.
Change Speed Two-speed counter-shaft, gears 6 and 11½ to 1.
Transmission . Chain and belt.
Dimensions . Height of saddle from ground, 30in. Ground clearance, 6½in. Wheelbase, 4ft. 6in.
Lubrication . Hand pump.
Other Features. Druid spring forks.
Price . . 31 guineas.

NEW IMPERIAL CYCLES, LTD., Princip Street, Birmingham.





NEW RYDER.

Engine	2½ h.p. two-stroke Villiers, 269 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac or Senspray.
Change Speed	Two-speed in counter-shaft or Armstrong three-speed hub.
Transmission	Chain and belt or Dunlop belt only.
Dimensions	Height of saddle from ground, 29in. Ground clearance, 7in. Wheelbase, 55in.
Lubrication	Oil mixed with petrol.
Other Features	Saxon or Druid forks. Hutchinson tyres, 26×2.
Price	Fixed gear, £26 5s. Two-speed, £32 5s. Three-speed, £36.
Other Models	Semi T.T. and lady's machine.

NEW RYDER Co., Corporation Street, Birmingham.

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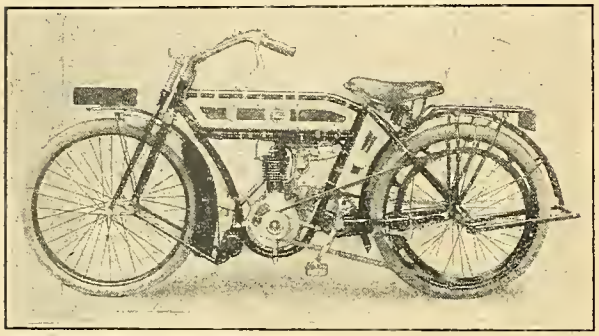

N.S.U.

Engine	2 h.p. single-cylinder four-stroke, 58×72 mm., 190 c.c., overhead inlet valve.
Ignition	High-tension magneto, gear-driven.
Carburetter	N.S.U., dual controlled.
Change Speed	N.S.U. engine-shaft two-speed gear and free engine, gears 6½ and 9¾ to 1.
Transmission	⅝in. rubber belt.
Dimensions	Height of saddle from ground, 30½in. Engine clearance, 5½in. Wheelbase, 51in.
Other Features	Hoop frame. N.S.U. spring forks. 26in.×2in. Continental tyres.
Price	With adjustable pulley, £31. With two-speed gear and free engine, £36.

N.S.U. MOTOR Co., LTD., Enesu Works, Grange Road, Willesden Green, London, N.W.

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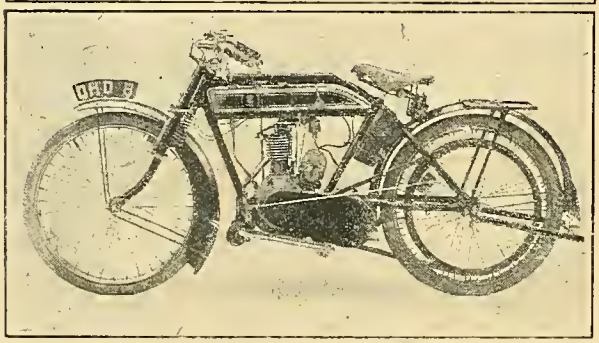

O.K. JUNIOR.

Engine	2 h.p. four-stroke, 58×72 mm., 190 c.c.
Ignition	Ruthardt magneto, gear-driven.
Carburetter	Amac.
Change Speed	Counter-shaft two-speed, 6¾ and 11½ to 1.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 29in. Ground clearance, 9in. Wheelbase, 53in.
Lubrication	Gravity feed.
Other Features	Druid forks.
Price	£30.

HUMPHRIES AND DAWES, LTD., Birmingham.

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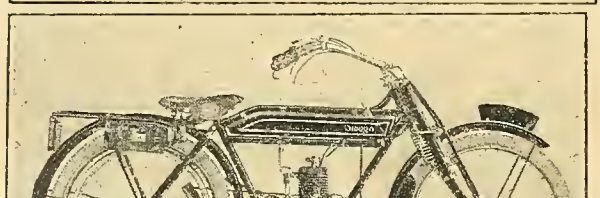

OMEGA.

Engine	3 h.p. two-stroke, 344 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	B. and B.
Change Speed	Toroga two-speed, 5 and 10 to 1.
Transmission	Belt and chain.
Dimensions	Height of saddle from ground, 30in. Ground clearance, 5¼in. Wheelbase, 48in.
Lubrication	Oil mixed with petrol.
Other Features	Druid forks. Semi T.T. bars.
Price	36 guineas.

W. J. GREEN AND Co., Omega Works, Coventry.

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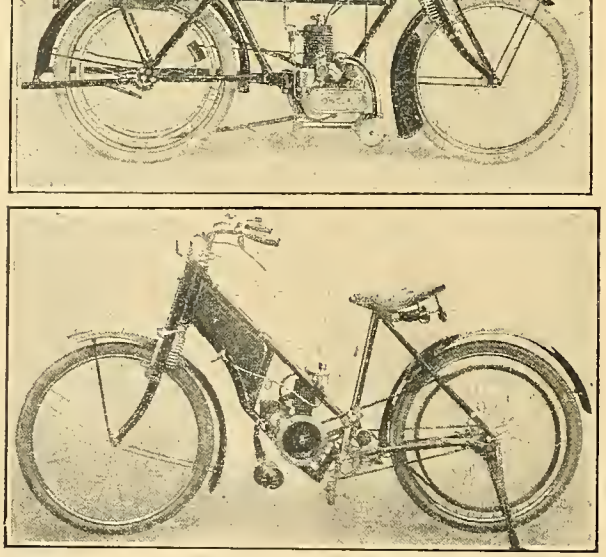


PACER.

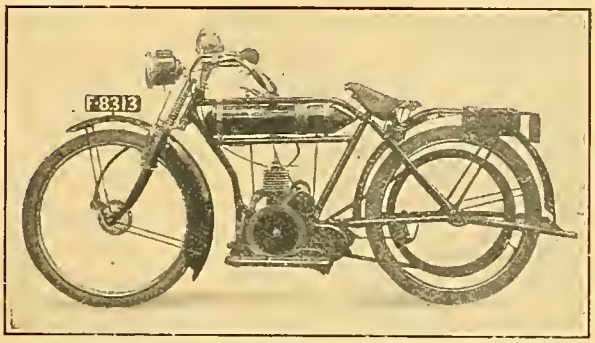
Engine	1 h.p. J.E.S. unit four-stroke, 116 c.c.
Ignition	Fischer magneto, gear-driven.
Carburetter	Amac.
Transmission	Belt.
Dimensions	Height of saddle from ground, to order.
Lubrication	Hand pump.
Other Features	Druid spring forks. Weight from 60 lb.
Price	23 guineas.

K. MILLARD AND Co., Bosq Lane, Guernsey.

PARAGON.

Engine	2¼ h.p. two-stroke, 64×70 mm., 237 c.c.
Ignition	U.H. magneto, chain drive, enclosed.
Carburetter	Amac.
Change Speed	Paragon counter-shaft two-speed gear box, 5½ to 1 and 11 to 1.
Transmission	Enclosed chain and Pedley belt.
Dimensions	Height of saddle from ground, 28in. Ground clearance, 7in. Wheelbase, 50in.
Lubrication	Oil mixed with petrol, half a pint to gallon ratio.
Other Features	Radco forks. Michelin tyres, 26in.×2in. Torpedo tank, holds one gallon.
Price	£28.

PORTWAY-COOPER MFG. CO., Brantham, Manningtree, Essex.



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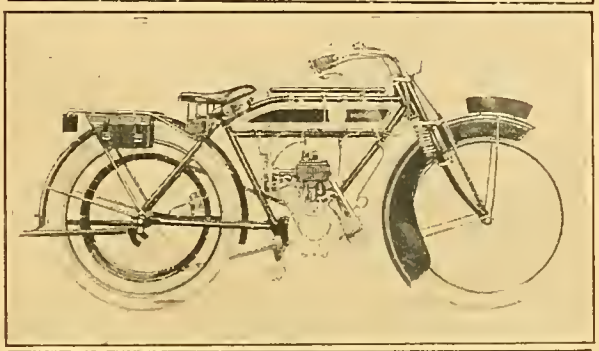
PREMIER.

Engine	2½ h.p. four-stroke Premier, 66×72 mm., 246 c.c.
Ignition	Bosch magneto, gear-driven.
Carburetter	B. and B.
Change Speed	Three models, single-gear, single-gear clutch, three-speed Armstrong hub.
Transmission	Belt.
Dimensions	Height of saddle from ground, 30in. Ground clearance, 6in. Wheelbase, 50in.
Lubrication	Splash.
Other Features	Druid forks. Clincher tyres.
Price	£36. Clutch, £42. Three-speed, £44 15s.

PREMIER CYCLE CO., LTD., Coventry.



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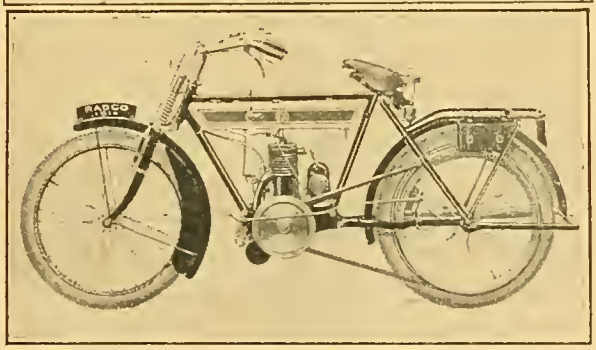
RADCO.

Engine	2¼ h.p. two-stroke, 211 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac, h.b. control.
Change Speed	Counter-shaft two-speed, 6½ and 9¾ to 1.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 32in. Ground clearance, 6in.
Lubrication	Oil mixed with petrol (1 to 16).
Other Features	Radco buffer spring forks.
Price	30 guineas. Single-speed, 23 guineas.

E. A. RADNALL AND CO., Vauxhall Works, Dartmouth Street, Birmingham.



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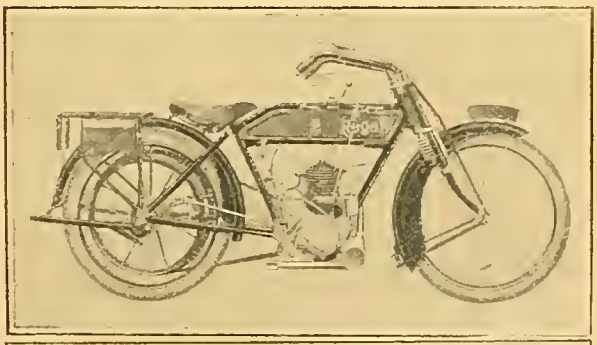
REGAL-PECO.

Engine	2¾ h.p. two-stroke, 349 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Senspray.
Change Speed	Sturmey-Archer three-speed or counter-shaft two-speed.
Transmission	Belt or chain and belt.
Dimensions	Height of saddle from ground, 27½in. Ground clearance, 5¾in. Wheelbase, 52in.
Lubrication	Best and Lloyd drip-feed.
Other Features	Extra strong frame, suitable for sidecar work if required.
Price	Three-speed, £45. Two-speed, £42. Single-speed, £35.

REGAL MOTORS, Saltley, Birmingham.



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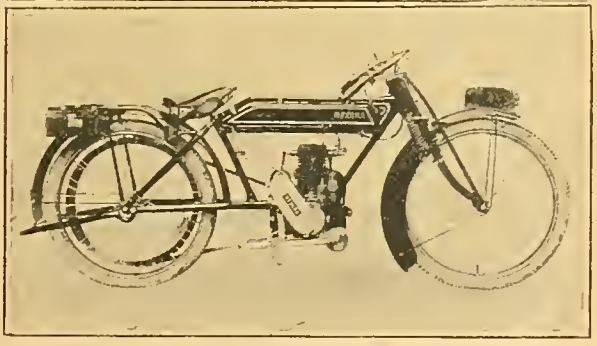
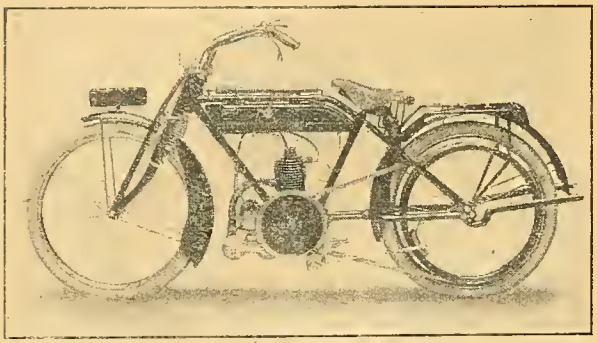
REGINA.

Engine	2¾ h.p. two-stroke, 292 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac.
Change Speed	Counter-shaft two-speed, gears 5 to 1 and 9 to 1.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 26in. Ground clearance, 6in. Wheelbase, 52in.
Lubrication	Oil mixed with petrol.
Other Features	Druid forks (girder).
Price	Single-speed, £26 10s. Two-speed, £33.

S. BARNETT, Pelham Street, Derby





ROULETTE.

Engine	2½ h.p. two-stroke Villiers, 269 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac or B. and B.
Change Speed	Albion counter-shaft two-speed, gears 5½ and 10 to 1.
Transmission	Chain and belt or belt.
Dimensions	Height of saddle from ground, 30in. Ground clearauce, 6in. Wheelbase, 50in.
Lubrication	Oil mixed with petrol.
Other Features	Druid forks. Dunlop 26×2 tyres.
Price	Two-speed, £33. Single-speed, £26 5s.

ROULETTE CYCLE CO., 84, Gosford Street, Coventry.

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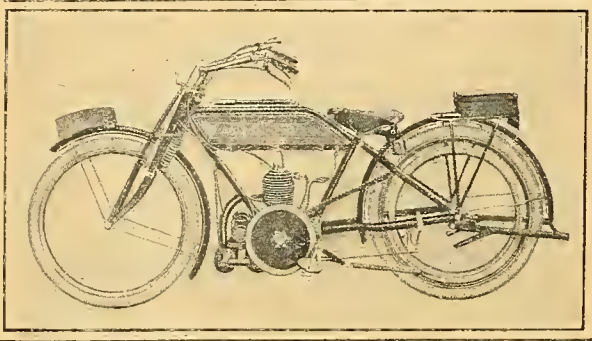

ROYAL RUBY.

Engine	2½ h.p. two-stroke, 269 c.c.
Ignition	U.H. magneto, chain-driven.
Carburetter	Amac.
Change Speed	Albion two-speed in counter-shaft.
Transmission	Chain and belt or belt.
Dimensions	Height of saddle from ground, 27in. Ground clearance, 5½in. Wheelbase, 49in.
Lubrication	Oil mixed with petrol.
Other Features	Druid forks.
Price	31 guineas. Single-speed, 25 guineas.
Other Models	2½ h.p. J.A.P., 292 c.c., 30 guineas and 36 guineas.

ROYAL RUBY CYCLE CO., Manchester.

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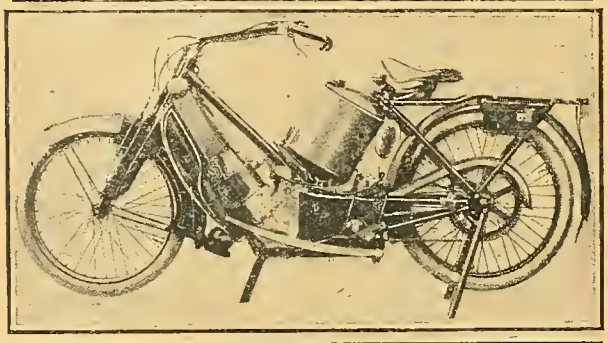

SCOTT.

Engine	3¾ h.p. two-stroke, water-cooled, 532.5 c.c.
Ignition	Bosch magneto, chain-driven.
Carburetter	Scott semi-automatic.
Change Speed	Counter-shaft two-speed, gears 4⅛ and 7.6 to 1.
Transmission	Chain.
Dimensions	Height of saddle from ground, 29½in. Ground clearance, 5in. Wheelbase, 53in.
Lubrication	Best and Lloyd sight-feed lubricator.
Other Features	Open frame. Palmer cord 26×2½ tyres. Scott spring forks and footboards.
Price	£68 5s.

SCOTT ENGINEERING CO., LTD., Saltaire, Shipley, Yorks.

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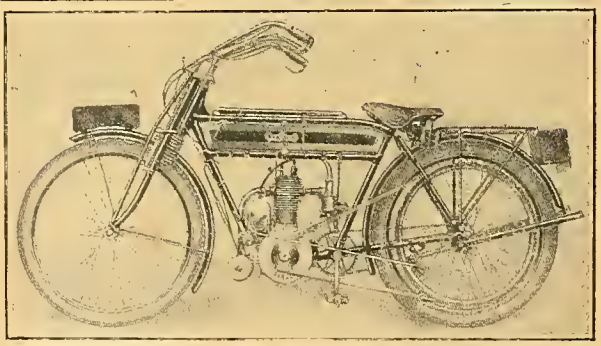

SINGER.

Engine	2½ h.p. four-stroke, 299 c.c.
Ignition	Bosch magneto, chain-driven.
Carburetter	B. and B.
Dimensions	Height of saddle from ground, 30in. Ground clearance, 4in. Wheelbase, 50½in.
Other Features	Druid spring forks.

SINGER AND CO., LTD., Coventry.

This model will shortly be replaced by a similar machine having a two-stroke 2¾ h.p. engine, 349 c.c.; counter-shaft two-speed gear, 5 and 9.5 to 1; and drip feed lubrication to cylinder.

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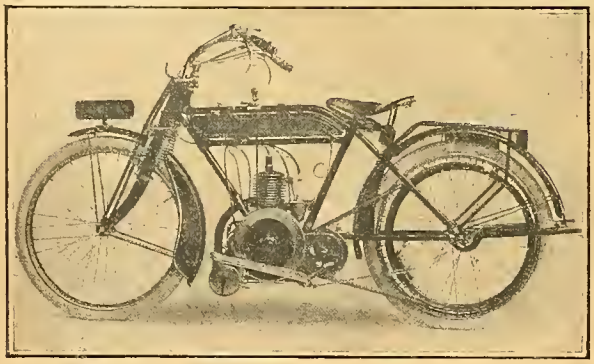


SUN.

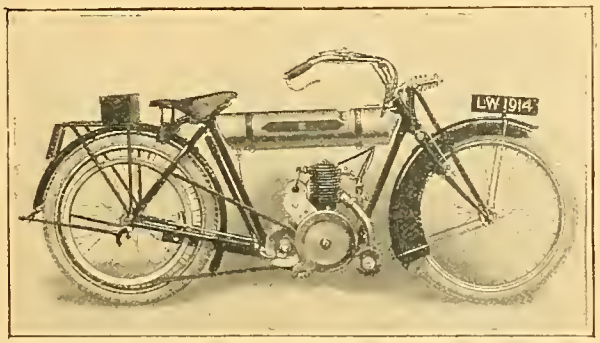
Engine	2½ h.p. two-stroke Vitesse, 269 c.c.
Ignition	Bosch magneto.
Carburetter	Senspray.
Change Speed	Counter-shaft two-speed, slipping clutch, 5½ and 10 to 1.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 28in. Ground clearance, 7½in. Wheelbase, 52in.
Lubrication	Drip feed.
Other Features	Druid forks. Roman rims to order. Dunlop tyres.
Price	£35 10s.
Other Models	Sun-Villiers, 2½ h.p., 269 c.c., £34 10s.

SUN CYCLE AND FITTINGS CO., LTD., Aston Brook Street, Birmingham.

TRIUMPH.

Engine . . 2¼ h.p. two-stroke, 225 c.c.
Ignition . . Bosch magneto, chain running in aluminium case.
Carburetter . Triumph, semi-automatic, variable jet.
Change Speed . Counter-shaft two-speed, handle-bar control, 40% reduction from high to low.
Transmission . Chain and belt.
Dimensions . Height of saddle from ground, 28½in. Ground clearance, 4½in. Wheelbase, 48in.
Lubrication . Oil mixed with petrol.
Other Features. Triumph spring forks. 24in.×2in. studded tyres. Weight 125 lb.
Price . . £42.

TRIUMPH CYCLE CO., LTD., Coventry.



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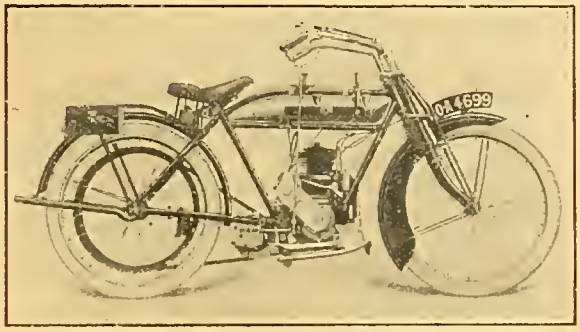
TRUMP.

Engine . . 2¾ h.p. two stroke Peco, 75×79 mm., 349 c.c.
Ignition . . U.H.-magneto, chain-driven.
Carburetter . Amac or Senspray.
Change Speed . Albion two-speed in counter-shaft, 5 and 9½ to 1.
Transmission . Chain and belt.
Dimensions . Height of saddle from ground, 30½in. Ground clearance, 5in. Wheelbase, 53in.
Lubrication . Best and Lloyd drip feed.
Other Features. Druid forks, wide, to take 3½in. mudguards.
Price . . Single-gear, £37 10s. Albion two-speed, £45. Three-speed, £47 10s.

TRUMP MOTORS, LTD., 70, Lombard Street, Birmingham.



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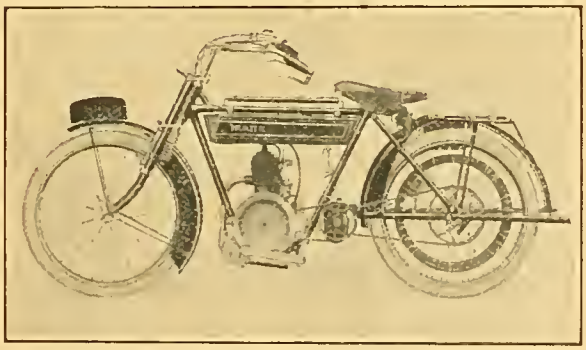
VELOCETTE.

Engine . . 2½ h.p. two-stroke, 220 c.c.
Ignition . . U.H. or Bosch.
Carburetter . Amac or Senspray.
Change Speed . Counter-shaft two-speed, 6 to 1 and 11½ to 1.
Transmission . Chain.
Dimensions . Height of saddle from ground, 28in. Ground clearance, 6½in. Wheelbase, 49in.
Lubrication . Oil in sump, patent system, automatic.
Other Features. Druid forks. Footboards.
Price . . £31 10s. Ladies' model, £33 12s. Single-gear and belt drive, £26 5s.

VELOCE, LTD., Fleet Street, Birmingham.



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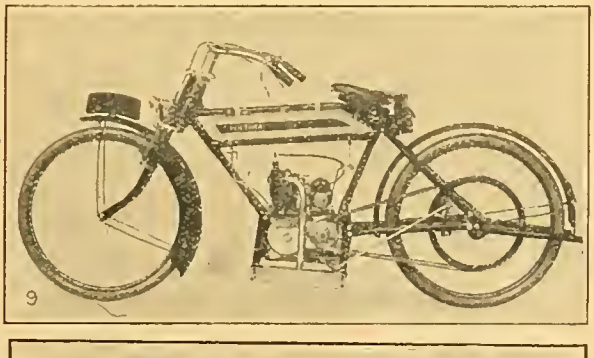
VICTORIA.

Engine . . 2 h.p. four-stroke, 170 c.c.
Ignition . . U.H. magneto.
Carburetter . Amac.
Change Speed . Two-speed gear, contained in crank case.
Transmission . Dunlop ⅜in. belt.
Dimensions . Height of saddle from ground, 29in. Ground clearance, 5½in. Wheelbase, 52in.
Lubricotion . Force feed oil pump.
Other Features. Druid forks. Dunlop tyres, 26×2.
Price . . 25 guineas.
Other Models . 2½ h.p. Villiers two stroke engine, 269 c.c., 25 guineas.

VICTORIA MOTOR AND CYCLE CO., LTD., Dennistoun, Glasgow.



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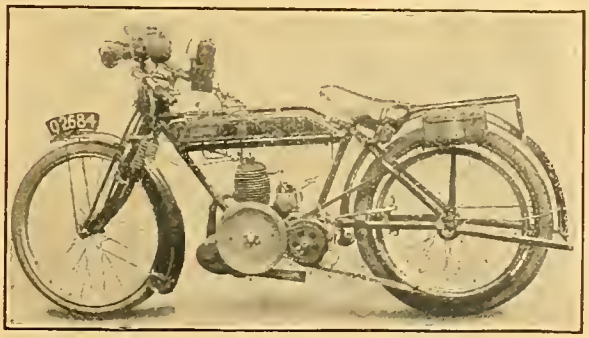
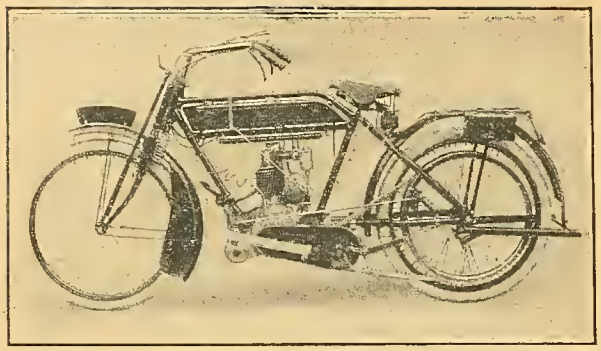
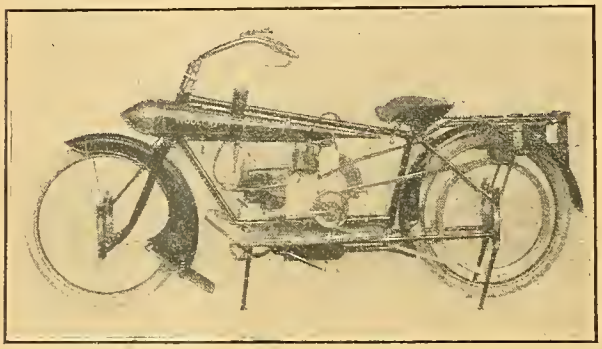
WIZARD.

Engine . . 2½ h.p. two-stroke, 269 c.c.
Ignition . . U.H. magneto, chain-driven.
Carburetter . Amac or Senspray.
Change Speed . Fixed gear or Albion two-speed.
Transmission . Chain and belt.
Dimensions . Height of saddle from ground, 30in. Ground clearance, 6in. Wheelbase, 50in.
Lubrication . Oil mixed with petrol.
Other Features. Druid forks. Avon or Hutchinson tyres.
Price . . 25 guineas single-speed. 33 guineas two-speed.

F.B. TWO-STROKE CO., 32, Coventry Road, Hay Mills, Birmingham.







WOLF.

Engine	2½ h.p. four-stroke Wolf, 76×64 m.m., 298 c.c.
Ignition	U.H. or Bosch magneto.
Carburetter	Senspray or Amac.
Change Speed	Counter-shaft two-speed gear.
Transmission	Chain and belt.
Dimensions	Height of saddle from ground, 29in. Ground clearance, 6in. Wheelbase, 54in.
Lubrication	Hand pump.
Other Features	Pilot spring forks. Kick starter.
Price	Single gear, 24 guineas. Two-speed gear, 30 and 32 guineas.

Wulfruna Engineering Co., Ltd., Wolverhampton.

* * *

WOOLER.

Engine	2¾ h.p. two-stroke Wooler, 76×76 mm., 344 c.c.
Ignition	U.H. magneto.
Carburetter	B. and B.
Change Speed	Expanding pulley, gears 4½ to 7¾ to 1.
Transmission	Belt.
Dimensions	Height of saddle from ground, 23in. Crank case clearance, 11in. Wheelbase, 63in.
Lubrication	Forced by pump.
Other Features	Displacer instead of crank case compression, sprung back and front.
Price	45 guineas.

Wooler Eng. Co., Ltd., Old Oak Lane Common, Willesden.

TYPES OF DEFLECTORS.

SPECIMENS OF TWO-STROKE PISTON HEAD DESIGN.

Fig. 1.

Fig. 2.

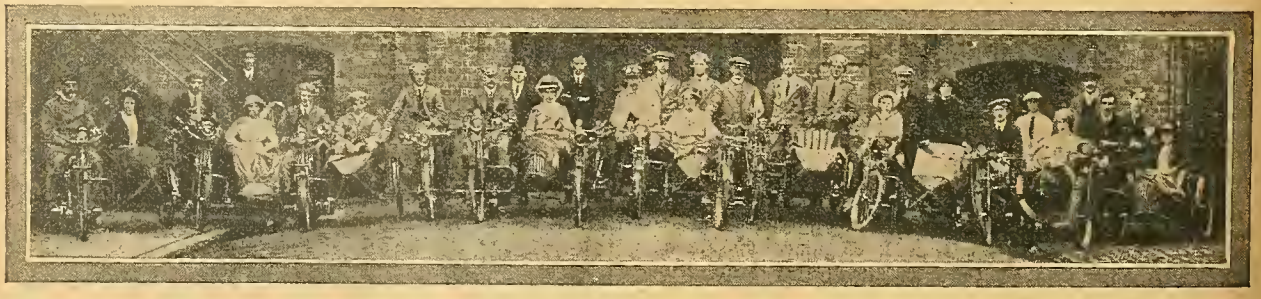
Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

THE sketches herewith show a few types of gas deflectors on the piston heads of small two-stroke engines and serve to demonstrate the wide divergence of opinion as to the correct shape. No. 1 shows what is perhaps the most common shape, and No. 2 is more frequently found on comparatively low-speed engines. No. 3 is a combination of the two previous types, and is to be found on at least one very successful machine. The flat face of No. 4 is unusual, though the manufacturers claim great efficiency. No. 5, with slight modifications, is perhaps the most common form after No. 1, and No. 6 shows a deflector used on a well-known machine which we believe has been considerably modified lately. The object of a deflector is, of course, to separate as far as possible the burnt gases from the fresh charge entering the cylinder. Were the piston head flat as in the usual four-stroke practice, there would be much wastage, owing to the fresh charge blowing out of the exhaust port. Thus it will be seen that the shape of the deflector has an important bearing on scavenging, gas wastage, and piston distortion, and needs careful consideration in design, but at its best it is in some measure a compromise, for in the ideal engine the shape would alter for every variation of the throttle opening and engine speed. This introduces a problem in design which is likely to take some solving, but in the meantime some of the present types of deflector are so satisfactory that the lack of a variable piston head is not likely to affect the progress of the two-stroke movement. Developments in this respect will be watched with interest.



Group of members of the Banbury M.C.C., who visited the Rover Company's works last week and were later entertained to tea. The General Manager of the Company, Mr. J. K. Starley, suggests that this might form a pleasant afternoon's outing for other Midland clubs.

Three Guineas is the price of the wonderful new

Stewart

MOTOR-CYCLE SPEEDOMETER

And for that three guineas is given invaluable information and priceless pleasure which will make the transaction something very much removed from merely monetary considerations.

Every time you take your machine out, there's the speedometer measuring the distance, recording the speed. You take keener delight than ever in the increasing momentum of the Cycle, and you are better able to bring the pace down to the required limits when warned to do so. You'll be surprised how helpful it is to be able to tell at a glance the speed at which you are going.

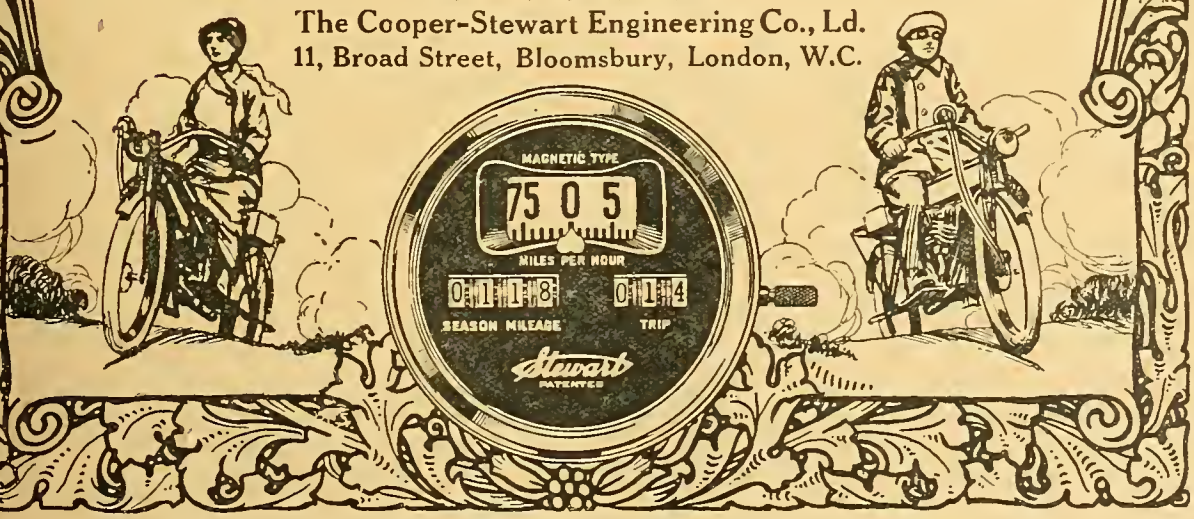
And when you get home, there's the record of your performance—the miles you have covered on the trip, the total mileage up to date for the season. There's satisfaction in knowing these figures, and the information is of practical value also. With these figures to guide you, tyre value, petrol and oil consumption, and other running expenses can be properly checked, and economies thereby effected. So really and truly your "Stewart" instead of costing you money, saves your money.

Have the new model fixed on your Motor Cycle. It's a beauty; the best made, most reliable and most accurate speedometer yet achieved. From Zero to 75 miles, with 10,000 mile season and 100 mile trip—both repeating. Rubber covered flexible shaft.

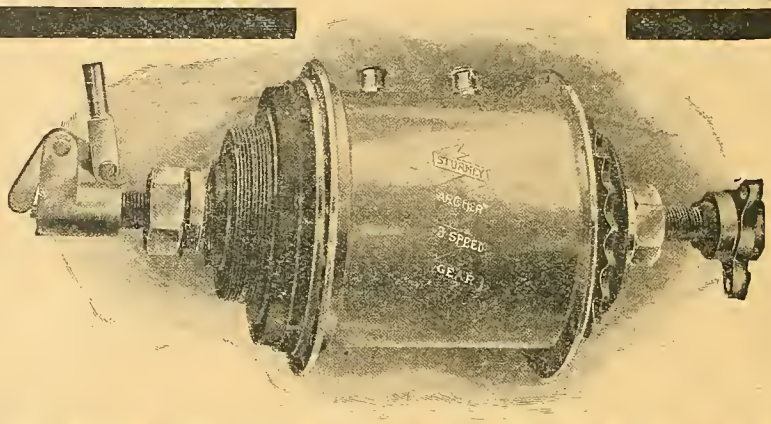
Price £3 : 3 : 0

Booklet sent post free upon request.

The Cooper-Stewart Engineering Co., Ld.
11, Broad Street, Bloomsbury, London, W.C.



Concerning the running of the famous



STURMEY-ARCHER

3-SPEED GEAR.

"There can be absolutely nothing better in the way of gears than the Sturmey-Archer."

(See letter).

A series of unsolicited letters from delighted users of the gear on various types of Motor Cycles.

No. 1. **On a Humber.**

January 20th, 1913.

Dear Sirs,

I feel it my duty to write to congratulate you on the excellence of your 3-Speed Motor Cycle Gear. The Gear I have had on my Humber Cycle has run now without the slightest trouble since January, 1912, and has been used mostly with a Sidecar. Since I have had it I have never had to dismount at a hill, and last year I toured over Devonshire and Cornwall, and never had even to adjust it. I am sure there could be absolutely nothing better in the way of gears than the Sturmey-Archer. I have had several well-known makes of gears, both bottom bracket and hub, but none of them are quarter as good as yours.

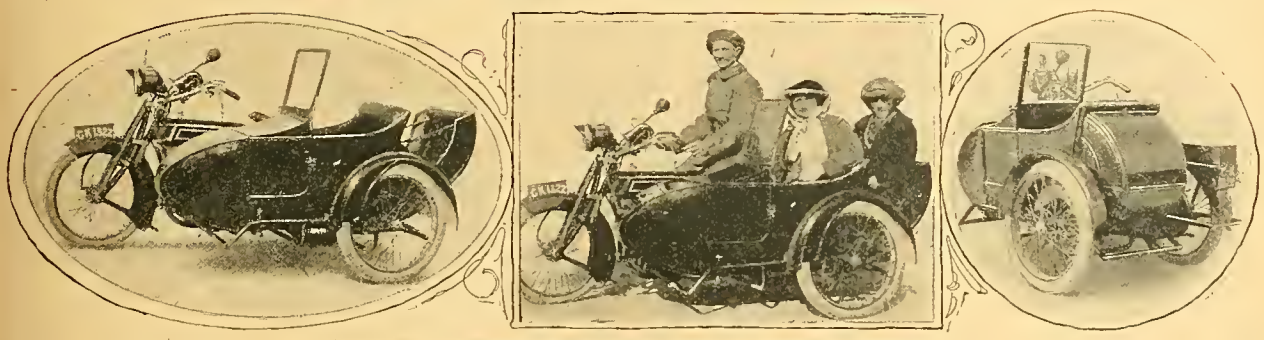
Wishing you every success,

Chilwell, Notts. *R. NEVILLE.*

ILLUSTRATED BOOKLET, POST FREE.

STURMEY-ARCHER GEARS, LTD.,
NOTTINGHAM.

LATEST SIDECAR DESIGNS.



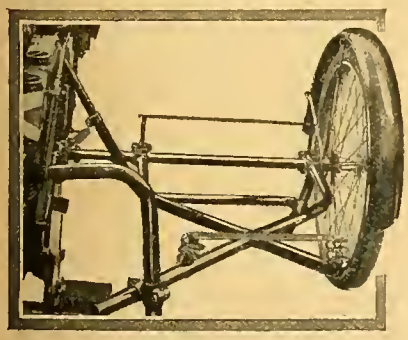
The neat two-passenger Cairns sidecar shown in different positions.

A NEW TWO-PASSENGER SIDECAR.

A very handsome sidecar with many novel features has been placed on the market by Messrs J. T. Cairns and Co., Grimshaw Street, Preston. The outstanding point of this car is the bulbous back, which when closed is neat in appearance, and forms a large compartment for luggage, and when open provides quite a roomy extra seat for an adult passenger or two children side by side. These large passenger-carrying sidecars are often apt to look rather cumbersome, but the Cairns is the very reverse, for its appearance is really graceful. The chassis appears to be very strong, and the springing good.

A SIDECAR FOR LIGHT-WEIGHTS.

In view of the enormous popularity of lightweight machines it is interesting to note that quite a number of these are being used for sidecar work. In average country and with careful driving perfectly satisfactory service can be secured from very moderate-powered outfits, but it is essential that light sidecars be fitted.

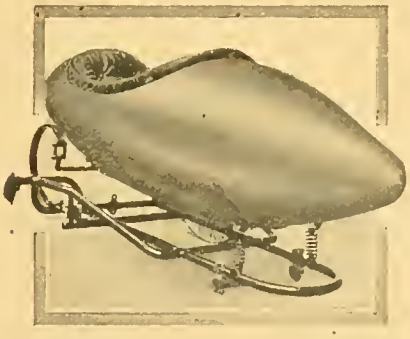


The Stokes and Holt special sidecar chassis, designed for use with lightweight motor cycles.

To this end Messrs. Stokes and Holt, Ltd., Belgrave Road, Leicester, who are large makers of sidecars, have brought out, and registered the design of, a new sidecar suitable for use with little two stroke machines. We illustrate the chassis, which, in this particular instance, was attached to a 2¼ Connaught. The price of the complete sidecar is £9 10s., and 50 lb. represents the total weight of the body and chassis combined.

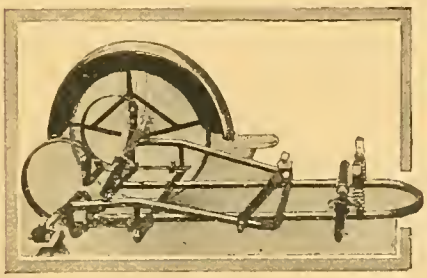
A NEW SIDETTE CHASSIS.

A sidecar embodying several interesting points is being marketed by Messrs. Sidettes, Coventry. The body is not entirely new, though it has been improved in detail. It is of torpedo shape, and is made of three-ply covered with



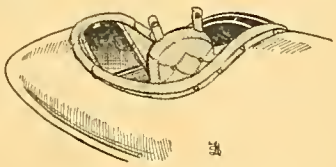
The latest form of Sidette with torpedo body. The frame joints are welded throughout.

canvas. The canvas is heavily painted and coach finished, and gives a combination of great strength and pleasing appearance. The tail of the body forms a roomy locker for tools and spares and may be reached by hinging the seat back. The body is carried by coil and C springs on a welded steel tube chassis of particularly strong construction, in the manufacture of which 14 gauge tube is used throughout except for the axle, which is of 10 gauge. Details have received careful attention, and the mudguard stay is



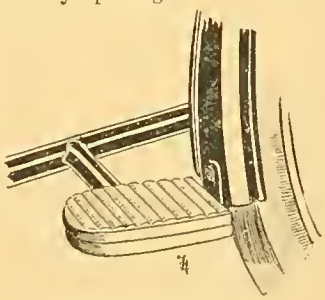
The new Sidette chassis, showing mudguard stay, mounting step, and four-point attachment.

specially strong, and just in front of the guard is an aluminium mounting plate.



Body of the Sidette, showing the seat hinged forward to provide access to the locker.

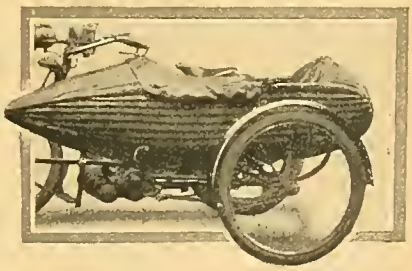
Four points of attachment are supplied, and the weight of the machine works out at about 75 lb. The outline of the sidecar is distinctly sporting.



Neat mounting step on the Sidette chassis.

A NEW LIGHT SIDECAR.

The accompanying photograph shows a new sidecar made by R. Samson, Ltd., Islington Row, Birmingham It is fitted with a specially built chassis, which

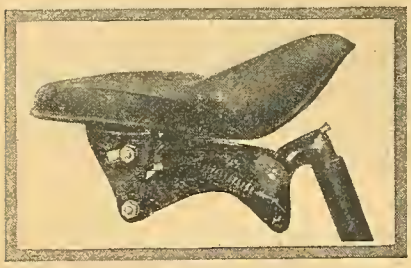


A neat design of cane sidecar body by Reg. Samson, Birmingham.

weighs only 50 lb., while the lines of the body reduce the wind resistance to a minimum.

NEW XL-ALL SADDLES.

Messrs. XL-All are placing two new saddles upon the market. The chief features are that the seat-pillar is made in one piece with the underframe, thus dispensing with the usual clip and giving the lowest riding position, and at the same time the greatest spring play.

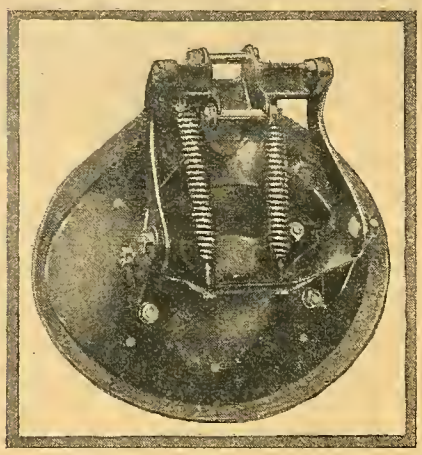


Latest Design Xl-All Saddle.

Side-rolling is prevented by the side links being made in one piece, which form the upper and lower bridge, making both members move in unison.

A unique feature is that the spring travel can be altered to suit each rider, which is as much as three inches at all points of the saddle. The springs can also be regulated to the weight of the rider. The under work is now made detachable from the pan seat, and is finished to match the colour of the various machines.

These saddles are, of course, being made to fit every type of machine, the makers having successfully overcome the difficulty of fitting the various designs of frame, and on examination of the saddles made for various machines we found that the amount of spring play had been in every case retained.



Underside of saddle showing springing.

Tyres for S.A. Police.

We learn that Messrs. W. and A. Bates, Ltd., have received a contract for two years' supplies from the Union of South Africa for their motor cycle tyres and motor car tubes for the South African police.

Climbing the Wrekin.

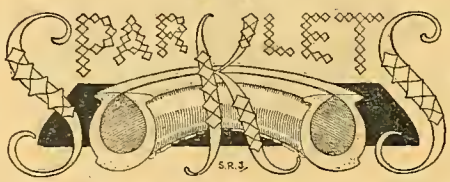
An ascent of the Wrekin, the best known hill in Shropshire, has been accomplished by Mr. Evan Pybus on a 5 h.p. Ariel and sidecar carrying a 10-stone passenger. The surface was exceedingly rough, and it is undoubtedly a praiseworthy performance to take a loaded sidecar up this hill.

Motor Cycles on Easy Payments.

Messrs. Selfridge and Co., Oxford Street, W., have sent us particulars of their easy payment system for motor cycles, which, briefly, is as follows: Any machine in stock may be obtained immediately for a deposit of one-fifth of its price; the balance may be extended over a period of twelve months, and for this added convenience 2½% only is charged.

The New Invicta Models.

Probably buyers of motor cycles would gain much information by perusing the catalogue of the Invicta motor cycles, which are sold by Messrs. A. Barnett and Co., West Orchard, Coventry. The two-stroke model is a handsome machine and is priced at twenty-five guineas. The two-speed model, with chain and belt drive, is listed at thirty-five guineas. Rubber-lined footboards can also be provided at an extra charge of 17s. 6d. The other model sold by this firm is a 3½ h.p., which can be obtained either single-geared or fitted with a three-speed Armstrong hub.



A New Golf Ball.

Many of our readers are also golf players. The County Chemical Company, Limited, are making a two-shilling golf ball, with which many successes in the royal and ancient game have been gained.

Sidecars in Scotland.

Messrs. Mead and Deakin, Rushey Lane, Tyseley, Birmingham, inform us that one of their standard model sidecars went through the Scottish Six Days Trials without any trouble whatever. It was attached to Mr. Tom Silver's Quadrant, which gained a gold medal.

A Favourite Sidecar.

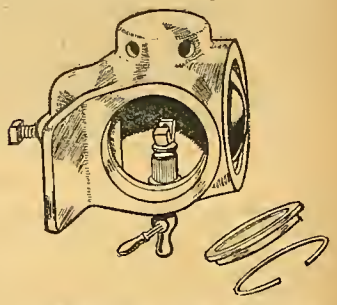
Messrs. Sydney Westall and Co., Ltd., inform us that they intend to combine their garage and sales department under one roof, and, consequently, have moved the latter to 1, Chester Street, Grosvenor Place, S.W. The firm at the present moment is very busily engaged in turning out the Scott-Westall sidecar, for which there is a very ready demand.

A Satisfactory Lubricant.

We have been using a sample of Record oil, made by the Record Oil Company, 104, Leadenhall Street, E.C., on a 3½ h.p. A.B.C. motor bicycle, which successfully carried us round the Six Days Trial course. The oil appears to be thoroughly satisfactory, it requires very little to lubricate the engine in a perfectly adequate manner, and it produces no excess of carbon deposit.

A NEAT REAR LIGHT.

We have seen and tried a large number of rear lighting outfits which have been put on the market, but we do not think we have seen anything more practical than that listed by Messrs. J. J. Eastick and Son, Clapton Common, N.E. It will be seen from the illustration that the lamp itself is very compact and is provided with a side window for illuminating the number plate. It can also be adapted for use with electricity, in which case the battery is carried in a small canvas case, which may be strapped to the carrier, and on the outside is a little switch for putting the light into operation.



A Rear Light for Motor Cycles.

A New Dirt Remover.

Messrs. Fitch, Ltd., Tamworth, have forwarded us a sample tin of a new grease and oil remover known as Grimewash, which appears to be most efficacious. It is sold in 6d. tins.

Comfort and Reliability.

Considerable interest has been aroused by the illustration in the issue of *The Motor Cycle* of July 9th of the Edmund spring frame motor cycle fitted with a 2¾ h.p. Douglas power plant. Readers will be interested to hear that Mr. Schuver, 20, Clavering Avenue, Barnes, S.W., is responsible for the production of this interesting machine.

A Change of Engines.

With reference to the necessity of a change of engines in J. L. Norton's machine before the start of the A.C.U. Six Days Trials, we are informed by Norton Motors, Ltd., that the engine used to run up to Sheffield was an experimental one, and had not been properly run in—hence the change at the last moment.

Wanted, a Name!

The County Chemical Co., Ltd., Bradford Street, Birmingham, lately introduced a new motor cycle engine-oil, which has already earned for itself an enviable reputation. This oil has not yet been officially named, and, to further this, the manufacturers have offered handsome prizes for the best name sent in. Entries for this competition close on July 31st, and those desirous of participating should write the County Chemical Co., Ltd., at once. We may add that we have tried this oil ourselves, and have found it to be admirable in all respects, and a large number of well-known riders have written the manufacturers expressing their approval of this new lubricant.

ANY of the following machines and bargains may be obtained on our Deferred Payment Plan. You secure immediate possession of the machine on payment of a deposit of one-fifth of the price. The balance is payable in twelve months, with a charge of 2½% on the balance only. If you are unable to call, write, 'phone, or wire for particulars.

MACHINES IN STOCK.

ZENITH, 6 h.p., clutch model, all red finish	£77 14
TRIUMPH, 4 h.p., 3-speed clutch model	£60 0
SINGER, 4½ h.p., 2-speed COMBINATION, coach-built sidecar	£80 0
HENDEE-SPECIAL 7 h.p. INDIAN, electric self-starter, lamps and horn	£80 0
DOUGLAS, 2¾ h.p., W Model	£52 0
DOUGLAS, 2¾ h.p., U Model	£48 0
DOUGLAS, 2¾ h.p., V Model	£48 0
DOUGLAS, 3½ h.p., Model B.	£62 0
WOLF, 4 h.p., J.A.P. engine, 2-speed	44 gns.
WOLF, 2½ h.p., lightweight	24 gns.
WOLF, 2½ h.p., J.A.P. engine	26 gns.
WOLF, 2½ h.p., 2-speed	30 gns.
F.N., 2½ h.p.	£49 0
BRADBURY, 4 h.p 3-speed	£59 0
B.S.A., 4 h.p., COMBINATION	£79 16

7 BARGAINS.

New Cane SIDECAR, Torpedo shape, on strong underslung Chassis, with Hutchinson tyre. Usually 12 gns.; to clear	£9 15
New Cane SIDECAR, Torpedo shape body on well sprung Chassis and with Hutchinson tyre. Usually 10 gns.; now	£7 15
Second-hand 1913 3½ h.p. 3-speed Rover Combination	£47 0
Second-hand 1913 8 h.p. Martin-Jap, with 1914 Sturmey-Archer 3-speed gear	£50 0
Second-hand 1913 3½ Lea-Francis, 2-speed	£52 10
Second-hand 1913 8 h.p. Matchless Combination. Cane Sidecar	£70 0
Lightweight Wicker Sidecar on strong Chassis. To clear	£4 10

MACHINES IN STOCK.

CHATER-LEA, 8 h.p., COMBINATION No. 7 coach-built sidecar, with hood, screen, and apron	£101 17 6
CALTHORPE JUNIOR, 2 h.p., 2-speed	25 gns.
MATCHLESS, 8 h.p., COMBINATION 3-speed, chain drive, coach built sidecar	£92 17
EXCELSIOR, 5-6 h.p., COMBINATION, with coach-built sidecar	£84 9
ROYAL ENFIELD, 6 h.p., COMBINATION, with coach-built sidecar	£84 0
JAMES, 3½ h.p., twin, 3-speed, chain drive	£63 0

INDIAN, TRIUMPH, and B.S.A. machines only supplied on makers' terms.

HARLEY-DAVIDSON, 8 h.p., 2-speed	£65 0
BABY TRIUMPH, 2-stroke, 2¼ h.p., 2-speed	£42 0

SELFRIDGE & CO., LTD., Oxford Street, London, W.

Telephone: Gerrard One. West End Agents for Wolf Motor Cycles Telegrams: "Selfridge, London."

Stepney Road-Grips

For Heavy Cars, Light Cars, and Motor Cycles.

Another Unsolicited Testimonial:

15, Neville Road, Liscard, Cheshire.

Dear Sirs,—I am pleased to inform you that the 700 × 80 Stepney Road-Grip Cover I have just removed from the back wheel of my Morgan has been doing service there since the end of last November. It has never once been off, never once punctured, and only once inflated. Although the mileage of the tyre is a trifle under 7,000 miles it is only now begining to show through the canvas in two places. I use my Morgan practically every day and in all kinds of weather, but I have never had to give a moment's attention to the Stepney. I will have the tyre retreaded. Had it not been for a 300/350 miles run over the worst roads in Ireland the tyre would still be good for another 1,000 miles on home roads. I am perfectly satisfied that no other tyre on the market—and I have tried most of them—could give such service. The Stepney Road-Grip was all that was required to remove the first and last objection to the Morgan from the point of view of accessibilty, viz.—the taking out of the back wheel Morgan owners have something to be thankful for, if they only knew it.

Yours faithfully,

J. McGUCKIN.

WILL GIVE GREATER MILEAGE AND BETTER GRIP THAN ANY OTHER NON-SKID TYRE.

The Stepney Spare Motor Wheel, Ltd.,

LLANELLY, WALES. **And 168, Great Portland Street, London, W.**

THE MOTOR CYCLE Insurance Department

IT is important

that every motor cyclist should protect himself by Insurance against loss or damage and Third party claims.

¶ Each of the undermentioned policies can be obtained through "The Motor Cycle" Insurance Department.

¶ In every case the policy is issued by a sound and reliable company, which can be relied upon for prompt and equitable settlement of all claims.

The Provident Clerks & General
Guarantee and Accident Co.'s Motor Cycle Policy.

The A.A. & M.U. Policy
issued by The Motor Union Insurance Co., Ltd.

The A.C.U. Policy
issued by the Law Accident Insurance Society.

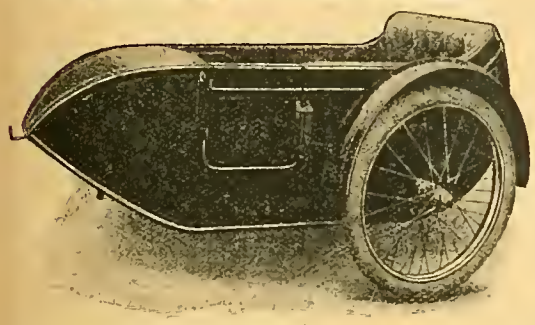
Particulars of all or either of these policies will be sent on application to

The Manager, Insurance Department, "THE MOTOR CYCLE" Offices, COVENTRY.

SPECIAL NOTE.

All full policies issued through "The Motor Cycle" Insurance Department include a copy of "The Motor Cycle" each week.

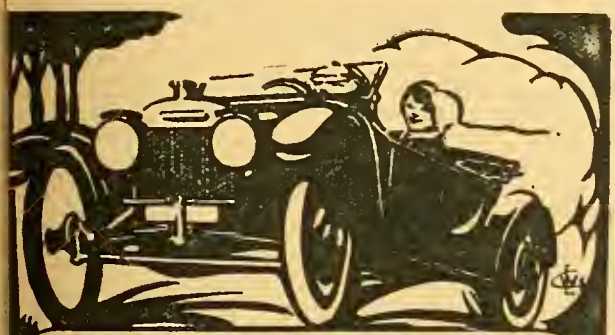
For All Seasons,
For All Weathers,
THERE IS ONE
SIDECAR,
IT IS THE
BRAMBLE.



Pat. 14357/13.

THE BRAMBLE MANUFACTURING CO., LTD.
LONDON ROAD, COVENTRY.

London Agents:—
Robertsons Motors, Ltd., 157, Great Portland Street, W.



RANGER

ECONOMICAL
IN
FIRST COST & UPKEEP.

RECENT AWARDS.

M.C. CLUB—LONDON TO EDINBURGH.
2 GOLD MEDALS.
ESSEX MOTOR CLUB — OPEN HILL CLIMB.
2 SILVER MEDALS.
B'HAM M.C. CLUB—OPEN PASSENGER TRIALS
2 BRONZE MEDALS.
Full Particulars from
144, Gt. Portland St., London, W.

More Successes
on
MIDLAND
Motor Cycle Tyres and Belt.

Wolverhampton M.C.C. 2 Days Trial.
Mr. Sidney Hill, riding Midland Tyres and Belt, gained a
GOLD MEDAL
and was placed third in order of merit.

Sheffield and Hallamshire Flying Kilo.
Mr. R. M. Davy, riding Midland Tyres and Belt, obtained
3rd PLACE IN CLASS 5.

4000 MILES
and some splendid WINS on ONE Midland Belt.

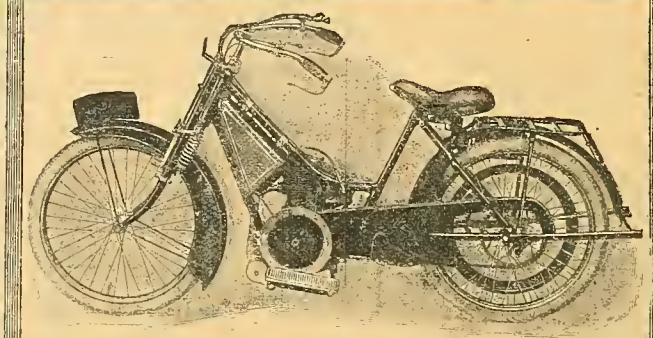
By Mr. T. Thompson, of Mile End, Portsmouth
June 13th—Brooklands 150 Mile T.T. Race. Special Class.
FIRST.
Previous events on same belt:
September 3rd—Southampton and District Hill Climb at East Meon.
FIRST.
September 10th—Broke Record for Stamshaw Track.
GOLD MEDAL.
October 15th—Portsmouth and District M.C.C. Speed Trial.
2 FIRST PRIZES.
Hill Climb, June 17th—Portsmouth. **FIRST and SECOND.**
This belt has done altogether 4,000 miles, including all the above events, and was still in use when our representative called upon Mr. Thompson on the 24th June.

SCOTTISH 6 DAYS
Mr. A. Downie, on a 2¾ h.p. A.J.S., fitted with Midland Tyres, secured a
GOLD MEDAL.
He writes: "I am pleased to report that your tyres stood the test splendidly, the back tyre only showing signs of wear. I had a no-trouble run throughout, not even a puncture; in fact, I had so much faith in your tyres that I did not carry a spare."

THE MIDLAND RUBBER Co., Ltd.,
HEAD OFFICE & WORKS: Ryland St., B'HAM.
LONDON DEPOT: 31-34, Eagle St., Southampton Row, W.C.
Coventry Depot: Priory Works, New Buildings. Glasgow Depot: 451, Eglinton Street. Cardiff Depot: Plymouth Street.
Milan Depot: Via Sirtori 6. Amsterdam Depot: 50, Lange Leidsche Dwaars Straat.

VELOCETTE

SINGLE GEAR
25
GUINEAS
BELT DRIVE
WEIGHT 112 lbs



Two-speed Ladies' "Velocette." Price 32 Guineas.

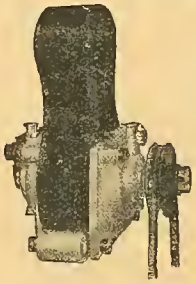
TWO SPEED GEAR
30
GUINEAS
CHAIN DRIVE
WEIGHT 122 lbs

THE WORD "TWO-STROKE" on a POSTCARD will bring you Particulars

VELOCE Ltd FLEET ST BIRMINGHAM

The . . . .
MIRA CYCLE DYNAMO

Genuine Magnetolite System.



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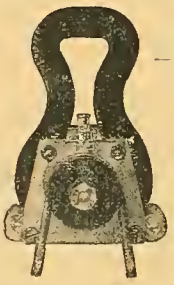
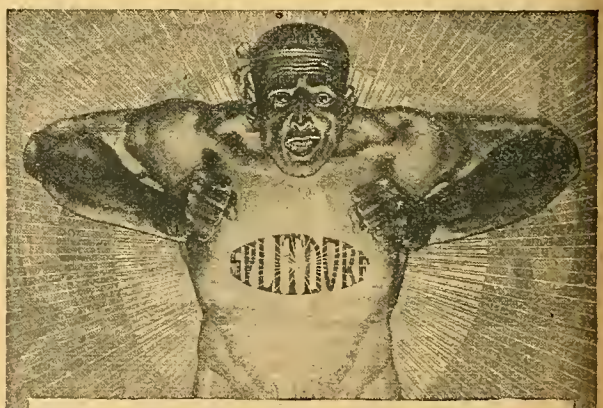


Coventry, ... May, 1914.

Dear Sirs,
The Dynamo continues to run perfectly, and it is used every evening.....
I still use the 8-volt 8-c.p. lamp, and it gives a much finer light than any acetylene lamp I have used. There is no sign of blackening yet, and I can see from five to six telegraph posts at 30 miles per hour on a straight piece of road. Everything O.K.
Yours faithfully, (signed) C.E.G.

Price (Dynamo only), £2 : 0 : 0
Head Lamp, with Bulb and wire, £1 : 0 : 0

Manufactured throughout by
THE HIGH TENSION CO., 62 BELVEDERE RD., WESTMINSTER, S.E.
'Phone: Hop 89. Wire: "Glowlamp, Watloo, London."



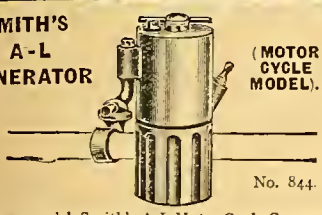
PLUGS MAY COME

and plugs may go, but SPLITDORF PLUGS go sparking on for ever.
There is nothing experimental about SPLITDORF PLUGS. There is nothing even "just as good." They are—have been, and will continue to be the standard plug for the hardest motor cycle use.

Full information and catalogue upon request.
SPLITDORF ELECTRICAL COMPANY,
6 City Road, Finsbury Square, LONDON, E.C.
Factory: NEWARK, NEW JERSEY, U.S.A.

SMITH'S MOTORCYCLE SPECIALITIES.

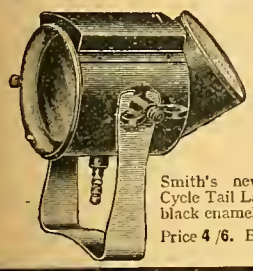
SMITH'S A-L GENERATOR (MOTOR CYCLE MODEL).



No. 844.

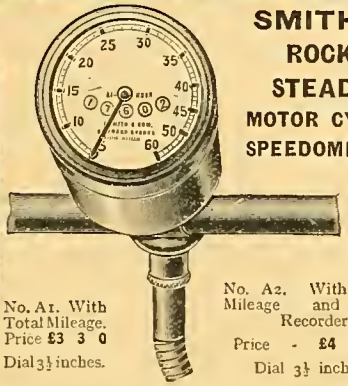
The new model, Smith's A-L Motor Cycle Generator
Price, ½-lb. size 12/6
¼-lb. size 17/6
Spare Container, ½-lb. 3/-
Adjustable Bracket, suitable for Generator 3/-

SMITH'S MOTOR CYCLE TAIL LAMP.



Reg. Design. No. 537.

Smith's new model Motor Cycle Tail Lamp (Acetylene), black enamel or nickel finish.
Price **4/6**. Bracket **1/-** extra



SMITH'S ROCK STEADY MOTOR CYCLE SPEEDOMETER

No. A1. With Total Mileage. Price £3 3 0 Dial 3½ inches.

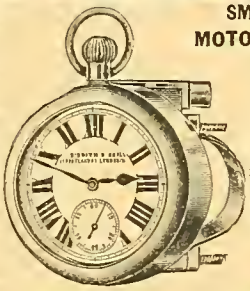
No. A2. With Total Mileage and Trip Recorder. Price £4 4 0 Dial 3½ inches.

No. A3. With Total Mileage, Trip, and Maximum Hand. Price .. £5 6 0 Dial 3½ inches. Combined with Watch, £1 1 0 extra.

ROCK STEADY UNDER ANY VIBRATION, YET ACCURATE AND UNAFFECTED BY TEMPERATURES.

Write for new Catalogue, No. 14.

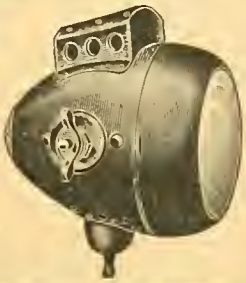
SMITH'S MOTOR CYCLE WATCH.



No. 24B. Exceedingly neat in appearance and can be strongly recommended. Diameter 2in. Well finished nickel cases.

Price **18/6** each

SMITH'S SIDECAR LAMP.



Smith's New Model Sidecar Lamp with wide beam to light hedges, corners, etc. With ruby light at back.

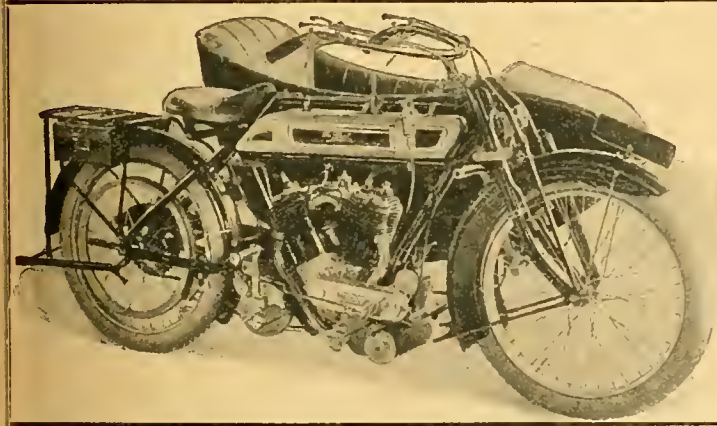
Price £1 1 0

S. SMITH & SON, Ltd., Speedometer House,

179-185, GREAT PORTLAND STREET, LONDON, W.; TRAFALGAR SQUARE and 68, PICCADILLY.

HOLDERS OF SIX ROYAL WARRANTS.

Agents for France KIRBY BEARD & Co., Ltd., 5, Rue Auber, Paris. Agent for Ireland, C. E. JACOB, 184, Gt. Brunswick St., Dublin.



DOT MOTORS

The **Wins** given below are not gained by the use of Special Racing Engines, but are made on **Standard Overhead Machines**, which can be bought direct from us **or through any of our Agents.**

Doncaster Speed Trials. Class 14, H. Reed **FIRST. Also FASTEST TIME** of the day.

Essex Speed Trials, Events 57 & 60, H. Reed **FIRST.**

Also FASTEST TIME of the day, **BEATING** the **FASTEST CAR.**

Sole Manufacturers of this Famous Machine:

H. REED & Co., 38, Ellesmere St., Hulme, MANCHESTER.

Telephone: 2125 Central.

TWO-STROKE PECO ENGINE

Bore and stroke, 75 x 79 mm.
Capacity, 349 c.c. 2¾ h.p.

The unit, which "made good" in its first trial, completed the course in Junior T.T. Race at an average of 37·2 m.p.h.
Proof of **POWER, SPEED, RELIABILITY.**

PECO ENGINES, Ltd.,
Duddeston Mill Road,
BIRMINGHAM.

A.M.A.C. CARBURETTERS

VERSUS "REST OF ENGLAND."

A.C.U. SIX DAYS TRIAL.

A.M.A.C.	REST.
GOLD MEDALS:	**GOLD MEDALS:**
22 A.M.A.C., 50% more than any other make.	28 amongst 6 other makes.
FINISHERS:	**FINISHERS:**
31 A.M.A.C., 50% more than any other make.	33 amongst 6 other makes.

SPECIAL AWARDS:

TEAM PRIZE: DOUGLAS——A.M.A.C.

LIGHTWEIGHTS, SOLO MACHINES, UP TO 350 c.c.
TIE BETWEEN W. B. GIBB AND P. W. MOFFAT,
BOTH ON **A.M.A.C.**

ASTON MOTOR ACCESSORIES Co., Ltd., Aston Cross, BIRMINGHAM.

AN OPINION OF

THE GRANDEX-PRECISION 2 H.P. PUP.

DEAR SIRS, STREATHAM, S.W.

With reference to the "Grandex Precision Pup" Motor Bicycle I bought from you about the middle of May, it might interest you to learn how completely satisfied I am with same. So far, I have travelled about 650 miles. This includes two journeys to Deal and Dover, and one to Brighton.

The hill-climbing propensities of the engine are wonderful, low gear being seldom necessary, and the speed on the level, about 30-35 m.p.h., should be quite sufficient for any ordinary motorist riding a light weight cycle. Yours truly, A. C. T.

A WELL-BUILT MASTERPIECE FOR 25 GUINEAS.

Send for List and Informotion to—

GRANDEX MOTORS, 86, GRAY'S INN ROAD, W.C.

AGENTS FOR HOLLAND—Messrs. VAN LIER, 9, Amsterdamsche Verkaade, The Hague.

Other
GRANDEX MODELS

2¼ h.p.	£34
3½ h.p. Popular ..	£35
3½ h.p. Tourist ..	£38
4¼ h.p. with Enfield 2-speed gear ..	£53
4 h.p. Twin ..	£44
6 h.p. Twin with Enfield 2-sp. gear	£64

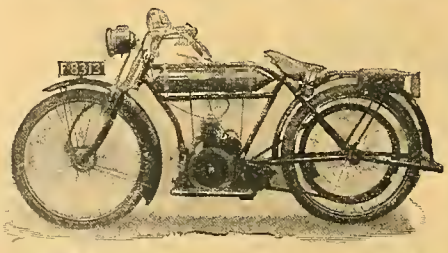
GOLD MEDAL
LONDON-EDINBURGH
Mr. O. P. C. Collier up.

25 GNS.

"PARAGON"

SPECIFICATION:

Engine: 237 c.c., Gears: 5-1, 10-1., Carburetter: Amac. Magneto: V.H. Frame: 28in. to Saddle. Petrol: 120 m.p.g.



Order a
2½ h.p. 2-speed 2-stroke
Immediate Delivery Guaranteed.

£28
(including 2-speed Gear).

K. PORTWAY & CO., Brantham, Manningtree, ESSEX.

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND NINETY-SECOND CONSECUTIVE ISSUE.
Subscription Rates: Home 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

Colonial and Foreign Agents:
United States.—The International News Agency, New York. Canada.—Gordon and Gotch, Ltd., 132, Bay St., Toronto.
Australia.—Gordon and Gotch, Ltd., Melbourne (Victoria), Sydney (N.S.W.), Brisbane (Queensland), Adelaide (T.A.), Perth (W.A.), and Launceston (Tasmania).
New Zealand.—Gordon and Gotch, Ltd.; Wellington, Auckland, Christchurch, and Dunedin.
South Africa.—Central News Agency, Ltd. Paris.—Smith's English Library, 248, Rue Rivoli.
Telephone: 2848 *City (five lines.)* ADDRESS: 20, TUDOR STREET, LONDON, E.C. *Telegrams:* "*Cyclist, Fleet, London.*"

An index to advertisements will be found on the page facing the back cover.

Misplaced Energy by a Cycling Body.

We understand that the Cyclists' Touring Club, which professes to cater for motor cyclists as well as cyclists, and must number among its cycling members many who are also owners of cars, has addressed a circular letter to the police authorities urging them to use greater stringency in ensuring the proper carrying out of the provisions of the Motor Car Act with respect to the legibility and illumination at night of number plates on motor vehicles; also, that the C.T.C. intends in the near future to approach the Local Government Board with a definite recommendation for the adoption of a new form of transparent number-plate in order that more effective illumination and consequent identification of motor vehicles can be secured.

Now, while we have nothing to say against the proper carrying out of the provisions of the Motor Car Act, we are of opinion that the police in most districts are quite sufficiently strict—in some parts of the country they may be said to err on the side of undue severity in their handling of what are, after all, technical offences of small importance to every one except the unfortunate individual who may be fined 40s. and costs because the coat of the passenger on the carrier hides his rear number-plate.

For the car driver who knocks down a cyclist or pedestrian and drives away leaving a fellow creature lying hurt in the road we have no excuse to offer under any circumstances; but we do think that such despicable conduct would be much more rare if the motorist could be sure of getting justice, and no more, at the hands of the authorities; but unfortunately it is often the tendency to lay the whole blame of any accident upon the motorist no matter who is really in fault, and these things are brought about by the bigoted attitude of some Benches to all things automobile, and by the conduct of certain motorists themselves, who, having no experience of the amenities of the road, drive as if the public highway was intended for them alone. It is more desirable to devise means of preventing accidents than of tracking those concerned in them when they occur, and we think that the C.T.C. would be better employed in putting its own house in order by urging upon the cycling members the use of a rear warning light at night—properly made and properly fitted—than in endeavouring to make the lot of automobilists more arduous than it is at present. If the C.T.C. is in want of new outlets for its activity may we suggest that some people regard the road as a breaking place for bottles, others as a place where they may graze their cattle, and where poultry may roam unmolested.

The Six Days Trials Course.

In our description and comments on the Six Days Trials we observed that the event developed more into a "Colonial" test, and that certain sections of roads and one or two test hills might have been omitted, but it was also made clear that the fact of fifty-one competitors gaining gold medals proved that the course, despite its severity, was not too bad for a first-rate machine.

This week we publish two letters from important firms of manufacturers who support our view that the trial, though extremely severe, was not so impossible as it has been made out to be, and reflecting upon the conditions after having ridden round practically the whole of the course on a motor bicycle, we do feel that the test arranged was just what was wanted. The trial brought out that a machine with three speeds was at an advantage, and demonstrated that the average motor cycle rim was too weak; it proved that the brakes on some machines were not so efficient as they should be, and it further found out weak spots in frame design. The A.C.U. has been subjected to much unfair criticism, and it seems that an attempt is being made to induce manufacturers to boycott A.C.U. trials in future, but surely this is petty.

IGNITION AND LIGHTING.

The Possibilities of Magneto-Dynamo Lighting for Motor Cycles and Sidecars.

In view of the increasing tendency toward electric lighting on motor cycles, the author discusses the advisability of combining the ignition and lighting systems by means of a dynamo and accumulators.

UNLESS the tendency towards electric lighting on all forms of motor vehicles suffers a very unexpected set-back in the near future, one of the results of this development may well be the re-consideration of the ignition system of motor cycles. On large cars a certain amount of extra weight and cost is not a very important matter, but on motor bicycles, sidecar combinations, and cycle cars it is obviously advisable to employ one apparatus to do dual or even triple service, provided that this can be done without appreciable loss of efficiency.

Simple Lighting Batteries.

The simple lighting installation consisting only of a small secondary battery and the necessary lamps and wires we need not consider at any length, because they have been on the market some time. Clearly, for this purpose we should carry a battery only sufficient for lighting purposes, and should not think of employing it for ignition also, since this would mean additional capacity and additional weight. When, however, the lighting system is of a more complete kind, incorporating a dynamo of suitable design, the duty of which is to keep the accumulators charged, the case is considerably altered.

The dynamo may be put to use for ignition purposes in either one of two ways. It can be wired up directly to a make and break contact working in connection with a plain induction coil, or possibly to a wipe contact working wtih a trembler coil. The ignition circuit from the dynamo would in this case be in parallel with the circuit to the lamps, and the opening and closing of the ignition circuit would tend to affect the lighting circuit to some extent, causing the current from the dynamo to ebb and flow at least to a slight degree. It is very questionable, however, whether this would constitute a serious drawback, since, with the accumulators always present to act as a kind of buffer in the lighting circuit, the effect on the lamps should not be such as to alter appreciably their illuminating power.

The other method would be to put the accumulators directly into connection with the ignition circuit, and merely to use the dynamo as a means of keeping the cells fully charged.

Dual Systems of Ignition.

In discussing possibilities not yet fully tested, it would be rash to attempt to say exactly what method of operation would prove the most efficient, but if the first were employed it would evidently be advisable to wire up so that the accumulators could be put on to the ignition circuit as an alternative to be used when starting, and in the unlikely event of anything going wrong with the dynamo. This would practically provide a dual system of ignition. At high speeds a lighting dynamo is capable of giving a voltage very much in excess of that of the ordinary four-volt accumulator, which used to be used for ignition, and consequently the spark also should be more effective.

If any of the developments hinted at actually com to pass, it is practically certain that the change i these directions will be a gradual one, very muc more gradual than was the abandonment of the igni tion accumulator in favour of the high-tension mag neto. At the time when this took place, ther was a great controversy as to the relative merits of th sparks given by the two systems. Probably, unde ideal conditions, with the ignition control set i exactly the correct position, and a thoroughly goo mixture supplied to the cylinder, there was little o no difference in the power produced as the result o employing the different ignition systems.

Magneto Spark and Gas Mixture.

When, however, any error was assumed in the set ting of the ignition lever, this error had a much mor detrimental effect on ignition by the coil and accumu lator system than upon that depending on the high tension magneto. Moreover, there is good reason t believe that the magneto deals more effectively wit mixtures of varying quality, such as may well b found in the two cylinders of a V type engine especially if the cylinders are set at a small angle Since this great change in ignition took place an little faults that there may have been in the earl high-tension magnetos have been made good, and th present machines are practically perfect.

In the matter of weight there should certainly b an advantage, since the various components of th ignition lighting sets would balance one another fairl well, with the exception of the dynamo, the whole o which might be regarded as part of the electric ligh ing outfit, leaving the magneto with its heavy fiel magnets to be weighed against an induction coil mor comparable with the armature alone than with th whole machine. On the other hand, the attempt t keep down weight might easily be over-valued, sinc it is apparent that very many motor cyclists at th present moment are quite willing to add weight b carrying small lighting accumulators not absolutel essential.

Another factor which will tend to make the chang slow, if it occur at all, is that the smaller sizes o electrical lighting outfits cannot be said as yet t have reached the perfection of the high tension mag neto. There are, of course, several admirable outfit on the market, but the majority of these are rathe expensive, and unnecessarily heavy for motor cycles Less attention has at present been given to the smalle types, though there is no doubt that we already hav some upon the market capable of giving excelle service for the purpose for which they were intende

Further consideration would, however, be neede before attempting to apply them all to the dual pur pose of lighting and ignition. Consequently, whil making suggestions on future possibilities, we wish t make ourselves quite clear to the effect that we do n anticipate any early depreciation in the value o machines equipped with the altogether admirabl system of high tension magneto ignition.

OCCASIONAL COMMENTS

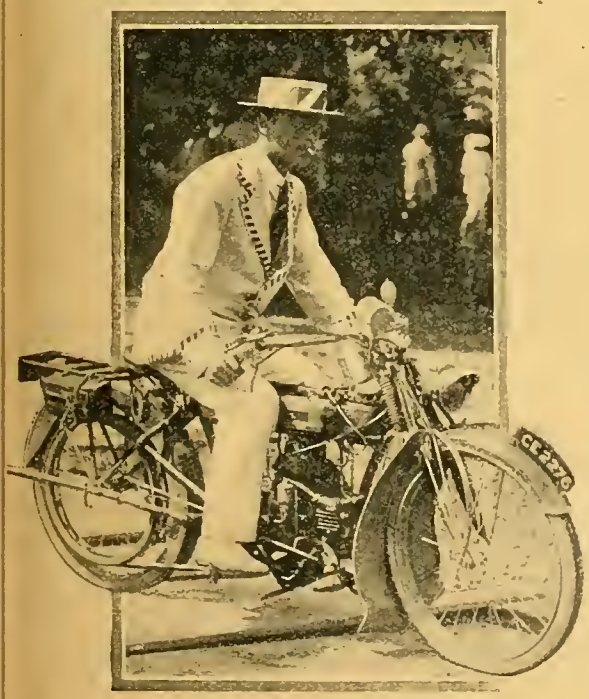
BY IXION

The "Nut" and His Hooter.

The latest nuttiness consists of scrapping the usual alf-guinea hooter, and buying in its place a stumpy ttle cyclorn at about eighteenpence, which is secured the centre of the handle-bar by a few lappings of sulating tape. The unaccustomed impertinent treble queak of the tiny hooter is a fine road clearer at the oment, because people are unfamiliar with it, and onder what is coming. Its efficiency will probably ecrease as soon as a few hundred imitators have pied the practice.

Four Back Axle Brakes.

Many of the modern cycle cars and light cars have l their brakes mounted in the rear hubs—a policy hat must commend itself to any motorist who has ver broken a propeller-shaft or driving chain when is side brake happened to be out of adjustment. ut—beyond all question—the quartette of axle brakes, s fitted to the average modern cycle car, are far too nall in width and diameter. They are usually lined ith the very best friction-resisting materials, but they ear out very rapidly even in the hands of a careful river who uses his brakes as little as possible. I have had several miserable experiences this year due to such brakes quite suddenly wearing down below the gripping limits. In one case such an experience occurred in the middle of a lengthy tour, and the only safe course was to dismount the brakes and pack the remnants of the fabric lining up by putting a strip of zinc beneath it. I hope that the size of the drums will be generally increased for 1915.



As proof of the perfection to which motor cycles have now been brought, one may safely ride to tennis courts or the riverside in white flannels without fear of getting bespattered with oil.

A Word About Fitting Valve Springs.

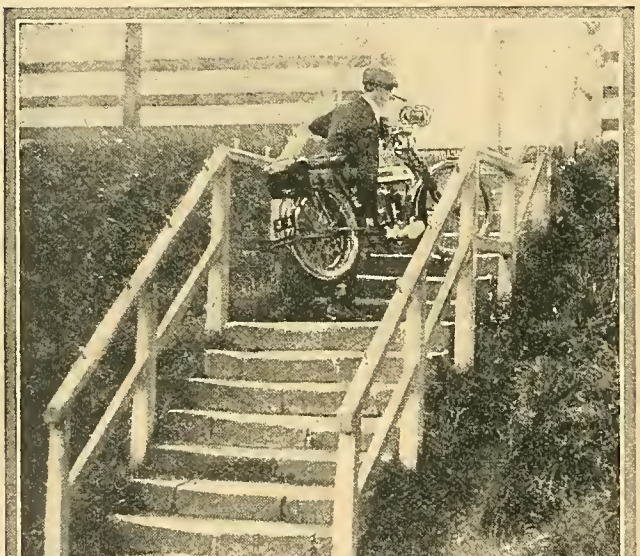
The other day one of the kind friends who visit my garage helped himself to a valve spring removing tool, which has been the faithful companion of my labours for ten years past. Simultaneously, of course, the third cylinder of my cycle car developed a misfire, and when I tested it by opening the compression tap, the merest whiff of a caricature explosion saluted my outraged ears (contrast the other cylinders, which spat flame a foot long into my unwary face!). I hunted in vain for the missing tool, and finally extracted the valves of the errant cylinder with a screwdriver, getting excessively overheated in the job, as the eight valves are as close together as the bristles in an hotel hair brush. When I tried to replace the valve, I laboured in vain for half an hour. Supposing I managed to get the spring compressed, the space available between the valve under attention and the two adjacent inlet valves was so narrow that I could not get the cotter in, and Mrs. Ixion, whose fingers are Burne-Jonesian, was away on the road tuning up her Auto-wheel, which has not been doing better than 110 m.p.g. lately. In this *impasse*, I bethought me of an ancient wrinkle, which, Heaven forgive me, I have often quoted with approval but never tried. "If a valve spring is awkward to replace, compress it in a vice, and tie up the coils with stout twine; it will then slip into place like a *marron glacé!*" I hied me to the vice, tied up both sides of the 30 lb. spring, and released the jaws of the vice. Hey, presto!—both bits of twine fled round to one side of the spring, which assumed a lunar arc. [He means "crescent-shaped appearance."—Ed.] I repeated the process five or six times with no better result, and decided to denounce this nefarious and delusive tip in the public press; incidentally, the spring once flew out of the vice and hit me on the cheek bone at 1,000 m.p.h.; also I tightened the vice on to my golf thumb, which is already terribly abraded as the results of experiments with the overlapping grip. However, the spring was still adrift, and the cycle car was waiting. I now remembered I had a Rudge motor bicycle, the spare springs of which are neatly compressed in little tin cases. Excellent idea. I fetched out a Rudge spring, and noted with glee that the tin sheath was of approximately the right diameter. I sprung the sheath open, and the Rudge spring soared

Occasional Comments.—

over the garden wall; never mind; I don't know how the Rudge Co. coax their springs into the tin sheaths—it cost me many abrasions—but at last I got my spring into the sheath, and then the spring popped merrily into place on the cycle car engine, and I went out and bought three valve spring removers, which I propose to chain to my garage wall.

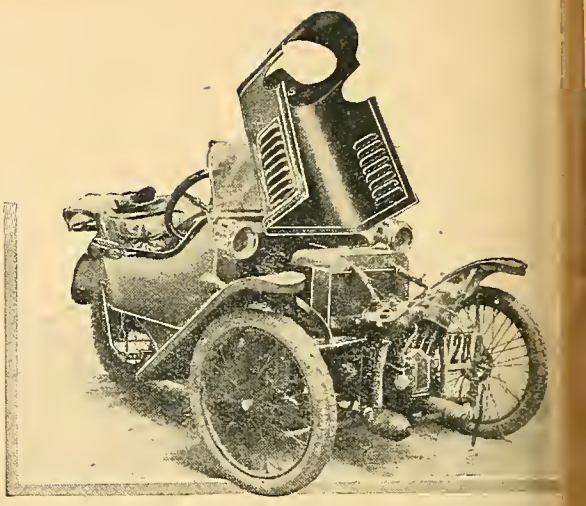
A Good Cleanser.

As my readers know, I seldom give proprietary articles a cheap advertisement in my columns unless there is something unique about them, but I have at last struck a first rate cleanser. It is called Kudos, and is sold by Boots, the well-known chemists. Let me particularise. Almost any cleanser will remove the general film of filth that covers our paws after we have adjusted a driving chain or scraped the carbon off a cylinder. The real crux comes when we try to whiten the soft skin round the arc of the finger nails, in order that we may face our office mates without shame next morning. Many of us find that we cannot get our hands wholly clean under thirty-six hours and three good scrubbings. Kudos can be relied upon to make the filthiest pair of hands fit for a ballroom in five minutes. You put a teaspoonful of it into the dry palm of one hand, and give the hands a dry wash with it, like a shopwalker, until the stic feeling practically disappears. Then do a minut work on the finger tips with a stiff nailbrush, a rinse the stuff off in hot or cold water. You w be quite clean enough to grasp Angelina's fairy fing and murmur—[Irrelevant matter deleted.—Ed.]. I me add that I have not had a free sample, but bei half-way through my third purchased tin of the y I felt I ought to put readers on to a good thing. suggest to Boots, Ltd., that motor cyclists wo appreciate the marketing of a threepenny pocket t to be carried on tour and in reliability trials. T stuff is as cheap and economical as it is efficient.



WHERE THE LIGHTWEIGHT SCORES.

The above photograph amply demonstrates the ease with which a lightweight may be carried up or down steps and through twisty passages—a distinct advantage to those whose residences may be awkwardly situated from a motor cyclist's point of view.



The engine and radiator on the Morgan used by H. F. S Morgan is neatly covered over, giving the vehicle the appearance o an air-cooled model. Our picture shows the bonnet raised.

The Scottish Trials Marking System.

Mr. Campbell McGregor is very kind in explaini the motives of his organising committee, and I consi the Edinburgh M.C.C. have never received full cre for introducing the system of reserving gold med for riders who lose no time marks at all; when th adopted this policy, other clubs were awarding gol to riders who lost one hundred marks.

I am still without sympathy for the "Irishma bonus." Why not award a bonus of fifty marks riders who lose no time marks, in lieu of docking t unfortunate who loses one time mark, an extra fi marks? The silver medal winner would then appe as having only lost one minute during the week, a the gold medal winner's fifty bonus would prevent l marks being lower than those of a silver winner w had earned more climbing marks; surely, this is t more rational escape from Mr. McGregor's dilemm

Mr. McGregor's remarks about the ten-minu margin are beside the point. That margin is p and parcel of the time schedule, and serves to preve the men having to average more than twenty mil per hour after allowing for checking and replenishme stoppages. It does not affect my criticism that no rid should lose fifty-one marks because he is a minu late. I hope a Scotch bonus of "plus fifty" w be substituted for the Irish bonus of "minus fifty in 1915.

The Motor Cycle and the Country Tradesman.

By H. MORTIMER BATTEN.

'N the early days of its existence the motor cycle won for itself a reputation that took long to outlive, and can one wonder when one recalls those norting and unlovely creatures of the road ten years go? The Britisher, whatever he may imagine himself, ; at heart a Conservative, and having once acquired ne idea that motor cycles were unreliable, uncomfortble, and dangerous, he proceeded forthwith to stick o that idea in the face of all proof to the contrary. Then suddenly he awoke with a start, and fell out of ed, so to speak. "Here we have a highly efficient nachine that must in time play an important part in ne commerce of the country," he cried aloud, and aving congratulated himself on his extreme alertness e succumbed once more to the sleep of stupendous Conservatism. Newspaper men tried to rouse him, ut without effect, for ages ago the newspaper man on for himself a worse reputation than the motor ycle has ever deserved. I remember one young ournalist writing an article on the future of the motor ycle—or rather the utter absence of future that was n store for it. "The delicate mechanical parts," said e, "can never be made to stand the great vibration," nd so on. The article pleased the old Conservative ogies of the town so immensely that the young journalist promptly wrote another article describing the immense possibilities of his machine, and now, in time, it would become part of the stock in trade of almost every tradesman. I know this is true because I was the journalist.

The newspaper man goes to work in much the same spirit as the Irish gunner, who, in order to create a sensation, pressed the wrong button at the right time, and sent himself and half his regiment hurtling giddily skywards.

The Value of Time.

So much by the way. The fact of the matter is that a large section of the community still regard the motor cycle as an article of pleasure, a luxury to possess, and are somewhat dubious as to its possibilities from a business point of view. Non-motor cyclists maintain an exaggerated idea as to running expenses, etc., and due to ignorance of this sort they hesitate in making an investment which would probably prove a most valuable one. The two-stroke lightweight, however, is making a strong appeal to many tradesmen —country tradesmen especially—to whom the big 3½ h.p. single was more or less out of reach. I wonder how many country grocers, for instance, there are to-day who use these little machines for running round and booking orders.

For this kind of work the real lightweight is ideal. Ask any country tradesman who possesses one. Not only is it invaluable as a time saver, but it enables its owner to cover a far larger district than he would be able to cover on horseback. And the country tradesman can rest assured that, in these days of fast traffic, he will most assuredly be left behind if he continues to move slowly.

(1) The little two-stroke is ideal for running round and booking orders. The Levis depicted above is on the go all day and all weathers and has yet to fail.

(2) The village storekeeper and postmaster are generally synonymous, and in this case a light "go-anywhere" machine is an immense saver of time and labour.

(3) Quick and easy transportation is the cry of the day, and, above, a village joiner is seen with his old Singer, which is still capable of hard work.

The Motor Cycle and the Country Tradesman.—

Have we not proof of this all over the country? The enterprising city tradesman has in many parts ruined the business of the small country tradesman by using fast-moving traffic, and cutting into a circle where hitherto he was regarded as a trespasser.

The same thing is going on in even the most outlying country districts. The grocer or butcher at A. purchases a motor cycle, and not only is he better able to attend his customers in his immediate neighbourhood, but slowly and surely he is enlarging his circle and encroaching upon the area hitherto supplied by the grocer or butcher at B, who still employs the old-fashioned methods of getting about.

The Advantage of Swift Transit.

The motor cycle is not only a time-saver, but it is a distance-killer, and country tradesmen who are still contemplating the plunge would do well to remember that at this period time is precious. The improvements in variable gears and two-stroke engines have rendered the lightweight a wonderful hill-climber, and there is no doubt whatever that in a year or two most country tradesmen will use this machine in their business.

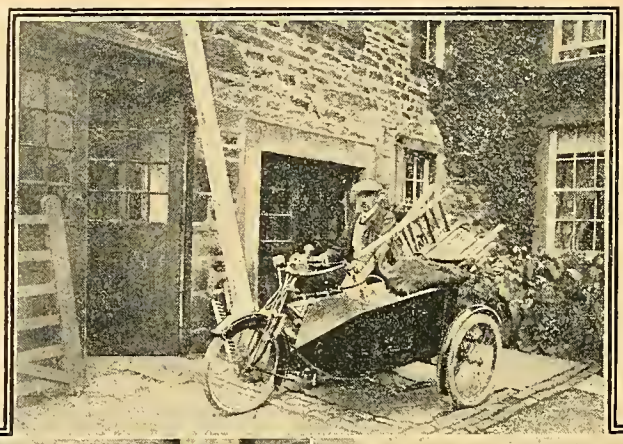
The baby motor cycle is, however, of no use except for solo work—for such tasks as running round and booking orders, superintending workmen on distant jobs, and so on. A far more valuable and useful machine, where the initial expense is not of such great consequence, is the 3½ h.p. single with sidecar attachment. Of course, one's requirements in this line depend entirely upon the nature of one's work, and I am compelled to generalise, drawing upon such practical information as I have procured for this article. Take for instance the country grocer with such a machine in his possession. If he knows a set-screw from a non-skid tyre he can detach his sidecar in a few minutes, and use his machine as a solo runabout. In a hilly district the extra power is an infinite advantage. Then some morning Mrs. Brown wants a sack of flour in a hurry, and Mrs. Smith, who lives in the same direction, is waiting for the delivery of several small bulk goods purchased yesterday. The sack of flour and the other goods are bundled into the sidecar straight away and delivered. Had it been impossible to deliver that flour at once Mrs. Brown would probably have purchased it from the market town next Saturday.

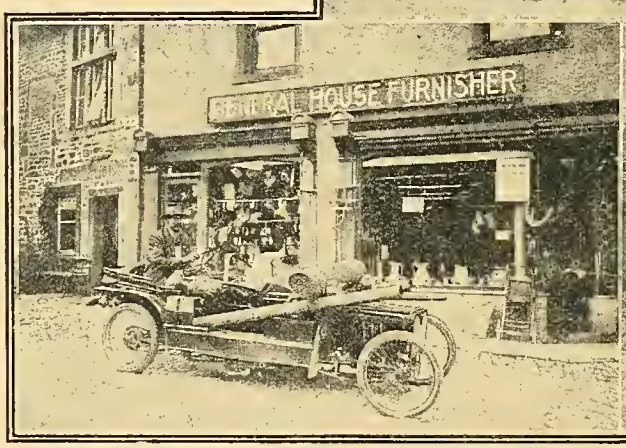
Again it is often a great saving to the house decorator or joiner to be able to take a man and his working requisites to some job a few miles from home, get the man started on his work, then return without loss of time. In scores of ways of this sort is the sidecar combination useful, for one seldom wants to travel solo and without freight of any sort, except when booking orders. Besides, to the family man the sidecar machine is a pleasure to possess.

The Question of Expense.

As regards the comparative expense of the lightweight and the sidecar machine, figures have already been quoted in this journal which should be of value. One finds that the difference in running expenses is not so great as one might imagine, while the comparative convenience of the two articles thoroughly warrants the extra expense of the sidecar outfit. But, as I have already said, it all depends upon one's business.

THE MOTOR CYCLE FOR BUSINESS PURPOSES.





(1) The house decorator, whose 4 h.p. Bradbury sidecar is often made to carry very heavy loads.

(2) This is not a hawking conveyance, but the property of a country tradesman, purchased before the days of sidecar popularity. It is still quite up to the hard tasks it has to perform.

(3) A machine which accomplished more in a few minutes than an errand boy would have done in the same number of hours. A general store keeper and cycle agent with his 1912 3½ h.p. P. and M.

The Motor Cycle and the Country Tradesman.—

A. was a small country grocer of immense ambition th whom I was acquainted. His district was in the art of the Pennines, where 1 in 5 gradients are quite mmon, even on the main roads. At one time he nt from farm to farm booking orders on a push cle, which meant that he walked half the way, and ent at least two days a week away from home. nally, he was induced by his friends to purchase old chain-driven two-speed motor cycle, which rned out a good one, and from that day we note a stinct change in A.'s career. He was the pioneer otor cycle tradesman in this district; he was the one n with push and ambition in the midst of an old-ne community.

Not only was A. enabled, by the new mode of velling, to go his round without exertion, but he on learnt that he could accomplish more on one y than he had previously accomplished in two. He d more time on his hands; he was able to branch t in fresh lines of business. Instead of just maintaining the sure and unfluctuating flow of business his father had maintained, he widened his circle and gained the patronage of many who hitherto were regarded as outside his district. In less than two years A. was purchasing milk wholesale all up and down the county, and transporting by motor 'bus to a neighbouring city.

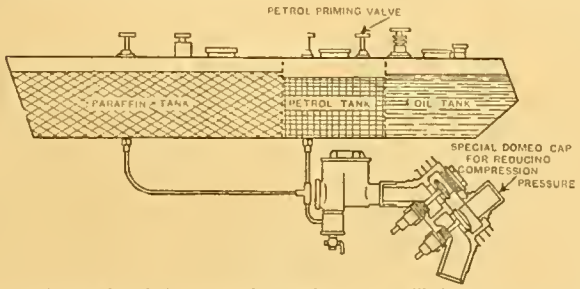
The performances of the latest model lightweights I have seen are really remarkable. They are capable of climbing stiff gradients, and even when they jib at taking up their rider there is nothing to do but dismount and walk alongside. But some cheap form of two-speed gear will shortly make its appearance for attaching to existing mounts of old pattern, so that users can enjoy the refinement which has gained for the motor cycle its popularity of to-day. A year or two hence we shall see the chain-driven two-speed lightweight (enclosed chains, by the way) placed on the market by the thousand, and at a price which will enable every tradesman who is at all dependent on the roads for a living to speculate with security.

A Simple Arrangement for the Use of Paraffin.

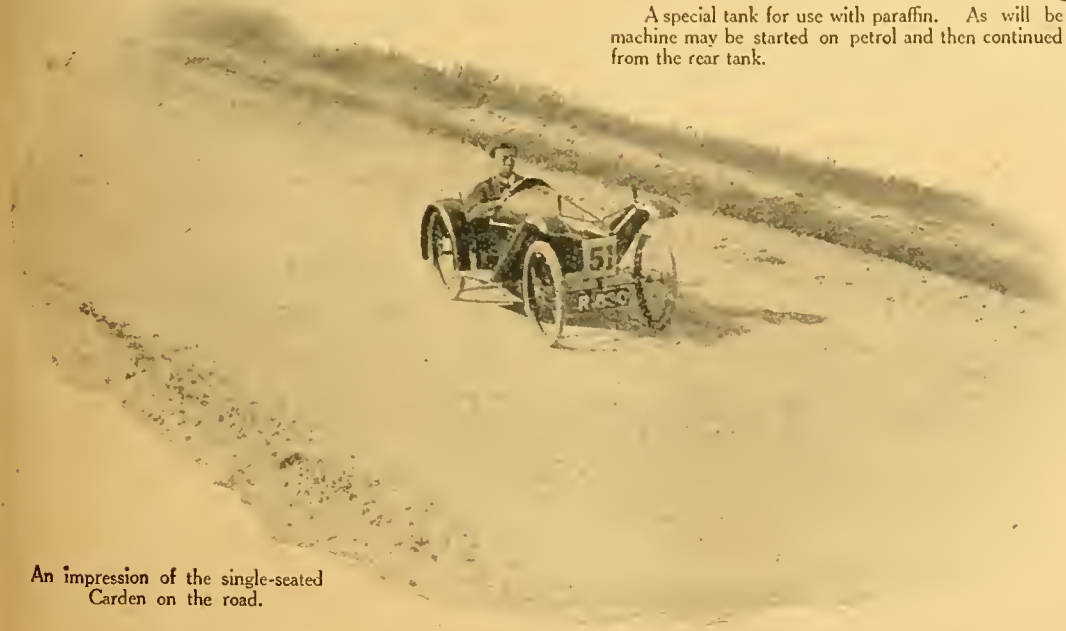
MESSRS. Phelon and Moore have just introduced a simple system for allowing their engine to be run on paraffin. The arrangement is ought about by making an extra division in the nk so that the main part is used for paraffin and smaller portion for petrol, which is used for starting rposes. As soon as the engine is properly warmed the paraffin tap is opened and the petrol tap osed, while a specially domed cap for reducing the mpression when running on paraffin is fitted over e exhaust valve. The accompanying illustration ows clearly how the idea is carried out.

The demand for such an arrangement has emanated om the Colonies, a recent order having been ceived by the firm for four complete sidecar outfits r the Crown Agents for the Colonies, to be sent Nigeria, where petrol costs 3s. per gallon. In consequence of its success, Messrs. Phelon and Moore are considering the desirability of fitting it to all machines sent to tropical countries.

In view of the great difference in price of the two fuels, the device is of general interest to all motor cyclists both at home and abroad.



A special tank for use with paraffin. As will be seen, the machine may be started on petrol and then continued on paraffin from the rear tank.

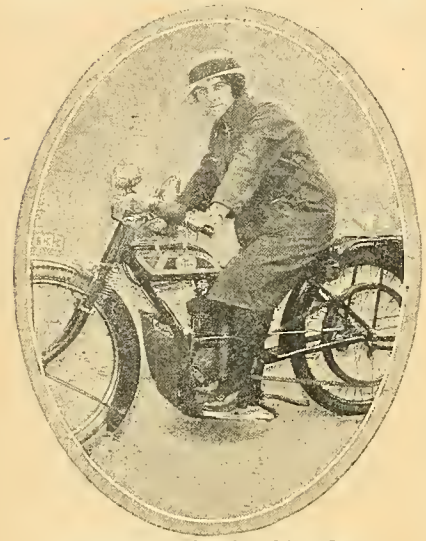


An impression of the single-seated Carden on the road.

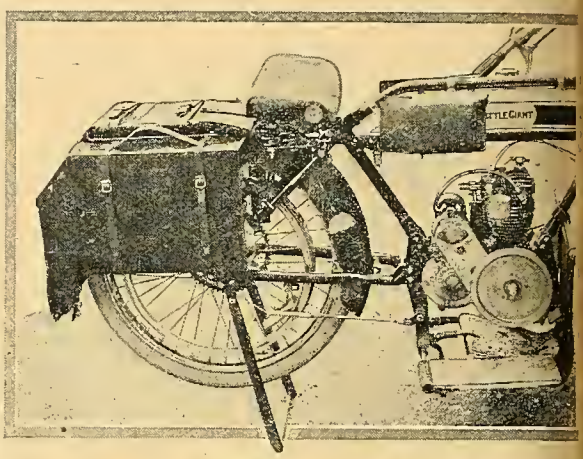
A 2 h.p. Four-stroke.

SOME NOVEL LUGGAGE-CARRYING DEVICES.

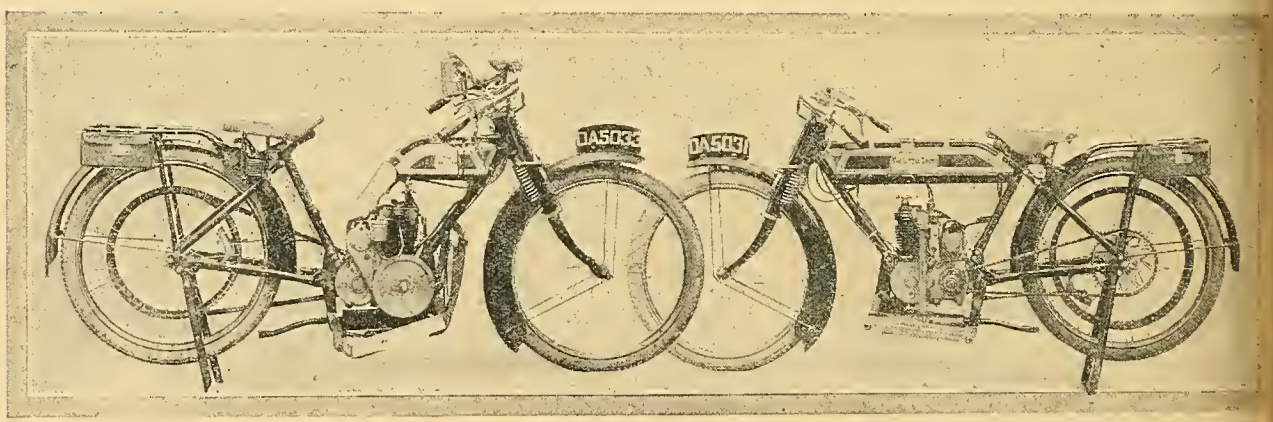
THE pleasure of ultra-lightweight riding was once more brought home to us very forcibly whilst testing the products of the Little Giant Motorcyclette Co., 101, High Street, Uxbridge, Middlesex. All three models were taken out on the road, and Miss Henry, who gives special demonstrations on the ladies' machine, showed how delightfully simple it was for members of the fair sex to handle such a motor cycle without appearing to be inelegant or masculine. The power developed by the Precision unit is extraordinary, and a speed of thirty-five miles per hour could be obtained quite easily on the chain-driven model, which was geared somewhat higher than the other two. With the special hammock footboards the riding position is greatly enhanced and very little engine vibration is to be felt. The gear change is simplicity itself, for the leverage on the large transverse pedal renders it possible to engage the gears with the lightest touch. On the ordinary machine single Druid spring forks are utilised, but a girder fork will be embodied on the special Colonial model which is now being constructed. Special attention should be given to the ladies' machine, on which the dropping of the frame and protection from the engine have been carried out very neatly. Our experience of their behaviour on the road, both in the matter of easy starting and speed (fast and slow), was particularly gratifying.



Miss Henry on the 2 h.p. Little Giant, specially designed for ladies' use.



A luggage-carrying Little Giant, which is fitted with very neat detachable pannier boxes. Note how the knee grips are also utilised as tool bags. The saddle may be used for carrying maps, etc



The ladies' model, which has a cut-away frame and belt drive.

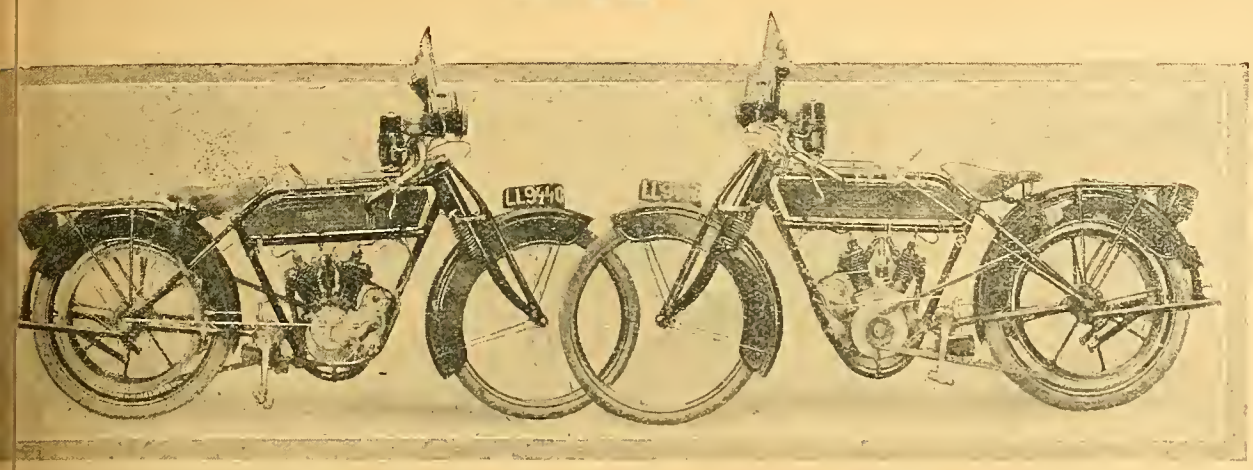
Left-hand side of the diamond-frame Little Giant, showing single chain transmission

The 2¾ h.p. Peugeot Twin.

A WELL-DESIGNED FRENCH LIGHTWEIGHT.

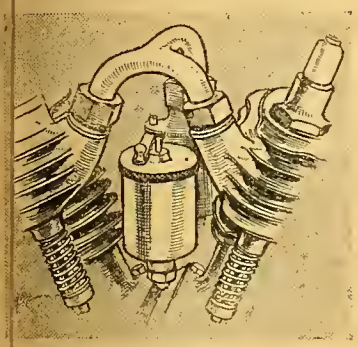
IT is only to be expected that any product of such a renowned and old-established firm as Peugeot should border on the exceptional; therefore, it was with this idea in our heads that we inspected and tried a lightweight model fitted with a 2¾ h.p. power unit. We were, of course, quite correct in our conjectures, for the power developed by the engine, which is a standard touring type, was really quite remarkable. Why this should be so is due to several vital attributes which give efficiency to an engine, such as large valves, short inlet pipe, and excellent workmanship. The two cylinders are placed at an angle of 45° and have side by side valves, which are so positioned that the T-shaped inlet pipe can be placed in between the cylinders. There the Claudel carburetter is also attached, and a consequent warming up of the whole gas-making device is the result. For ignition a Bosch magneto is relied upon, and is mounted on a platform at the forward end of the engine. When riding we could not help noticing the freedom from vibration, even when the engine was turning over at high speed, which certainly shows that balancing has been carried out with great skill. Another great asset to the machine was the three-speed Armstrong gear which enabled a really high velocity on the level without stressing the engine unduly, for with three ratios the top speed can always be comparatively high.

The kick starter, which is of the ordinary pedalling gear type, can be easily dispensed with, and it is quite



Both sides of the 2¾ h.p. twin-cylinder Peugeot, fitted with belt drive, Armstrong three-speed gear, and side-by-side valve engine.

s to negotiate crowded thoroughfares i out resorting to the clutch. On the arity of motor cycles the handle-bar o ated brake on to the front wheel is ess, and it is there because the law e nds its presence. In this case, o ver, the brake shoe works in the

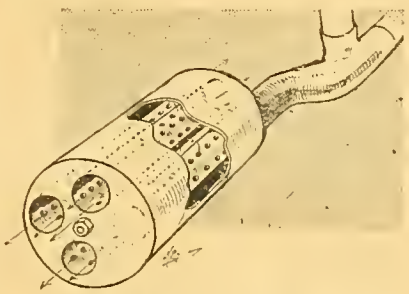


rangement of inlet pipe and carburetter on the 2¾ h.p. Peugeot.

special pulley provided for the orthodox foot-actioned brake, and is most effective as well as being very sweet in action. The design of the silencer is most meritorious both in theory and practice, although it is quite simple, as a careful study of the illustration will reveal. In order to make the rear wheel as accessible as possible, three large wing nuts only are utilised to hold on the mudguard and carrier. Being fitted with powerful spring washers, there is very little chance of them coming adrift through vibration, and the elimination of these appendages gives one a great deal of room in carrying out tyre repairs and other adjustments.

An Advantage of Low Compression.

For starting, it was only necessary, even when cold, to paddle the machine for a few yards, and firing would commence immediately. The low compression assisted greatly in this, and rendered the use of the clutch quite unnecessary when driving in traffic. During our run on the road, many bumpy stretches were encountered, but the suspension was quite up to the average, and there is no doubt that for solo touring this little mount is bound to appeal to all who sample its running. R. Dequin, 32, Queen Victoria Street, E.C., is handling the machine in this country.



The unique silencer which is a standard fitting of the 2¾ h.p. Peugeot. When the machine is in motion there is a continuous draught of air passing through, and drawing out the gases.

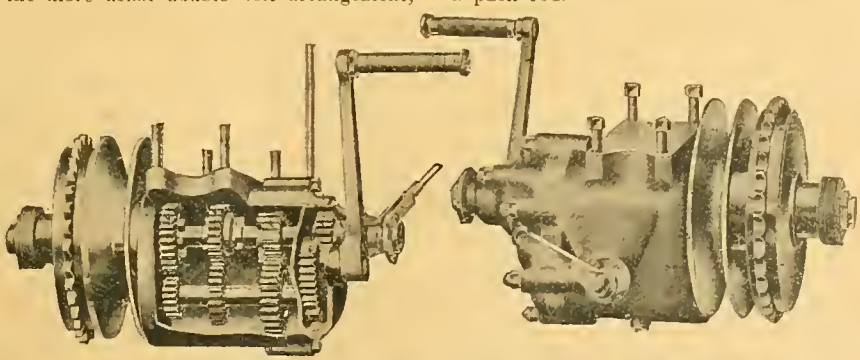
The New Hudson Counter-shaft Gear.

Three Speeds Provided, a Clutch with Cork Inserts, and Enclosed Kick-starter.

ONSIDERABLE interest was caused when the New Hudson team entered for the Scottish Six Days Trials with three-speed counter- gears, and there was some specula- as to what was "inside." The gear is very neatly made, and is substanti- bolted up to the bottom bracket. gears are of ample width and gth, and are mounted on shafts h run in ball bearings. Only one ng member is used, and this com- s a gear wheel and two dog clutches, h are moved laterally on a squared by means of a striking fork to lock gears required to the shaft.

he clutch is of the cork insert , having five plates and an easily sted spring tension, the device g on a series of small coil springs, h are considered more satisfactory one large one. Both chain sprocket belt pulley lie on the same side, the er being mounted on the ontside, and the kick-starter gear is entirely enclosed in the gear box.

The gear box is bolted up to the bottom bracket by four bolts instead of the more usual double bolt arrangement, and the clutch is controlled by an internally screwed cap working on a quick thread screwed boss, the movement being transmitted to the plates by a push rod.

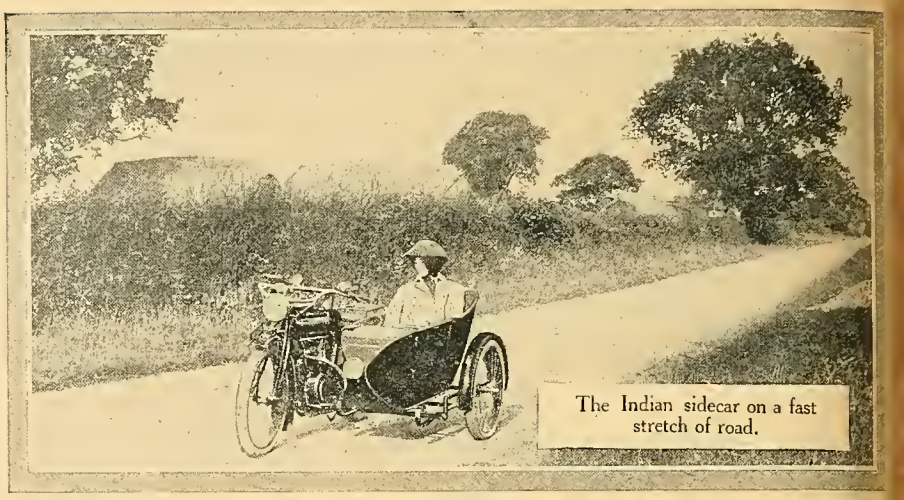


Interior and exterior of the New Hudson three-speed counter-shaft gear with clutch and kick starter.

P9

MACHINES ON THE ROAD.

The 7 h.p. Indian Sidecar Combination.



The Indian sidecar on a fast stretch of road.

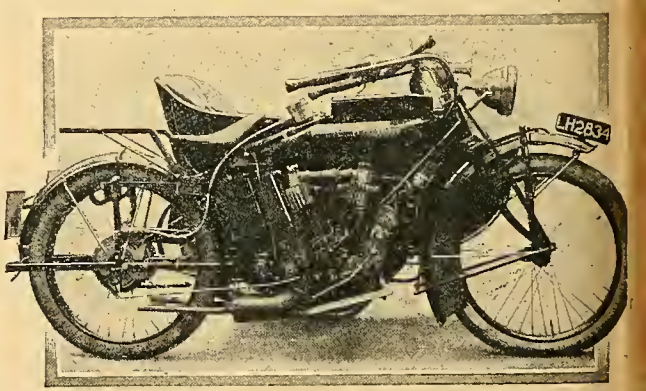
ELEVEN years ago we made our first trial trip on a sidecar built up by the inventor of this popular attachment, Mr. Graham, of Enfield. We were so pleased with this method of carrying a passenger that very soon after we ordered a sidecar from the Ariel Co., who started to manufacture under licence from Mr. Graham. It was attached to a 2¾ h.p. Ormonde (76 mm. × 80 mm.), which was, of course, single geared, and in consequence a torture to drive through town, while it required much physical efforts to coax it up a worse hill than 1 in 20, and 1 in 12 was its limit. Still it gave us much pleasure, though the sidecar was naturally not so comfortable as those turned out at present. It is also interesting to record that it was one of the first sidecar combinations in England. All this appears to be somewhat of a digression, but we crave forgiveness, as it serves the useful purpose of comparing an old machine with the modern and luxurious vehicle we recently had the opportunity of testing. This latter was the property of a colleague, who had run it just long enough to allow it to "find itself," and it had been a great success. It was one of the very latest pattern 7 h.p. "Hendee Specials," fitted with electric starter and lighting, and equipped regardless of expense.

Springing and Hill-climbing.

The springing is wonderfully good, and the extreme comfort of the combination on rough roads must be experienced to be appreciated. Long before we realised it we were bowling along the road at a speed far in excess of the legal limit, when a sudden desire to attempt a hill led us to leave the turnpike and turn up a by-road. The gradient was nothing serious, and was unnoticed by the Indian, so we retraced our tracks and made for a more severe climb. This had a maximum gradient of about 1 in 12, and is, on account of its winding nature, quite steep enough to cause most cars to drop to second speed. But the Indian treated it as nought, and romped up at an easy thirty by the Corbin speedometer. The most noticeable feature of the climb was the wonderful power of the combination to accelerate after negotiating a corner, which is possessed by few other self-propelled vehicles. We found the twist handle control to be delightful, and very easy to manipulate. Our next test was to try restarting on a gradient, which, thanks to the excellent clutch, was most easily accomplished. The engine i well balanced, the change speed gear is simple in th extreme, and the handling of the machine delightfu in every way. The passenger was loud in her praise of the special Mills-Fulford sidecar which is built fo the Indian.

A Small Criticism.

An article such as this is worthless without criticism but in the Indian there is little to criticise, and ther are only a few details at which one can cavil. I the first place, the filler caps are too small, and thos fitted to the T.T. models should be standard next year the change speed lever is on the small side, though thi point is of not such great importance; while, lastly, th dial of the speedometer might be in a position in whic it can be more easily read. Points which most strongl appeal to the experienced rider are the excelle luggage carrier, the hefty stand, the comfortable foo boards, the substantial metal tool cases, and the in genious petrol injector. People are apt to regard th dynamo lighting set and starter as an unnecessary com plication, which is likely to give trouble, but we ca assure them that trouble in this direction is not likel to occur, and if it does the combination can be easil started on the low gear and either accumulators o dynamo will supply enough current to light the lamps We were particularly pleased to note the excellent wa in which the electric equipment is made.



Valve side of the 7 h.p. two-speed Indian sidecar on which the tests were made.

A tyre discovery

IN the Dunlop rubber-studded motor-cycle tyre the Dunlop way of always trying to do better than before has produced an extraordinarily fine thing.

Its bold design at once takes the eye of the expert. Look at the big strong studs. Look at the thickness of the rubber in the tread. Everyone knows how Dunlop tyres have stood up to their work in the big races and trials, and that they have been used by scores of successful riders. These achievements justify the reasons on which the design is founded.

But what may well be called a tyre discovery is the mixing which governs the exact composition of the covers of Dunlop motor-cycle tyres, and which is giving wonderful results with regard to wear-resisting qualities.

In normal circumstances the rate at which rubber is lost by Dunlop tyres by wear is extraordinarily low. As tyre economy is a matter of mileage price, not initial price, see that you have

DUNLOP
MOTOR-CYCLE TYRES

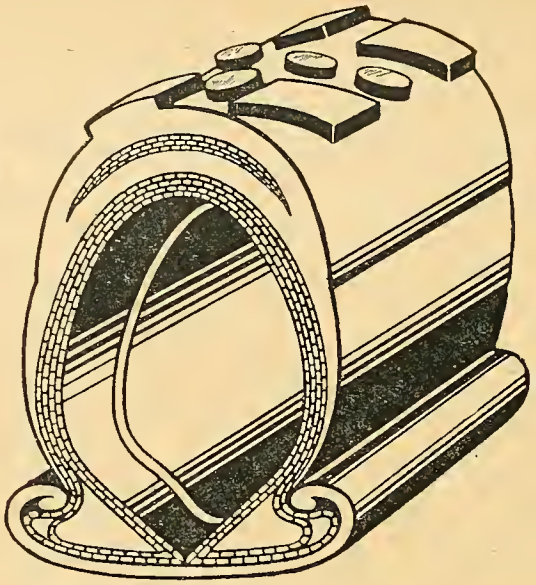
For the same reasons of economical service use Dunlop belts.

Ask your agent, or write for the Dunlop booklet
"All About Cycle and Motor Cycle Tyres."

THE DUNLOP RUBBER CO., LTD., *FOUNDERS OF THE PNEUMATIC TYRE INDUSTRY*
Aston Cross, Birmingham: Alma Street, Coventry. Branches—London, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

LARGEST USERS OF PLANTATION RUBBER IN THE BRITISH EMPIRE.

In answering this advertisement it is desirable to mention "The Motor Cycle."



For Passenger Machines.

You pay more for a heavy machine than a light one, and must expend more on adequate tyres.

Continental

"Combination"

Covers are specially made for "big" work, uniting great strength with prevention of skidding.

PRICES.

For Motor Cycle Rims.

	Cover.	Tube.
Size 26in. x 2¼in.	56/6	9/-
,, 26in. x 2½in.	59/6	10/6
,, 26in. x 3in.	70/9	13/6
,, 26in. x 2½in. to fit 2¼in. rim	65/9	10/9
,, 28in. x 2½in. (American size)	66/9	11/-
,, 28in. x 3in. (American size)	74/9	14/9

For Voiturette Rims.

Size 650 by 65 mm.	65/3	9/6
,, 700 by 80 mm.	82/-	12/-

These two sizes are interchangeable in 650 x 65 mm. Rims.

CONTINENTAL TYRE AND RUBBER CO. (GREAT BRITAIN), LTD.,

3-4, Thurloe Place, London, S.W. **Glasgow: 71, Mitchell Street.**

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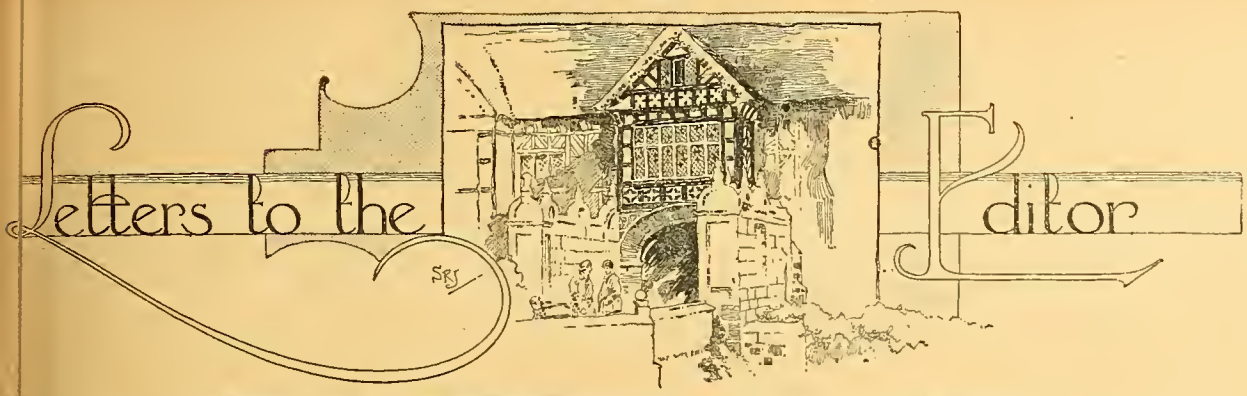


The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Motor Cycling Skirts.

Sir,—If some of your lady readers could give me some patterns of riding skirts for motor cycling I should feel much obliged. MYRTLE DANIEL.

[Replies should be addressed c/o the Editor.]

The Rule of the Road.

Sir,—May I be permitted, through the medium of your columns, to endorse the statements of Thomas B. Crow in his letter published in your issue of the 16th inst.? There are scores of most dangerous corners all round this part of the country (Ilminster), and it seems to be the vogue to take these habitually on the wrong side. In this case I fear that it is car owners who are the chief culprits, but many motor cyclists are just as bad. Personally, I take them myself on my lowest gear, ready to declutch at any moment. All this I consider the only safe way, as straying live stock abound in these parts. May I therefore ask any motor cyclist who may be passing this way to be on the look out for extremely dangerous corners, and to take them with the utmost caution. A. J. M. WILSON.

The Price of Petrol.

Sir,—The action of the leading motor spirit purveyors in reducing the price of petrol is a striking and significant contribute to the value of competition against colossal monopolies.

Thanks to the efforts of the Motor Owners' Petrol Combine the whole motoring public will now reap the benefit of a reduction in the price of petrol by one penny per gallon. This, I think, shows very clearly that the great monopolists can be successfully fought by intelligent co-operation.

It is entirely owing to a steadfast adherence to the policy determined upon when the Motor Owners' Petrol Combine was inaugurated that the motoring public derives the advantage I have indicated. CHAS. JARROTT.

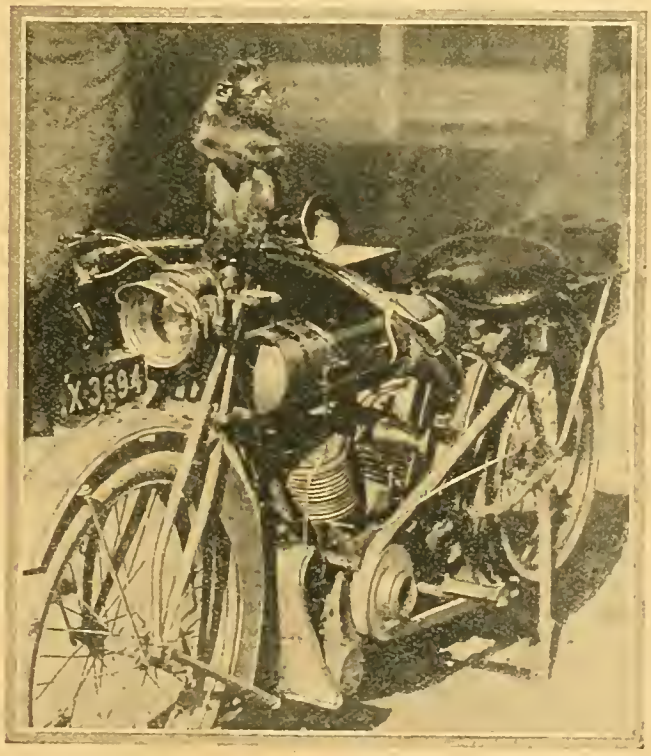
Look to the Fuel.

Sir,—Seeing that a motorist was recently supplied with water out of a petrol tin, I thought the following might interest you.

Lately, while touring in the North on a new 3½ h.p., after stopping about half an hour for lunch, all efforts to start were futile, although ten willing helpers overhauled every point of the machine. After being "stuck" for three hours it was discovered there was paraffin in the tank, which I had apparently been supplied with instead of petrol, and this out of a well-known vendor's petrol tin! The fact of doing fifteen miles after receiving such replenishment naturally disarmed any suspicion of the trouble arising from the "juice" quarter. I wonder how many riders would have spotted it earlier? AB 3778.

Lightweights v. Heavyweights.

Sir,—As so many of your correspondents have just lately been enlarging on the merits, etc., of the ultra-lightweight motor cycle, I think it is time some of us old hands defended the old and ever trusty 3½ h.p. It would appear that the lightweight and the small two-stroke are the only machines which should be ridden, and any newcomer to the ranks of motor cyclists seems to view the "heavy 3½" as a great and unwieldy piece of machinery which can only be ridden by an expert, and is firmly convinced that a very small machine will "do for him." Sooner or later, however, he wants to go on tour and take plenty of luggage with him, but is afraid of starting with any weight on account of the big hills and his small power. The rider of the 3½ h.p. never has any of these fears—he knows that he can climb any reasonable hill, and if he has a variable gear he can be sure of getting anywhere. For myself, I have ridden lightweight singles and twins, heavyweight twins, and big singles, and I have for some time now been riding a 3½ h.p., which most people call heavy, but I do not find the slightest difficulty in managing it, and I recently did a journey of 245 miles over the rough cobbles of Lancashire without the slightest sign of trouble. LE 1809.



A NOVEL MASCOT.

A live monkey perched on the front of the 6 h.p. Matchless owned by W. Willis, of Newcastle. The monkey thoroughly enjoys a good spin in this position, and when the owner leaves the machine it is with the confidence that it will be quite safe in the monkey's care.

The Question of Gear Ratios.

Sir,—I was very pleased to read a letter from Mr. Stranger *re* the above in your issue of July 9th.

I am quite of the same opinion that a comparison of the relative power of engines is quite impossible under the conditions which prevail at the present time.

For example—take the case of a certain make which has been very successful in various trials during the past year. The manufacturers make a particular point among others of "engine efficiency" and "correct gear ratios." This engine is rated as 6 h.p., and the gears fitted are, if my memory serves me right, 5, 7½, and 16 to 1.

Now 16 to 1 is the lowest gear fitted to any standard 6 h.p. machine, and I fail to comprehend how the makers reconcile engine efficiency with such a low ratio. I notice in the six days A.C.U. trials, Class H (750 c.c.), there were several machines of considerable less cubic capacity fitted with much higher gears.

It goes without saying that the higher power lower-geared combinations should do a great deal better than the rest, especially on freak hills, and such performances are certain to convey the wrong impressions to the newcomer. If one compares the entries in the class referred to, which range from 598 c.c., gears 5½ to 14 to 1, to 750 c.c., gears 5 to 16½ to 1, it will be seen at once how difficult it is to form a fair judgment as to the real merits of the different engines.

HEATHEN.

Fracturing Hub Cups.

Sir,—I write to enquire whether any of your readers can give me any hint as to the real cause of a most annoying experience which has come to me lately.

After riding my new 2¾ h.p. twin for about 750 miles the left hub cup of the rear hub fractured right round just at the edge of the hub. I had a new one fitted by a very capable mechanic who has been employed in cycle works a great part of his life. I rode the machine just over 100 miles when the same thing happened again. I again procured from the makers a new cup, and at the same time had the spindle tested in the lathe. The latter was shown to be quite true. I also had the new balls very carefully inspected in case there might be a shoulder on any of them. The cup was again very carefully fitted by a first-rate mechanic, and, moreover, I took the precaution of submitting the job to another, also of reputable standing as a cycle hand. He pronounced it to be quite well fitted. Thereupon I rode the machine just six miles when precisely the same fracture took place. The sides of the cups seem to be very thin. Possibly the tempering of the steel might be at fault, but I cannot see that there could be anything wrong with the fitting of the cup.

L.K.G.

Gibraltar.

[We should think that the cups have been over-hardened, or that they are not quite true.—ED.]

Overseas Notes.

Sir,—In the recent copies of *The Motor Cycle* I have noticed some very interesting overseas notes, and maybe a little news on the good old sport out here will interest you.

Having ridden most makes of motor cycles during the past nine years in England, and having been kept well to the fore through your most excellent paper, which is absolute life to me, when I decided to come to Bombay I had no hesitation as to what type of machine was to accompany me. I fully intended to get a new machine, but when visiting the works in Birmingham, I had the great luck to hit upon Mr. S. F. Garrett's last year's Tourist Trophy Regal-Green, which was in the shops being overhauled for this season's racing. This so much took my eye that I decided to have it. I had what I now consider for this country, at any rate, one vast improvement made, viz., a Brampton gear fitted in lieu of the existing three-speed hub. I have owned several machines fitted with the best known makes of hub gears, which at times have given perfect satisfaction, but have not, previous to this, had the sense to try the simple yet perfect Brampton pulley. It is, to me, the very last word in gears, all types included.

Being a member of the P.S.M.C.C. I was asked to form a branch here before I left the old land, but after my arrival I soon saw that to do this was well-nigh impossible.

The difficulty is not due to the lack of motor cyclists, as there are quite a good number here, but to the great lack of any keenness. The average limit seems to be a ri down to the office or on Sundays perhaps a ride round t houses on a highly-polished machine which spends most the week under the charge of some wretched black bo having imaginary dust and mosquitoes wiped off it.

In spite of all this, there is, in most cases, a glorio knock!

Nevertheless, there is any amount of quite good ridi to be had if one cares to strike out.

Undoubtedly the ideal machine for this country is eith a T.T. or a T.T. roadster model, fitted with a simple y efficient variable gear and a water-cooled engine. As regar carburation, I find the Amac very fine working on a j half the size of their smallest.

The worst thing a man coming out can do is to get a ne machine packed up at the works and sent straight off. L the individual buy his mount some months before starti and test it well. Charges in the garages are always excee ingly high. I lately struck a man who paid fifteen rupe (one pound) for having his float level altered!!

Wishing the staff of the finest paper in the world t best of luck,

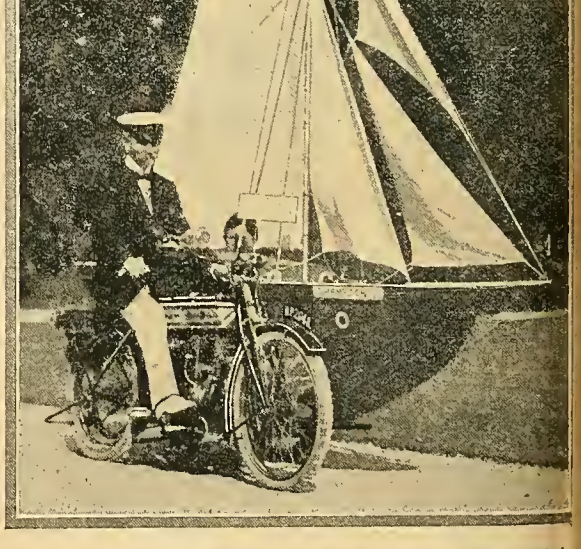
D. CHURCHILL WEIR.

Bombay.

Age Limits for Accident Insurance.

Sir,—Is there any sound accident insurance company whi issues accident policies in respect of motor cars and mot cycles to owners and riders above the ages respectively sixty and fifty-five? I ask this question because I find th the Motor Union Insurance Co. absolutely refuses to iss such policies to drivers of motor cars above the age of sixt and of motor cycles above the age of fifty-five! No difficul is made about issuing such policies to a motor cyclist ag sixteen, who knows absolutely nothing about his or h machine, who has never ridden one before, and who chances of coming to grief are very obvious, while t experienced, careful man or woman is absolutely declin solely because he or she is "over age." A greater absurdi can hardly be imagined. I suppose one's chance of being r into by a road hog, or novice, increases with one's own ag

MEDICUS.



At a recent demonstration in aid of one of the Sussex hospita's quite a novel idea was the sidecar fitted to a Rudge Multi, decorated to form a small replica of Shamrock IV.

Average Speeds.

Sir,—In your issue of the 23rd, "Water-cooled Enthusiast" states that his machine (a 3½ w.c. Green-Precision), "geared 4⅞ to 1, with coachbuilt sidecar and two passengers' . . . will average 40 m.p.h. on decent give-and-take roads." Will this enthusiastic gentleman inform us at what speed he usually drives through a ten-mile limit? Even suppose he cuts down to 20 m.p.h., he is undoubtedly "some" rider. Or does he really know what an average of 40 m.p.h. on the road means? SCEPTICAL.

Unnecessary Horn Blowing.

Sir,—Why do all motorists continue to be so thoughtless when passing churches on Sundays in the summer. Cannot they recollect that the windows are all open and that therefore the blare of their horn is as audible inside as it is in the road? During the next few weeks of holiday time there is every cause for this reminder, especially to tourists at seaside places. On a recent Sunday morning the service I attended at Sheringham was punctuated by the various insistent noises from motor horns—electric and pneumatic—culminating in a startled look round by half the congregation when some boor came slowly by outside, making a continuous and deafening din which completely stopped the service for a time. I have driven my own car for many years, and never sound my horn when passing a church, preferring rather to slow up if necessary. DAIMLER.

Four-speed Morgans.

Sir,—The letter of your anonymous correspondent "North Countryman" is slightly irrelevant. The fact that a driver may (and at first usually does) find some difficulty in operating our four-speed gear has obviously nothing to do with the fact that the gear is supplied to anyone who orders it, and that (as a matter of fact) a number of these gears have been supplied and have given satisfaction. We do not profess to supply a perfect four-speed gear box for £10. Again, we did not state that "three of the machines belonged to private owners.' What we did state was that "the cars running in the Scottish Trial were, with one exception, entered by purchasers and not by the firm." Three of our cars were running (Mr. Rex Mundy's engine seized on the way up and he did not run), and of these only one (Mr. Grout's) was entered by the firm. Mr. James and Mr. Gibson purchased their cars from us. Whether or not these gentlemen are connected with other motor firms is not material. The point is that we are supplying these gears to our agents and to the public in accordance with the specification in our catalogue. The four-speed Morgan is therefore in the strictest sense standardised.

MORGAN MOTOR CO., LTD.

The A.C.U. Six Days Trials.

Sir,—There are dissenters to the conditions of almost every event, but the amount of protest against the eminently suitable A.C.U. course as a test has surprised me. Of what possible use for serious testing can a course be that presents but easily overcome difficulties? The average hill is not a test for an engine of even medium quality, and the average road surface is no test for forks, frames, tyres, etc.

If the trials are purely for the purpose of enabling gold medals to be acquired we could justly grumble at the conditions, etc., and go in for the London-Edinburgh procession. But if we wish to learn and to maintain the progress that has placed motor cycles of British manufacture in their present premier position, then we must continue to test them, and I know of no better way than the A.C.U. trial. The pity is, the test is almost as great—perhaps greater in some cases—for the man as for the machine, although possibly, so far as the sporting spirit goes, some of us need testing, for we don't appear to have taken our gruel in a very sporting manner. The severity of the course is its recommendation. Modification in certain directions may be desirable or necessary, perhaps, in the direction of speed averages, and possibly some of the worst sections of road should not be non-stop.

Regarding the so-called farce of the brake test, this test I consider most useful and necessary, in spite of the outcry against it, the only apparent objection being that the brakes had been sufficiently tested on the severe hills encountered. It is true they were tested, but it cannot be said they were not in many cases found wanting. Stripped or glazed pads, the straightening out of badly-designed brake rods, and other causes had rendered some brakes inoperative, riders descending hills relying almost solely upon their low gear, the compression of a stationary engine, and using the clutch as a brake. The comparative retarding effect or efficiency of the various brakes could not be learned except by the special test.

A fairly high standard was certainly set up for the acceleration test, but not an impossible one, although it was an oversight, I think, to give the same task to the passenger as to the solo machines. As to the hills being too severe, there was no hill in the trial that could not be climbed by a good machine. Littonstack, against which most outcry has been made, was climbed by my "Big Four" passenger combination with standard gears and power in reserve; several other machines also made clean ascents. There was much wheel spinning among the failures, this largely due to uneven engine torque, as well as gradient. I would suggest that competitors should be checked at the foot of narrow hills, and sent up singly, the failures returning and proceeding by an alternative route.

Some details of organisation leave room for improvement, otherwise I heartily congratulate the A.C.U. upon a useful trial, and the medallists upon an acquisition well earned.

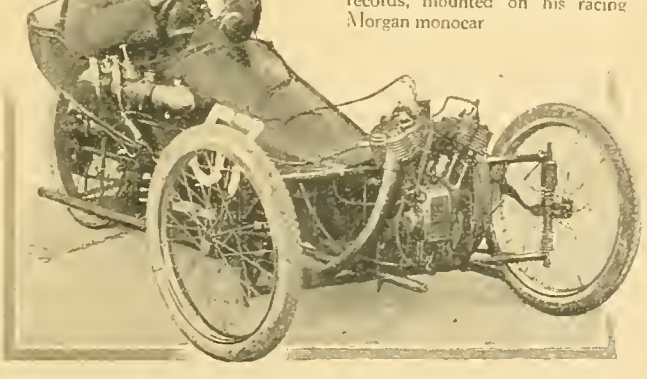
JAMES L. NORTON.

Sir,—We have read with interest the correspondence and criticisms which have appeared in the trade press and the technical press respecting the above trial. While we, as manufacturers, feel that the trial was not organised by any means as happily as it might have been, we hardly think some of the comments, to wit, that it was a trial "to destruction," exactly correct.

A number of machines were successful in gaining gold medals, but possibly a striking testimony to the reliability of the present day machine can be instanced in the L.M.C. machine ridden by Mr. Bees. This same machine competed in the A.C.U. Six Days Trial in 1913, and it has been used in innumerable trials since at home and on the Continent, and it is the same machine, with identical forks, frame, engine, etc., that was used in the Scottish Six Days Trial, English Six Days Trial, and Irish End-to-end Reliability Trial.

Now, dates will show that the English Six Days Trial only permitted of the machine returning to Birmingham after the A.C.U. Six Days Trial on Monday, the 13th, and in order to start from Cork for the Irish Trial it was necessary that the competitor should leave Birmingham on the next day (Tuesday), as the trial started at 4 a.m. on Thursday, the 16th. It is, therefore, clear that nothing could be done to the machine beyond mere cleaning in the small margin of time allowed, yet the same machine succeeded in securing the highest award, namely, a gold medal in all these three events. When an old machine like this that has done many thousands of miles goes through these strenuous trials unscathed one can hardly regard them as "trials to destruction."

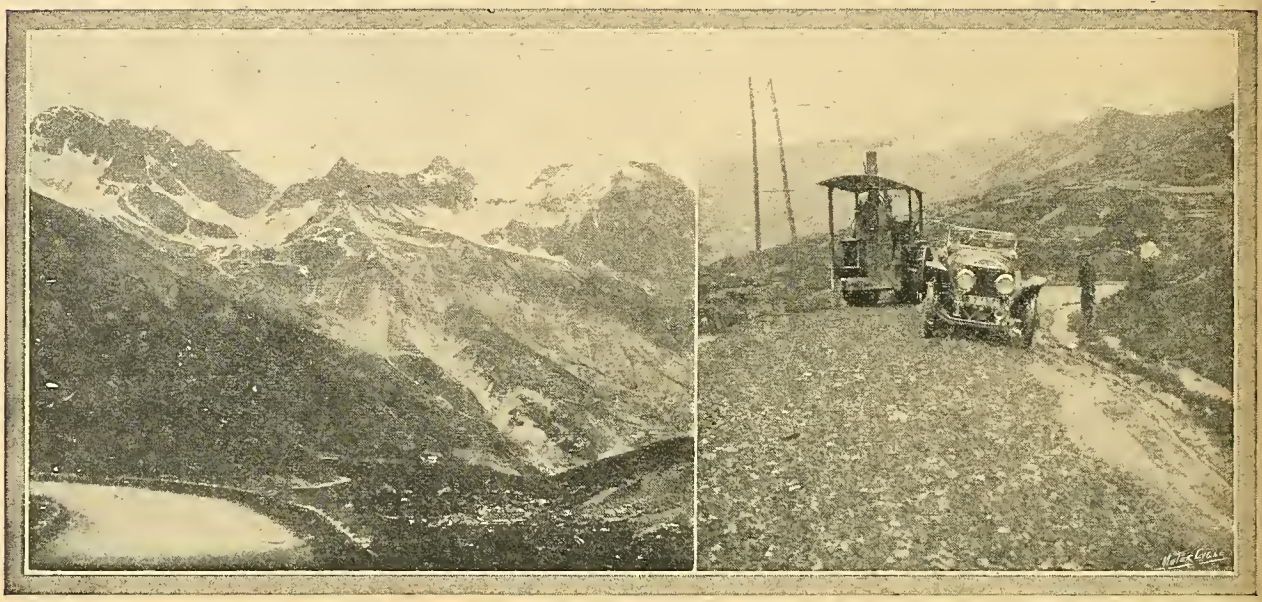
THE LLOYD MOTOR ENGINEERING CO., LTD.,
J. W. SPARK, Managing Director.



E. B. Ware, who won the light car event on Saturday last at Brooklands, besides breaking three records, mounted on his racing Morgan monocar

THE INTERNATIONAL SIX DAYS TRIAL.

A Brief Description of the Mountain Passes in Next Week's Alpine Trial. The Galibier Considered the Most Difficult Test.



SCENES ON THE COURSE FOR THE SIX DAYS INTERNATIONAL TRIAL IN FRANCE.

(1) A striking view from the Lautaret summit. The snow will have practically disappeared when the competitors are there next week. The road may be seen winding away to the left of the photograph.

(2) On the Col du Lautaret. A steam roller at work over 6,000 feet above the sea level.

ON Monday next, the 3rd prox., the International Six Days Trial will start from Grenoble, the examination of the competing machines having been arranged to take place the day previously at the Skating Rink, Rue Condorcet, Grenoble. The trial starts with a journey over the foothills of the Alps. Before lunch there is nothing very serious in the way of gradients, but about sixteen miles from the start there is a long climb beginning with a pitch of from 1 in 12.5-1 in 9 over a flinty road with bad surface. After lunch at Saillans there ensues the long winding ascent of twelve miles of the Col du Rousset, which begins seventeen miles after the luncheon stop. A tunnel, a quarter of a mile long, must be traversed, which is badly lighted, while the surface is damp and likely to cause skidding. No other gradient in the afternoon exceeds 1 in 12.5, but there are several small tunnels. It is interesting to note that the regulations require competitors to have their lamps lighted while traversing these tunnels. The distance for the day is 149 miles.

Second Day's Run.

On the second day more of the minor French passes are traversed. Twenty-one miles from the start the Col du Fau is ascended, a climb of 1 in 14, for two kilometres, with two dangerous *caniveaux* or gullies. Luncheon is served at Gap, immediately after which there ensues a climb varying from 1 in 11 to 1 in 8.3 for three and a half miles, towards the summit of the Col Bayard. In another place, named Le Motty, some eighteen miles farther on, there is a winding ascent of about 1 in 7 for half a mile. There appears to be nothing serious after this. The total distance is 124 miles.

Several Mountain Passes on Third Day.

A number of passes are crossed on the third day, the first being the Col du Frêne, the first of that name, ascended during the day, a climb of 1 in 9 to 1 in 14, extending for five miles over a winding road. Another is the Col des Près, at the Chambéry road fork; the gradient is from 1 in 11 to 1 in 9 for half a mile, followed shortly after at Les Déserts by a gradient of 1 in 8. There is a stop for lunch at Pont-de-Lescheraines. Some twenty-four miles after lunch, after leaving Chambéry there is an ascent varying from 1 in 7 to 1 in 16 for nine miles, followed by a tunnel, in which the surface is in bad condition, and the road very narrow and dangerous if one has to pass any other vehicle. This leads up to the second Col du Frêne, which is followed by the Col du Cucheron, which has a gradient of 1 in 10. The old Benedictine monastery of La Chartreuse is then passed, where the famous Benedictine liqueur used to be made before the dissolution of the monasteries in France. Two more Cols have yet to be climbed, the Col de Porte, 1 in 9 to 1 in 12.5, and the Col de Vence. A total distance of 141 miles.

Thursday, the 6th August, will be counted as a day of rest, during which time the complete machines will be exhibited in the Skating Rink, Rue Condorcet, Grenoble.

The Last Day in the Alps.

The fourth day of the trial takes the competitors over the finest scenery to be found in the whole of South-eastern France, and equal to any in Switzerland. The ascent of the Lautaret is easy, and there is nothing worse than 1 in 11, but after the summit, which is reached after traversing two well-lighted but rather badly surfaced tunnels, the road descends for 1¼ miles, and the severest climb of all is encountered. This is the famous Galibier, the maximum gradient of which is 1 in 7. The tunnel on the summit is badly lighted, the surface is poor and very damp. The descent is narrow, winding, and requires great care. The ascent of the Col de la Croix-de-Fer takes place after lunch, and though the gradient does not exceed 1 in 10 it is exceedingly dangerous, owing to the narrowness of the road and the precipices at the side. According to Mr. C. L. Freeston, this is the worst road in the trial, and it is absolutely unfenced. The day's run finishes with the ascent of the Col du Glandon, which is easier than the aforementioned pass.

The two days' run to Paris on Friday and Saturday *viâ* Lyons and Dijon, which conclude the trial, are over more or less uninteresting country.

An interesting article on portions of the route appears in last week's issue of *The Light Car*.

There are now four international teams entered.

The International Six Days Trial.—

LIST OF ENTRIES.

CLASS A.

350 c.c.

Hugh Gibson (Clyno)
P. S. Brady (Douglas)
Klein (Terrot)
Chevallier (Terrot)
Frank May (A.J.S.)
Vuilliamy (Alcyon)
Closs (N.S.U.)
T. C. de la Hay (Sunbeam)
—— (Austral)
Mangis (Douglas)
Progin (Motosacoche)
A. G. Fenn (Levis)
Lehmann (Alcyon)

Up to 500 c.c.

Plan (Peugeot)
Perrin (Peugeot)
Lacroix (Peugeot)
Desvaux (Peugeot)
Lewis (P. and M.)
G. A. Gregson (B.A.T.)
C. P. Finn (Enfield)
Cuzeau (Terrot)
—— (Terrot)
M. C. Breese (B.S.A.)
Naas (Clement)
Honel (Clement)
G. Fenton (Gladiator)
Leoyer (Gladiator)
J. Stuart White (Bradbury)
Stoffel (Alcyon)
R. W. Follet (Triumph)
Vernon Busby (Sunbeam)
R. Bloch (New Hudson)
Lavanchy (Motosacoche)
Grapperon (Grapperon)
J. J. Sproston (Sunbeam)
Karl Don (Zenith)
Graham Price (B.A.T.)
—— (Ariel)
E. H. Lees (A.B.C.)
Bellsham (Zenith)
Swift (Bradbury)
W. B. Little (Premier)
Urban (Wanderer)
W. F. Newsome (Triumph)

CLASS B.

Sidecars up to 500 c.c.

Lombard (Gladiator)
Lassave (Herdtle-Bruneau)
Delaunè (B.S.A.)

Up to 750 c.c.

Frank Smith (Clyno)
Clifford Wilson (Quadrant)
Gex (Motosacoche)

Up to 1,000 c.c.

C. R. Collier (Matchless)
H. V. Colver (Matchless)
R. A. Bishop (Enfield)
Gassert (N.S.U.)
L. A. Bollack (New Hudson)

CLASS C.

Cycle Cars.

H. F. S. Morgan (Morgan)
M. Violet (Violet-Bogey)
—— (Baby Peugeot)
—— (Baby Peugeot)
—— (Baby Peugeot)
W. Chater-Lea (Chater-Lea)
Vincent (Violet Bogey)
Bourbeau (Bedelia)
Mahieux (Bedelia)
C. Pressland (Crouch Carette)

In addition to the British, French, and Swiss International teams, Germany has now nominated a team to defend its colours in the contest for the manufacturers' 200 guinea trophy. The riders selected are :

Closs (350 c.c. N.S.U.)
Urban (500 c.c. Wanderer)
Gassert (N.S.U. sc.)

Streatham Club's Open Hill-climb

AT SOUTH HARTING.

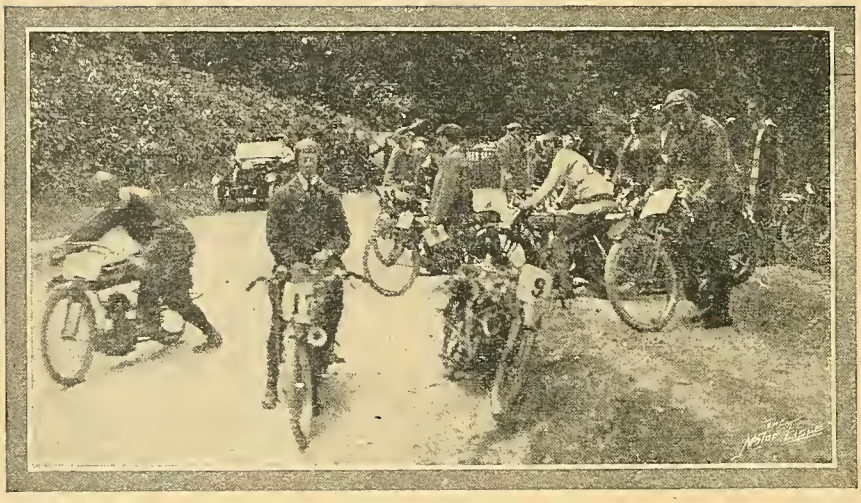
DURING the past few weeks South Harting Hill has been the scene of many hard-fought hill-climbing contests, alike for cars, cycle cars, and motor cycles. Consequently, its surface is beginning to show some traces of wear, but for the average test hill it is quite good. It is an ideal spot for such events, as the country around is magnificent, and the natural grand stands formed by the banks at the roadside give one a chance to view a very large portion of the hill. Quite a large audience collected, and the prospect of a good afternoon's sport was not marred in any way by the threatening climatic conditions, as the natural shelter provided by the trees was excellent. We were pleased to see F. W. Barnes taking part once again in competition work, as this is his first appearance since he sustained a nasty accident some time back whilst piloting the Royal car to Brooklands. F. G. Meeten opened the meeting by putting up an excellent climb on his little 2 O.K. Junior, and the way in which he has tuned up its microscopic power unit is very commendable. Similar remarks can also be applied to G. Radley with his 2½ New Imperial, which obtained premier award in Class IIb. Class III. was essentially an exhibition of efficiency (*i.e.*, power developed for cubical capacity) and some really fast ascents were witnessed. Amongst the notable ones should be included H. R. Davies (2¾ Sunbeam) and F. Thompson (2¾ Douglas). Several of the competitors would have done very much better if they had paid more attention to their gears, as a large number suffered from overgearing. A well deserved win for H. R. Davies on a 2¾ Sunbeam was the result of the next event, and he was followed up closely by F. Thompson (2¾ Douglas) and H. E. Startin, who bestrode a similar machine.

SCENE AT THE FOOT OF THE HILL.
G. Radley (2½ h.p. New Imperial) starting in Class VII.

H. R. Davies, who won Classes III. and IV. riding a 2¾ h.p. Sunbeam.

High Speed in the 500 c.c. Class.

Class V. provided a few thrills on the first bend, for the 500 c.c. engine is still the favourite, and in this case could get into stride quicker than the larger machines. Consequently, the difference in their average speeds was very slight. Cornering was mere child's play to Le Vack (3½ Motosacoche) and C. T. Newsome (3½ Rover), but T. V. Harrison, whose Triumph is said to attain a speed of over 70 m.p.h., found the greatest difficulty in negotiating the first turn,



Competitors in the Streatham Club's hill-climb returning to the foot of the hill after the finish of Class VIII.

doing some most alarming skids, which he corrected with great skill. Newsome's Rover was going in fine form, and obtained a place in nearly every possible class. It was very easy to see that F. W. Barnes was out of form, for he did not give his usual display of dash and daring. After this point of the meeting had been reached, interest began to flag, as there was not much excitement in watching the same men going up and down time after time without any spectacular effect. M. C. Breese is to be complimented on the success of his 3½ B.S.A., which pulled up a sidecar and passenger at a splendid speed. The compression ratio of his engine has been raised slightly, and it is quite evident that beneficial results have accrued therefrom. The fastest time of the day was put up by S. B. Briggs on an 8 Campion in Class X. There were, of course, one or two of the usual breakages to which racing machines are prone, for H. Le Vack sheared the feather on his engine sprocket shaft, while J. G. Grenfell broke some piston rings. The cycle car class was not well represented, but the Cardens were very much in evidence.

CLASS Ia

	secs.
F. G. Meeten (2 O.K.)	53
H. Hoffmann (2 N.S.U.)	98⅘

CLASS Ib

	secs.
G. Radley (2¾ New Imperial)	38⅘
F. G. Meeten (2 O.K. Junior)	55⅘
H. Hoffmann (2 N.S.U.)	95⅘

CLASS IIb

	secs.
G. Radley (New Imperial)	38⅘

CLASS III.
On Time.

	secs.
H. R. Davies (2¾ Sunbeam)	29
F. Thompson (2¾ Douglas)	30⅘
H. E. Startin (2¾ Douglas)	32
F. Barker (2¾ Zenith)	33⅘
L. E. Sawyer (2¾ Enfield)	34
C. Williams (2¾ A.J.S.)	34⅘

CLASS IV

	secs.
H. R. Davies (2¾ Sunbeam)	29
F. Thompson (2¾ Douglas)	31⅘
H. E. Startin (2¾ Douglas)	34⅘
L. E. Sawyer (2¾ Enfield)	33
E. R. Green (2¾ Douglas)	35⅘
G. Radley (2¾ New Imperial)	37

CLASS V.
On Time.

	secs.
C. T. Newsome (3½ Rover)	25⅘
H. Le Vack (3½ Motosacoche)	26⅘
W. J. Startin (3½ Ivy)	31⅘
S. Axford (3½ B.S.A.)	35⅘
J. V. Hay (3½ Rudge)	37⅘
W. J. Fleetwood (3½ Brough)	41⅘

CLASS VI.

	secs.
C. T. Newsome (3½ Rover)	25⅘
E. Hardman (3½ Rudge)	26⅘
F. W. Harrison (3½ Triumph)	
H. Le Vack (3½ Motosacoche)	27⅘
H. R. H. Barrs (3½ Triumph)	28⅘
W. J. Startin (3½ Ivy)	29⅘

CLASS VII.
On Time.

	secs.
C. T. Newsome (3½ Rover)	25⅘
F. V. Harrison (3½ Triumph)	27⅘
R. C. Boxer (6 Bat)	28⅘
S. Axford (3½ B.S.A.)	29⅘
J. Kennedy (4½ Zenith)	30
F. W. Barnes (6 Zenith)	31

CLASS VIII.

F. V. Harrison (3½ Triumph)	24⅘
C. T. Newsome (3½ Rover)	25⅘
R. C. Boxer (6 Bat)	28⅘
S. Axford (3½ B.S.A.)	29⅘
H. R. H. Barrs (3½ Triumph)	29⅘
F. W. Barnes (6 Zenith)	31

CLASS IX.
On Time.

	secs.
J. C. Brooke (7 Indian)	29⅘
C. T. Newsome (3½ Rover)	26
F. W. Barnes (8 Zenith)	25⅘
G. Radley (2½ Imperial)	38⅘
F. V. Harrison (3½ Triumph)	25⅘

CLASS X.

	secs.
S. B. Briggs (8 Campion)	22⅘
C. T. Newsome (3½ Rover)	25⅘
F. W. Barnes (8 Zenith)	25⅘
F. V. Harrison (3½ Triumph)	27
J. C. Brooke (7 Indian)	27⅘
H. R. H. Barrs (3½ Triumph)	29⅘

CLASS XI.

	secs.
M. C. Breese (3½ B.S.A.)	43⅘
B. Pattison (3½ Zenith)	45⅘

CLASS XII. (Insufficient entries).

CLASS XIII.

	secs.
R. C. Boxer (6 Bat sc.)	41⅘
F. W. Barnes (6 Zenith sc.)	42⅘
M. C. Breese (3½ B.S.A. sc.)	43⅘

CLASS XIV.

	secs.
F. W. Barnes (6 Zenith sc.)	42⅘
R. C. Boxer (6 Bat sc.)	42⅘

CLASS XV.

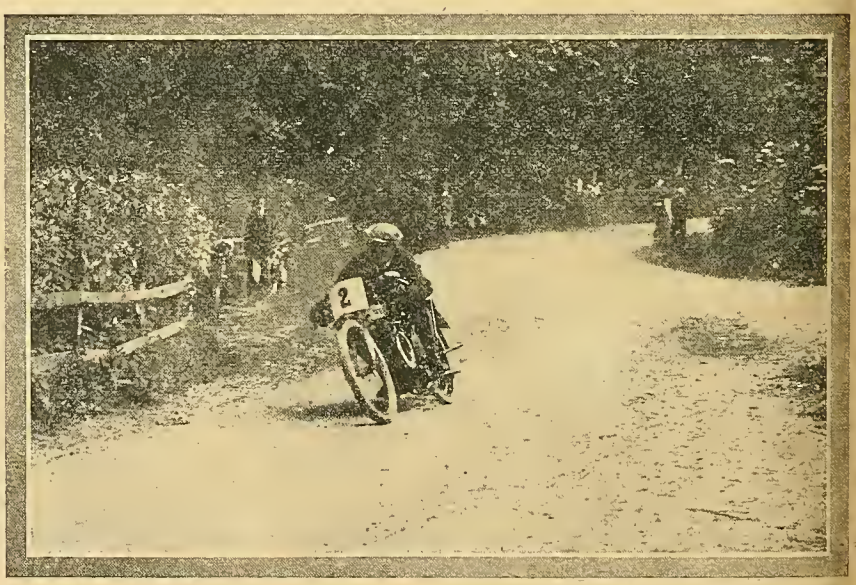
	secs.
F. W. Barnes (8 Zenith sc.)	29⅘
M. C. Breese (3½ B.S.A. sc.) .... Expert	43⅘
M. C. Breese (3½ B.S.A. sc.) .... General	49⅘
C. Percival (8 Matchless sc.)	46⅘
L. E. Frost (8 Matchless)	50⅘

CLASS XVI.

	secs.
F. W. Barnes (8 Zenith sc.)	29⅘
S. B. Briggs (8 Campion sc.)	32⅘
L. E. Frost (8 Matchless sc.)	46⅘

The International Six Days Trial.

Members of the staff of this journal are now on their way to Grenoble in connection with next week's International Six Days Trials. A start was to be made from Havre this (Thursday) morning, and a number of the trials competitors had arranged to journey across France with *The Motor Cycle* party. Others, however, preferred the train, so that their machines would be in the best of condition on arrival at Grenoble. There are about seventy entries for the trial.



T. Thompson (2¾ h.p. Douglas) rounding the second bend of Up Park Hill.

A New Model Hazlewood.

Three-speed Counter-shaft Gear, Enclosed Kick-starter, Chain and Belt Drive, and Black Finish.

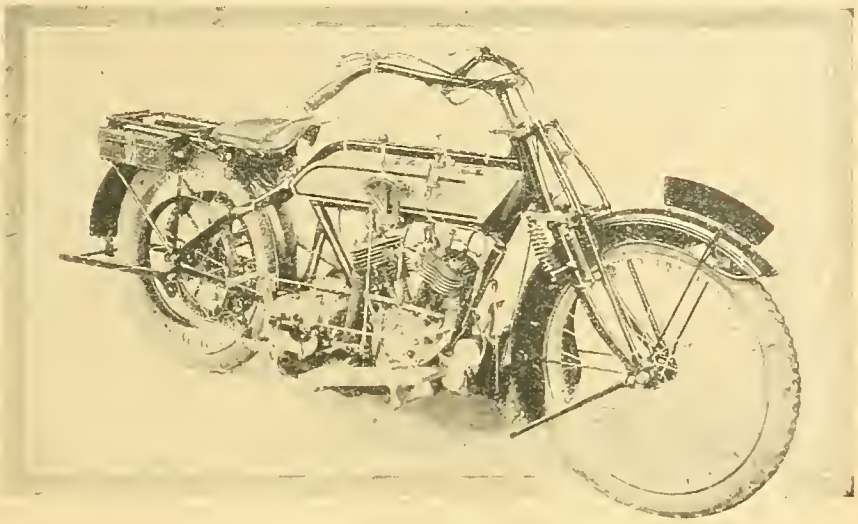
ANOTHER addition to the ranks of the counter-shaft geared machines is the latest type of 5-6 h.p. Hazlewood. In its general features it greatly resembles the present type, for the 70 × 85 twin J.A.P. engine is retained, and the brake construction, mudguarding, footboards, and detail work follow the distinctive Hazlewood lines. Two interesting features are included, however, besides the gear, and these are the special wide heavy rims, which are very strong and easy to clean, and the cozletised finish which is employed on all parts which are usually neglected or are hard to clean.

The frame in the neighbourhood of the gear is specially strengthened by an auxiliary down tube; this with the substantial plate, to which the box is bolted, forms a strong triangulated member.

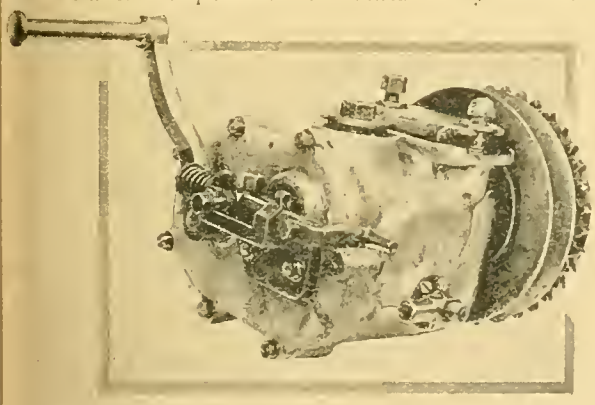
The gear box itself is stoutly constructed, and provides three ratios. It runs throughout on ball bearings with special oil retainers, and has only one sliding member, composed of a central gear wheel with a dog clutch on either side.

The layshaft is machined from the bar, and throughout only the finest materials are used. The kick-starter is of the gear and quadrant type, with the first teeth of the quadrant well backed off to ensure an easy engagement. The whole of the kick-starting mechanism is enclosed in the gear box casting, and a very sensible refinement is the large diameter oil filler which allows thick oil to be poured in without any difficulty. The clutch is of the five-plate cork insert type, the plates being held together by a single spring, and forced out of engagement by a simple and easily adjusted arrangement of wedge bar and slide. Both hand and foot operation will be fitted as standard.

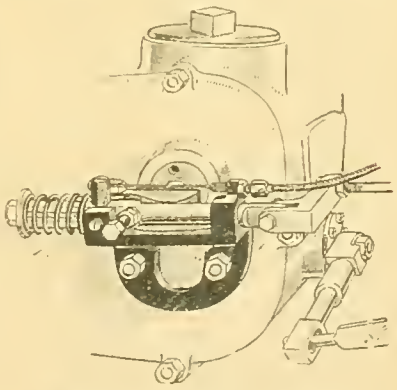
Extensive road tests have proved very satisfactory, and the gear is now being produced in quantities.



Valve side of the latest counter-shaft-geared Hazlewood.



Gear box on the Hazlewood, showing the operating mechanism.

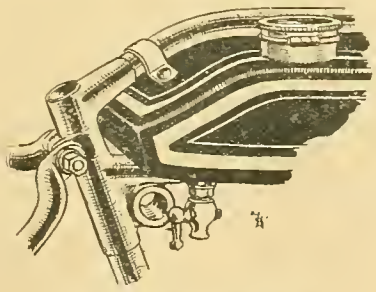


The clutch withdrawal mechanism of the new three-speed Hazlewood counter-shaft gear. Observe the hand and foot controls and large filler cap.

NORTON PROGRESS.

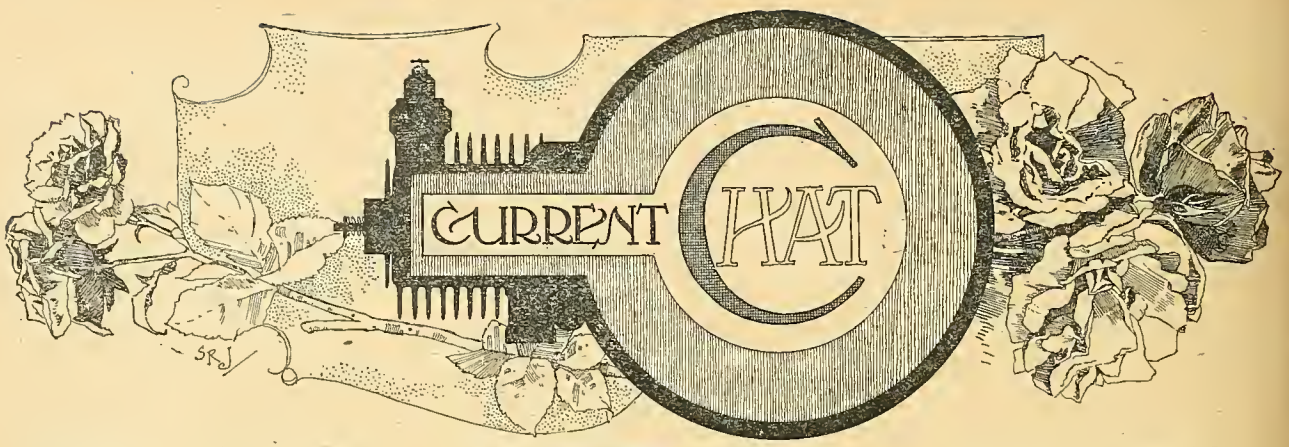
ONE can never chat for long with Mr. Norton without hearing something of interest, and on the occasion of our last visit to his works he had much to reveal.

The latest novelty is a cylinder which may be used continuously under fairly heavy load and yet remains so cool that one can bear one's hand on the cooling ribs. Naturally, the construction remains a secret, and to the outward eye there is nothing unusual in the design. A 350 c.c. engine is on the stocks, but the firm have no intention of marketing the machine, at any rate for the present, and it is being built up purely as an experiment. On the other hand, as soon as time and pressure of business permit, Mr. Norton intends to continue the manufacture of the little two-stroke which appeared on his stand at Olympia under the name of the Nortonette, as long ago as 1910. The design will be somewhat altered, but the main features will be the same.



Dropped top tube, sidecar lug and black tank of the 1915 Norton.

We were lucky enough to see an advance model of the 1915 T.T. type, which is undergoing tests. The frame has a dropped top tube and flush lugs are no longer employed. The engine remains practically the same, but the long exhaust pipe has a tubular expansion chamber welded into it. In the future all Norton frames will be made up with sidecar lugs brazed in, and the finish will probably be in black and gold. A three, or possibly a four-speed, gear box is to be fitted to touring models, and experiments are at present being carried out with various types of gear



TIMES TO LIGHT LAMPS

July 30	... ...	8.50 p.m.
Aug. 1	... ...	8.47 p.m.
,, 3	... ...	8.44 p.m.
,, 5	... ...	8.41 p.m.

Four International Teams.

Germany having nominated a team for the International Trial in France next week, four countries will compete for the valuable trophy which the Motor Cycle Manufacturers' Union presented, and which was won by Great Britain in the Lake District last year.

News from the Continent.

In the Val Suzon hill-climb Verpault (Douglas) made the fastest time in the 350 c.c. sidecar class. In the Susa-Mont Cenis hill-climb Lavanchy (Motosacoche) covered the course of 22 km. 200 m. in 23m. 26⅕s. In the 500 c.c. class Bordino (Motosacoche) made the fastest time, covering the distance in 21m. 29⅖s. A Baby Peugeot in the cycle car class accomplished the distance in 32m. 3s.

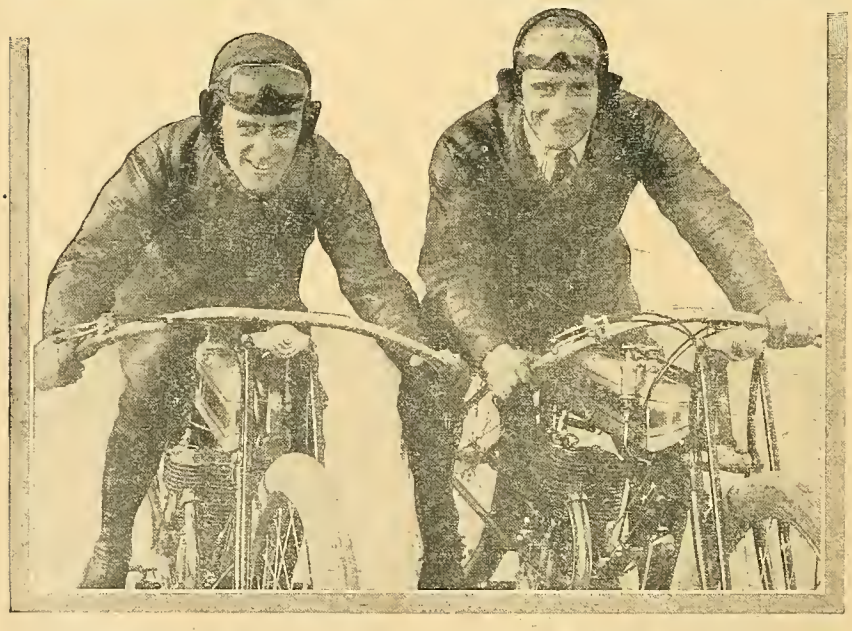
Australian Reliability Test.

A trial from Melbourne to Ballarat and back took place last month. Anthony's Cutting was the observed hill. Out of forty starters only two failed to finish. W. E. Edney (3½ N.S.U.) won the solo section, with H. Shacklock (3½ Rudge) and A. Monkhouse (3½ Singer) tying for second place. K. Walker (7 Indian) secured first place in the sidecar class.

The International Trials Course.

L. A. Bollack, a well-known French motor cyclist, who has taken part in many English competitions, writes:

"All riders who have been over the course say that no one will get through without losing marks, as it is impossible to keep up the average speed, but the truth is, with fine weather it *is* possible, but in wet weather accompanied by fog (as it always is) it is absolutely impossible. I think that the English riders who come to the French trial for joy rides on flat roads will have rather a shock!"



G. E. Stanley and J. Cocker together again, though on a different type of mount. They have long been known as expert engine tuners, having made history with Singers. They made their first appearance on Triumphs at Brooklands last Saturday, when they at once showed that they were in winning vein.

SPECIAL FEATURES.

IGNITION AND LIGHTING.

THE SIX DAYS TRIALS COURSE.

THE MOTOR CYCLE AND THE COUNTRY TRADESMAN.

Liverpool-London-Liverpool.

The A.C.U. has granted a permit to the Liverpool A.C.C. for its twenty-four hours open trial, starting at three points—Liverpool, Stonebridge Hotel, and Barnet. (Meals will be taken at these points.) Forty miles will be non-stop and three minutes allowed each way at each of the four controls. The latest date for entries is August 8th.

A.C.U. Notes.

ANGLO-DUTCH TRIAL.—The third Anglo-Dutch Trial is due to commence on September 6th next. The A.C.U. is desirous of sending a team of ten private owners and ten trade representatives to represent Great Britain. One of the above in each class will be a reserve, and the actual team will comprise:

Three private owners and three trade riders of 350 c.c. machines.

Three private owners and three trade riders of 500 c.c. machines.

Three private owners and three trade riders of passenger combinations.

The A.C.U. will be glad to receive intimation from any rider willing to take part in the trial. Should a greater number of applications be received than the number required, the selection will rest with the A.C.U. Those willing to take part in the trial should, therefore, communicate with the Secretary of the A.C.U., at 83, Pall Mall, London, S.W., without delay.

ONE MAKE TRIALS.—The attention of the A.C.U. has been drawn to the fact that motor cycle agents have on two or three recent occasions organised competitions confined to riders of the particular make of machine which they represent. Although the Union feels that such competitions should not be encouraged, in any case it is essential that they should be run by the promoters under the open competition rules of the A.C.U. Those who compete are therefore warned to take precautions to satisfy themselves that any such trial is being held in accordance with these rules, and manufacturers and agents are warned that any breach of these rules may involve the disqualification of the offending parties.

A Zealous Policeman.—An interesting case has recently come before the Legal Department of the A.C.U. A member recently left his machine in the street whilst he went about his business; upon returning, a police officer drew his attention to the broken cable of the front brake of the motor bicycle, and stated that he intended to report the rider for not having his motor cycle equipped with two independent brakes in working order, as required by law!

International Cycle Car Race.—In addition to the eleven entries announced last week as having been received by the Auto Cycle Union for the International Cycle Car Race to be held in the Isle of Man on Thursday, 24th September next, the following additional entries, making seventeen in all, were received up to Friday, 24th July:

J. M. Barratt (9 Tweenie).
Woodrow and Co. (10 Woodrow).
Woodrow and Co. (10 Woodrow).
E. B. McManus (12 Buckingham).
N. F. Holder (10 Merlin Blumfield).
E. C. Gordon England (10 Marlborough).
H. Jones (Tweenie).
Morgan Motor Co. (two Morgans).
J. F. Buckingham (12 Buckingham).
Auto Carriers, Ltd. (three A.C.'s).
Bamford and Martin (10 Singer).
M. H. Samuelson (8 Marlborough).
M. Leveque (8 Tweenie).

A total entry of about thirty cycle cars in all is anticipated. Entries at ordinary fees closed yesterday (Wednesday).

As *The Motor Cycle* predicted at the time the regulations were issued, the event is mostly composed of light car entries.

Carts Without Rear Lights.

P. C. Douglas, who had entered his Blackburne for the French Grand Prix Race next month, will be a non-starter, as he has, unfortunately, sustained a bad collision with a market gardener's cart at Hounslow after dark, no tail light being fitted to the cart in question. Here is another opportunity for the C.T.C. to shine.

Police Trap.

We are informed that a police trap is in operation on the road between Coventry and Tile Hill. There is but little motor traffic on this road, but those who do pass this way are advised to ride carefully past the row of cottages where children are generally playing in the road, and to look out for cattle, which are often allowed to graze by the hedges.

N.W.A.A. Event Abandoned.

Still another open event has been abandoned. The North-Western Automobile Association committee decided to abandon the Manchester to Brooklands event arranged for this week-end, and are returning entry fees in full to all entrants. There is no doubt that the multiplicity of competitions is telling its tale upon entry lists. This is the second open event in successive weeks which has been struck off.

FUTURE EVENTS.

Aug. 3-9.—F.I.C.M. INTERNATIONAL SIX DAYS TRIALS Grenoble as a centre.
" 14-15.—Liverpool A.C.C. Open Trial to London and Back.
" 15.—French Grand Prix Motor Cycle Race near Le Mans.
" 15.—Essex M.C. Race Meeting at Brooklands.
" 19—Cambridge and District M.C.C. Open Trial.
" 22—B.M.C.R.C. Race Meeting.
" 22—A.C.U. East Midland Centre Open Trial.
Sept. 6-9.—ANGLO-DUTCH TRIAL IN HOLLAND.
Nov. 23-28—Motor Cycle and Cycle Car Show at Olympia.

Ruling the Roast.

Several readers have drawn our attention to what is apparently an error in our leaderette of last week, in which we made use of the expression "Rule the Roast." Of course, the more common quotation is "Rule the Roost," but this is really a corruption of the original, and possibly readers may be interested to know that the origin of the quotation "Rules the Roste" belongs to John Skelton, in his lines to Colin Clout, towards the close of the fifteenth century. Later on, however, Shakespeare, in his play "King Henry VI.," refers to "Suffolk, the new made Duke that *rules the roast*." The same spelling is adopted by Sir Philip Sidney, Thomas Heywood, and Edward Hall. It would appear that there is no authenticity of the term "Rule the Roost." Dr. E. C. Brewer, in his "Dictionary of Phrase and Fable," says: "It is usually thought that 'Roast' in this phrase means *roost*, and that the reference is to a cock, who decides which hen is to roost nearest to him"; but the subjoined quotation favours the idea of a council, "John, Duke of Burgundy, rules the roast, and governed both King Charles . . . and his whole realme."

A Hill-climb Fourteen Miles Long.

The times in the annual Susa-Mont Cenis hill-climb (referred to on previous page) are detailed below. The measured distance was 22.8 kilometres, with a rise of 1,435 metres. Motosacoche riders scored another striking success, not only winning the team prize but occupying first place in both classes, and incidentally checking the Della Ferrera, a machine of Italian construction, which has performed very conspicuously of late. The results are appended, and it will be observed that in both classes the previous time record was beaten.

T. V. Harrison (Triumph), who proved the winner of Class VIII. in the Streatham hill-climb on Saturday, and at the early morning hill-climb of the Sutton Coldfield A.C. on Monday accomplished fastest time of the day.

350 c.c. Class.

		m.	s.
1.	Lavanchy (Motosacoche) ...	23	26⅗
	(Beating previous record, which was 24m. 11s.)		
2.	Malvisi (Motosacoche) ...	24	8⅘
3.	Musso (Della Ferrera) ...	24	25⅖
4.	Olivari (S.I.A.M.T.) ...	24	26⅖
5.	Guesa (Senior)	25	35⅖
6.	Maffeis (Motosacoche) ...	26	48⅖
7.	Semeria (S.I.A.M.T.) ...	26	57⅖
8.	Vigna (Douglas)	28	45
9.	Bonasso (Douglas)	29	4
10.	Temperino (Terrot) ...	29	27
11.	Pregliasco (Douglas) ...	39	52

500 c.c. Class.

		m.	s.
1.	Bordino (Motosacoche) ...	21	9
	(Beating previous record, which was 22m. 32⅘s.)		
2.	Della Ferrera (Della Ferrera)	21	23
3.	Valenzano (Della Ferrera)	23	3⅗
4.	Locatelli (Motosacoche) ...	23	39⅕
5.	Nosenzo (Della Ferrera) ...	25	21⅖
6.	Gianolio (Motosacoche) ...	27	23⅖
7.	Maffeis (Moto-Reve) ...	27	39⅖

There were several falls, which specially delayed Vigna, Maffeis, and others.

There was also a cycle car class, in which three Baby Peugeots competed, the first one finishing in 52m. 3⅖s.

Guide to Prices of Second-hand Motor Cycles.

Those of our readers in want of a second-hand motor bicycle for the holidays should peruse the following average prices asked for second-hand models of the makes named, in the last issue of *The Motor Cycle*.

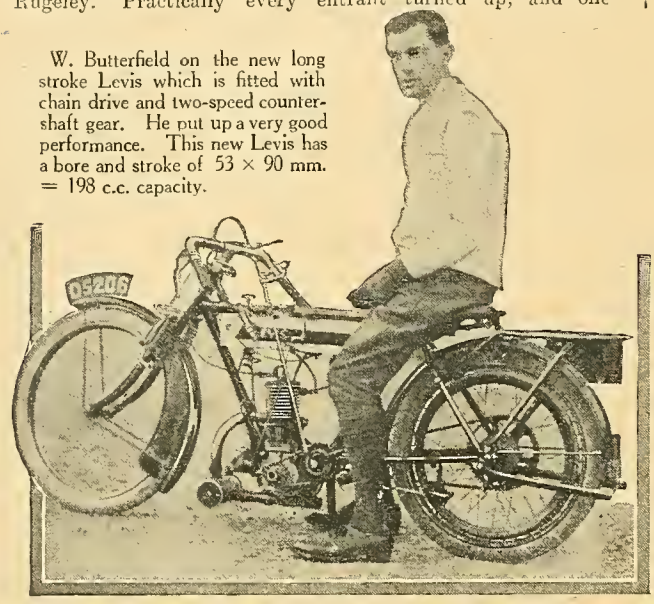
Make of Machine.	H.P.	Sidecar or Solo.	Gears.	£	s.
Auto-Wheel, 1914	—	Solo	Single	12	6
Bat, 1913	6	Sidecar	2-speed	36	0
Bradbury, 1912 .	4	Sidecar	2-speed	33	12
B.S.A., 1913	3½	Solo	2-speed	40	5
Chater-Lea, 1912	8	Sidecar	3-speed	52	15
Clyno, 1912	5-6	Sidecar	2-speed	44	3
Douglas, 1911 ...	2¾	Solo	Single	23	0
" 1912 ..	2¾	Solo	2-speed	32	15
" 1913 ...	2¾	Solo	2-speed	37	7
" 1914 ...	2¾	Solo	2-speed	45	10
Enfield, 1913	3	Solo	2-speed	35	0
" 1913	6	Sidecar	2-speed	57	17
" 1914	6	Sidecar	2-speed	74	10
Humber, 1912 ...	2	Solo	Single	14	3
" 1912 ...	3½	Solo	2-speed	28	0
" 1913 ...	2¾	Solo	Single	27	0
Indian, 1912	7	Solo	2-speed	33	15
" 1914	7	Sidecar	2-speed	67	0
Levis, 1913	2½	Solo	Single	23	10
Matchless, 1913	3½	Solo	Var.	50	16
" 1913 .	6	Sidecar	2-speed	44	10
Motosacoche, 1913	2½	Solo	—	22	12
New Hudson, 1913	3½	Solo	3-speed	41	7
" 1914	6	Sidecar	3-speed	69	7
Premier, 1911 ..	3½	Solo	Single	19	13
" 1913 ..	3½	Solo	2-speed	38	15
P. & M., 1913 ..	3½	Solo	2-speed	42	3
Rex, 1912	6	Sidecar	2-speed	40	8
" 1914	6	Sidecar	2-speed	65	5
Rover, 1913	3½	Sidecar	3-speed	45	7
" 1913	3½	Solo	3-speed	41	13
Rudge, 1913	3½	Sidecar	Multi	43	0
Scott, 1912	3½	Solo	2-speed	33	3
" 1913	3½	Solo	2-speed	49	13
" 1913	3½	Sidecar	2-speed	59	7
Triumph, 1913 ..	3½	Solo	F.E.	37	13
" 1913 ..	3½	Solo	3-speed	41	15
" 1914 ..	4	Solo	3-speed	50	4
" 1914 ..	4	Sidecar	3-speed	59	0
Williamson, 1913	8	Sidecar	2-speed	63	0
Zenith, 1912	3½	Solo	Gradua	30	8
" 1913	6	Sidecar	Gradua	66	0

HILL-CLIMBING AT 5 A.M.

Sutton Coldfield and Mid-Warwickshire A.C. Members' Event at Style Cop.

Although the competition started at the early hour of 5 a.m. a large entry was obtained for the Sutton Coldfield hill-climb, run off on the 27th inst. at Style Cop, near Rugeley. Practically every entrant turned up, and one could not but admire the keenness of those who rode out from Birmingham and the surrounding districts on the morning of the event.

Mention should be made of the brilliant riding of T. V. Harrison (5½ h.p. Triumph), who made fastest time of the day, surmounting the hill in the remarkable time of 44⅘s. Results :



W. Butterfield on the new long stroke Levis which is fitted with chain drive and two-speed countershaft gear. He put up a very good performance. This new Levis has a bore and stroke of 53 × 90 mm. = 198 c.c. capacity.

	Time.	secs.	Formula.
	CLASS I.		
1.	W. Butterfield (1.9 Levis) ..	63⅜	1. W. Butterfield (1.9 Levis).
2.	H. Newey (1.9 Levis)	64⅘	2. J. Veasey (1.9 Levis).
3.	J. Veasey (1.9 Levis)	65⅝	3. H. Newey (1.9 Levis).
	CLASS III.		
1.	A. Butterfield (2½ Levis)	55⅕	1. H. Newman (2¾ Ivy-Green).
2.	H. Newman (2¾ Ivy-Green) .	57⅕	2. A. Butterfield (2½ Levis).
	CLASS IV.		
1.	T. Harrison (3½ Triumph) ..	44⅘	1. T. Harrison (3½ Triumph).
2.	D Brown (3½ Rover)	48	2 H. O. Wood (3¾ Scott).
3.	K. Holden (3½ B.S.A.)	50	3. D. Brown (3½ Rover).
	CLASS VI.		
1.	T. Harrison (3½ Triumph) ..	45	1. W. H. Butterfield (1.9 Levis).
2.	G. Walker (3½ Matchless) ...	48⅘	2. F. S. Whitworth (2¾ Douglas).
3.	D. Brown (3½ Rover)	48⅝	3. H. Newey (1.9 Levis).
	CLASS VII.—Sidecars.		
1.	K. Holden (3½ B.S.A.)	61⅘	1. K. Holden (3½ B.S.A.)
2.	E. Smith (3½ Regal Green) ..	67	2. F. R. Banks (3½ Regal Green).
3.	F. R. Banks (3½ Regal Green)	69	3. E. Smith (3½ Regal Green).
	CLASS VIII.		
1.	H. R. Lane (8 Rex-Jap).		1. H. Lane (8 Rex).
2.	J. Woodhouse (8 Quadrant).		2. J. Woodhouse (8 Quadrant).
3.	E. Chapman (7 Zenith).		3. E. Chapman (7 Zenith).
	CLASS IX.—Light Cars.		
1.	F. Burgess (10 Calthorpe).		1. F. Burgess (10 Calthorpe).
2.	F. S. Whitworth (8 Morgan).		2. — Mortimer (10 Calthorpe).
3.	— Mortimer (10 Calthorpe).		3. F. S. Whitworth (8 Morgan).

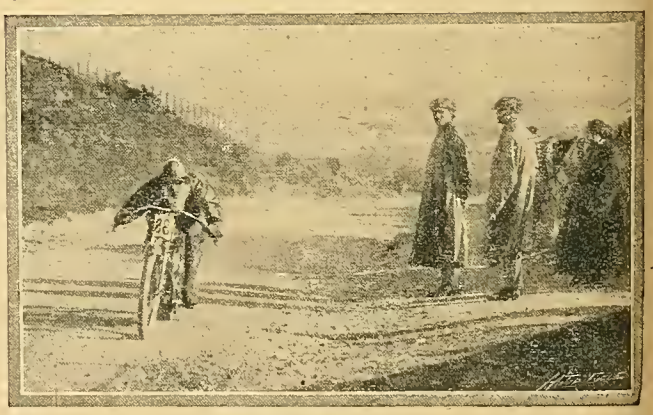
A 2,000 Miles Trial in 1915?

IT will be noticed that the Auto Cycle Union has at last modified its trials policy on the lines so constantly advocated by this journal. In past years the routes have been plotted with an eye on the sentimental rotundity of a thousand miles, and scientific comparative tests, designed to throw the merits and demerits of particular machines into high relief, have been the exception rather than the rule. This year the mileage was reduced by over 300 miles, and the time thus economised devoted to precise tests calculated to distinguish the best from the second-rate.

There are, however, but two objections to the longer distance. One is that if 1,000 miles are to be covered in a week there is no leisure for precise tests of such points as brakes, flexibility, speed, petrol consumption, and finishing condition, while the distance is not sufficient to atone for the absence of these tests. The other is that the riders are disgusted when they near the trials centre after a long day, and on arriving within five or ten miles of it, are despatched over a thirty miles *détour* to pile up distance.

A Scotchman made an admirable suggestion to me the other week. He reminded me that just before large motor cars became too reliable to profit by ordinary non-stop trials, the R.A.C. organised a grand climax in the form of a 2,000 miles trial, which proved to be a magnificent advertisement, and taught the trade many invaluable lessons. Now motor cycle trials are likely to continue far longer than car trials, partly because we hope to go on reducing the weight of motor cycles almost indefinitely, partly because a long string of cars are a public nuisance in dusty weather, whereas motor cycles are not. So my friend suggests that in alternate years the A.C.U. and the Edinburgh and District M.C. should each run a separate six days trial, with a limited mileage and precise tests of all the details which constitute excellence in a motor cycle; and that in alternate years the two sets of organisers should combine to organise a 2,000 mile twelve days trial, six days south of the Border and six days north of it. The wide area covered in such a trial would save the men the irritation of ceaseless *détours* on flat roads; *and the distance would be sufficiently extensive to constitute a test in itself.*

There are obvious difficulties in the plan, but I mention it as a desirable ideal. ROAD RIDER.

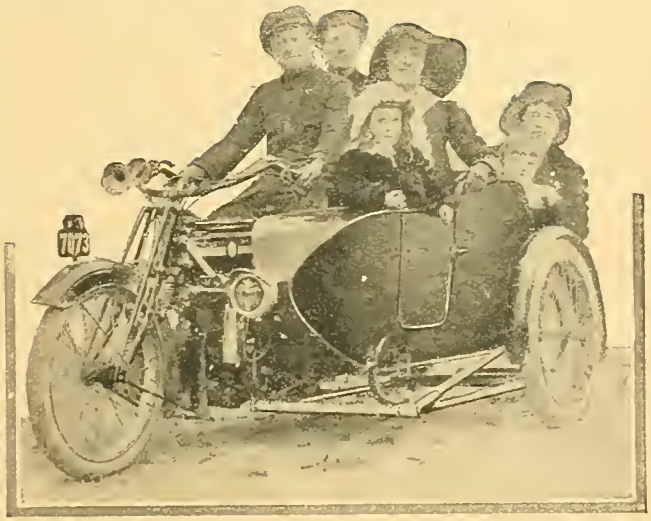


T. V. Harrison (Triumph) nearing the summit of the hill in the Sutton Coldfield climb. The long shadows across the road indicate the early hour.

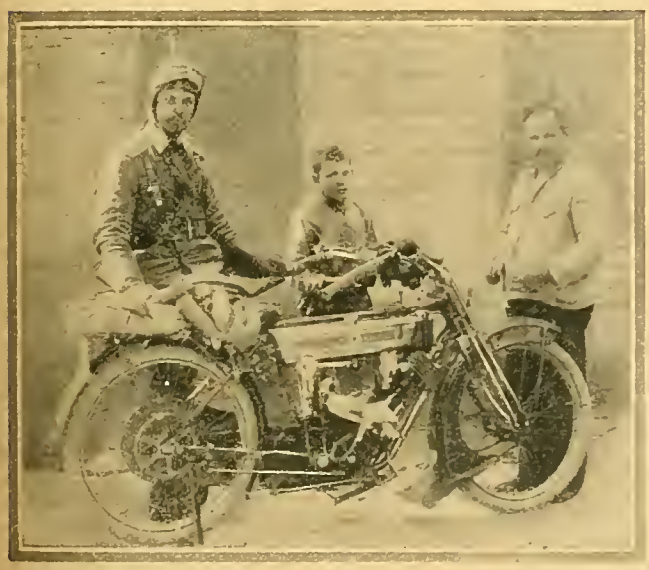
Road Racing in Italy.

The extraordinary popularity of motor cycle racing in Italy is exemplified by the holding, nearly every week, of an important road race. This invariably attracts large entries, and a considerable percentage of the competing machines are British. This has given a considerable fillip to English trade, and already proof has been afforded us by several manufacturers that considerable orders are coming in from Italy.

Recently the Circuito dell'Appenino Toscano was decided near Bologna over a distance of 107½ miles, the course being hilly and with many sharp corners. The race, which consisted of classes for 500 c.c. and 350 c.c. machines, resulted in a triumph for the Della Ferrera machines, one ridden by Della Ferrera winning the 500 c.c. class, and another, in the hands of Musso, coming in first in the 350 c.c. class. These machines have been very successful in their races this year. In the Junior section, Douglas machines came in second, third, fifth, and seventh, and gained the team prize. Rudge, Triumph, Premier, and Ariel represented England among the Seniors, MacDonagh securing third place on the Rudge. Only two minutes separated the first four men, so it will be seen the contest was very keen.



An Italian owner of an 8 h.p. Rex-Jap sidecar who recently accomplished a climb six kilometres in length (the gradients varying from 1 in 7 to 1 in 5) with five passengers.



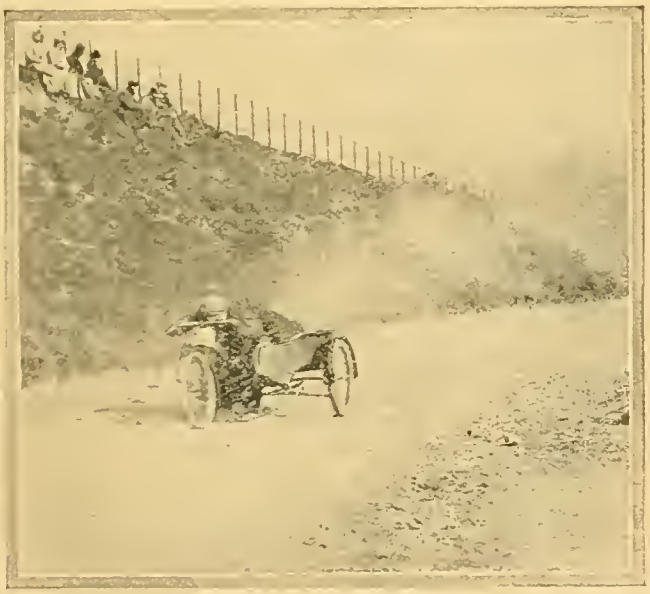
MOTOR CYCLE COMPETITIONS IN RUSSIA.

Lieut. N. W. Khalioutyn, who has been awarded the first prize for military motor cyclists, for the best condition of the machine at the finish of the recent Moscow-St. Petersburg-Moscow trial, held by the Moscow Club of Motorists. Lieut. Khalioutyn's machine is a P. and M

STREATHAM OPEN HILL-CLIMB RESULTS.

Below we give the winners on formula of the various classes—experts and general. An account of the climb and the results on time will be found on pages 159-160.

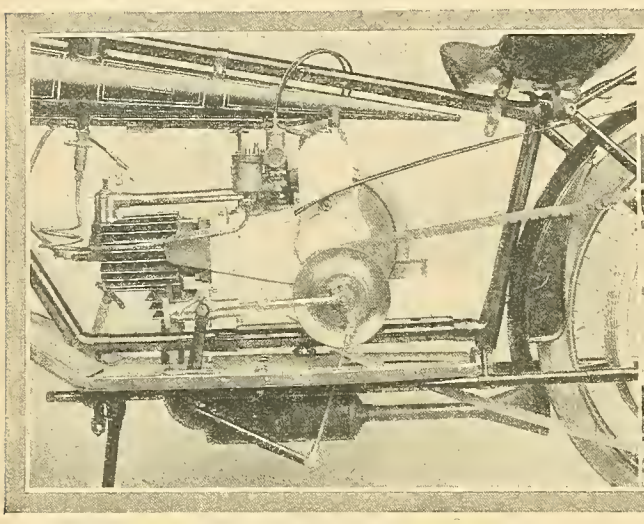
CLASS 1A.—General: Meeten (2 O.K.).
CLASS 1B.—Expert: Radley (2½ New Imperial).
CLASS 2B.—Expert: Radley (2½ New Imperial).
CLASS 3.—General: Thompson (2¾ Douglas). Expert: Davies (2¾ Sunbeam).
CLASS 4.—General: Thompson (2¾ Douglas). Expert: Davies (2¾ Sunbeam).
CLASS 5.—General: Le Vack (3½ Motosacoche). Expert: Newsome (3½ Rover).
CLASS 6.—General: Hardman (3½ Rudge). Expert: Newsome (3½ Rover).
CLASS 7.—General: Kennedy (4½ Zenith). Expert: Newsome (3½ Rover).
CLASS 8.—General: Boxer (6 Bat). Expert: Harrison (3½ Triumph).
CLASS 9.—General: Brooke (7 Indian). Expert: Harrison (3½ Triumph).
CLASS 10.—General: Brooke (7 Indian). Expert: Brigg (8 Campion), and fastest time of the day.
CLASS 11.—General: Breese (3½ B.S.A.). Expert: Breese (3½ B.S.A.).
CLASS 13.—General: Boxer (6 Bat). Expert: Barnes (6 Zenith).
CLASS 14.—General: Boxer (6 Bat). Expert: Barnes (6 Zenith).
CLASS 15.—General: Breese (3½ B.S.A.). Expert: Barnes (8 Zenith).
CLASS 16.—General: Frost (8 Matchless). Expert: Barnes (8 Zenith)
CLASS 17.—Humphries (Carden).
CLASS 18.—Carden (Carden).



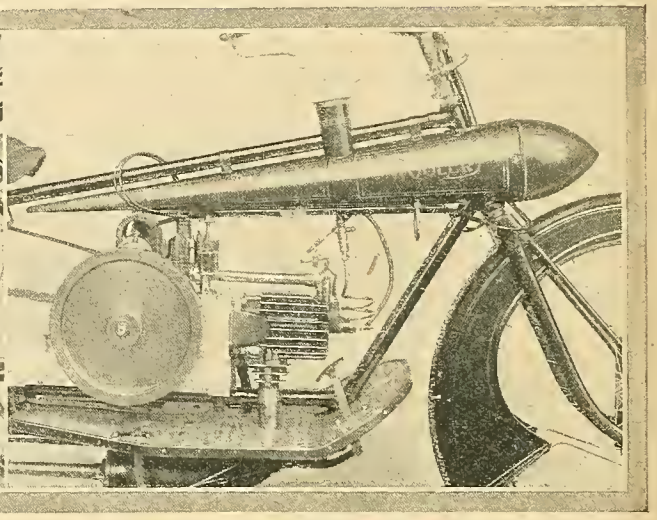
E. Smith (Regal-Green sidecar) crossing the finishing line at full speed in the "five o'clock hill-climb" of the Sutton Coldfield club.

The 2¾ h.p. Two-stroke Wooler.

AN INTERESTING MACHINE, EMBODYING MANY DISTINCTIVE FEATURES.



Pulley side of the engine showing belt tensioning device for variable gear.

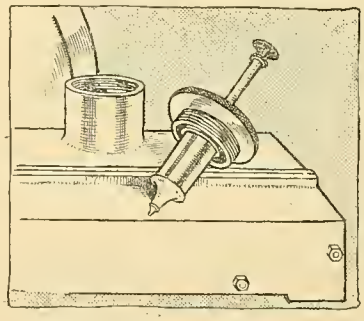


The horizontal Wooler without side flywheel and footboards.

THE Wooler has been on several occasions referred to in *The Motor Cycle*, and now the company has secured premises in Old Oak Common Lane, Willesden, for its manufacture.

Dealing first with the power unit, it may be remembered that the engine possesses many interesting features. It is of the two-stroke variety, the cylinder being placed horizontally, having radiating fins round the union of the exhaust pipe as well as on the cylinder itself. The first compression is made in the end of the cylinder opposite to the combustion chamber instead of in the crank case. The mixture is then transferred to the other end of the cylinder by means of an external pipe, which is clearly shown in the accompanying illustration. Lubrication is effected by means of a pump driven off the crankshaft, which delivers oil through a drip feed lubricator to the cylinder walls and to a jet which sprays oil over the big ends. About one quart of oil, sufficient for two hundred miles, is carried in a separate container behind the crank case, the filler cap of which contains a squirt, which may be used for lubricating the various moving parts of the machine.

A novel arrangement is the interconnection of the drip feed and the throttle, so that the farther the throttle



The oil sump on the Wooler, showing the oil squirt which is incorporated with the filler cap.

is opened the greater the amount of oil delivered to the cylinder, an exceedingly sensible arrangement, which allows the engine to get plenty of oil even though the road speed may be comparatively low.

The bore and stroke are 76 mm. × 76 mm. and the cubical capacity 344 c.c. The compression release valve is situated at the end of the transfer pipe, and when brought into action destroys all suction on the carburetter.

The parts are particularly accessible, and it is interesting to note that the power unit may be dismounted by undoing two nuts, while both the U.H. magneto and B. and B. carburetter can be got at with an equal amount of ease.

The torpedo tank is of neat design and pleasing appearance, and holds a gallon and a quarter of fuel. The illustration of the frame shows its neat construction, and the convenient form of back and front stands employed, while the two lugs for carrying the engine are also clearly seen.

The Method of Springing.

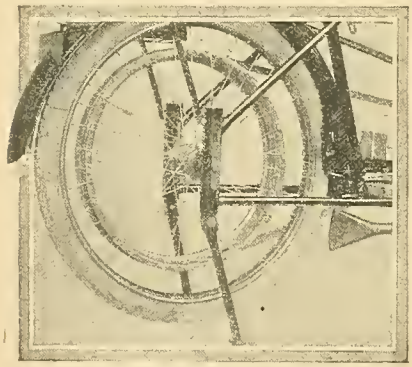
The Wooler is sprung fore and aft, the system of springing being a suspension of the wheel spindles on coil springs. The slots in which the spindles work are protected from dust by felt washers, which also retains the lubrication.

The arrangement of the change-speed gear is one of the most simple, being of the expanding pulley type and giving six forward speeds. The movable flange is worked by means of a quick screw thread operated by a heel and toe pedal.

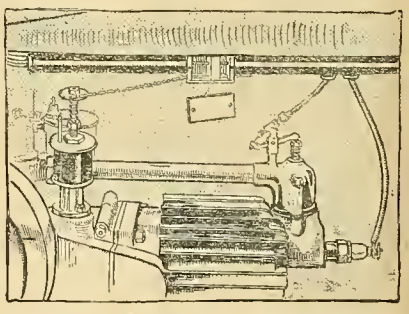
The device shown forward of the gear in the illustration is for the tensioning of the belt. It has a movement of three inches, while tension can be effected by merely undoing a locking screw.

It is interesting to note that the brake rod runs inside one of the horizontal frame tubes, and is thus neatly concealed.

The Wooler is a machine the design of which has been carefully thought out, and is full of novel and interesting details.



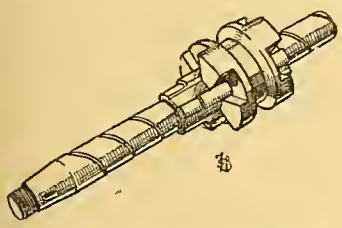
Method of springing the rear portion of the frame.



The interconnected oil and throttle arrangement on the latest pattern Wooler.

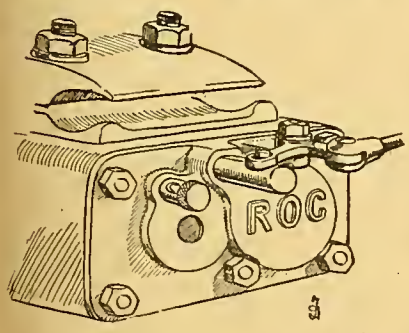
A ROC COUNTER-SHAFT GEAR.

THE name "Roc" has been associated with motor cycle gears from the earliest days, so that it was with some interest that we examined the latest type of counter-shaft two-speed gear manufactured by Messrs. A. W. Wall, of Hay Mills, Birmingham.

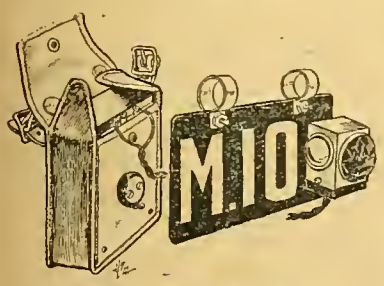


Mainshaft of the Roc two-speed gear showing the projecting alternate dog teeth.

The gear is of the constant mesh type, employing a single pair of sliding dogs to effect the change. A particular feature of these dogs is that every alternate projection is somewhat higher than its neighbour. This is arranged so as to give an easy and positive change, and allows a full quarter revolution for engagement. A short road trial of the device fitted to a small two-stroke showed that the gears are particularly quiet, both on the high and low ratios, while the change can be made with the greatest ease. The construction of the box is very solid, and all parts are strong enough to withstand considerable overload. The main shaft runs on ball bearings and the layshaft on plain. At present the gear is manufactured for use on lightweights only.



The control side of the Roc two-speed counter-shaft gear.



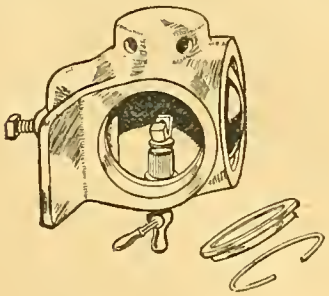
The Eastick electric rear lamp for motor cycles.

A COMPACT REAR LAMP.

One of the neatest and most compact rear lamps we have seen is that produced by Messrs. J. J. Eastick and Son, Clapton Common, N.E. The illustration clearly shows the design of the lamp, which is electric, and the dry battery in its canvas case. This is intended to be strapped on to the carrier, and is provided in front with a small switch for the purpose of turning on the light when required.

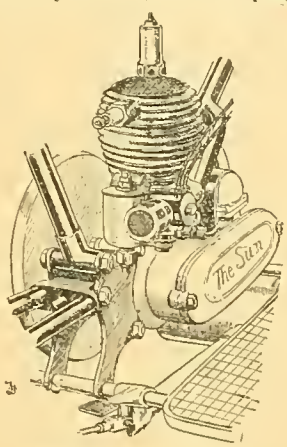
THE DUMOLITE REAR LIGHT.

The Dumolite is a neat and solidly constructed lamp manufactured by A. J. Dew and Co., 21, Endell Street, London, W.C. It consists of a single aluminium casting,



The Dumolite acetylene rear lamp.

into which two glasses—a red and a white—are firmly fixed by spring rings. The white light is arranged to give ample light for the illumination of the rear number plate, while the red glass acts, of course, as a warning to those behind. The burner is screwed into the body of the lamp, and it is almost impossible for any rattles to occur. The lamp is nicely finished, and is very light.



The engine unit of the latest Sun two-stroke

THE P. AND M. TWIN.

With regard to the P. and M. twin-cylinder machine which was described and illustrated in our last issue, Mr. Richard Moore has been riding the first of these models for twelve months and has covered about 7,000 miles on it. In its final form this new P. and M. twin will have a four-speed gear

IRISH END TO END TRIAL

H. Wilhelmj (5-6 h.p. Bradbury sidecar) starting for the slow climb up Iscar Hill. This rider won the special prize for the best sidecar performance, as well as a gold medal

THE B.M.C.R.C. JULY MEETING.

SEVERAL RECORDS BROKEN.

IN spite of a strong breeze which continued throughout the day, several new records were set up for the standing start ten miles and the flying five miles. The first event of the day was the usual series of time trials over the kilometre and mile. The course was ridden in the reverse direction during these trials on account of the wind, and this appeared to worry a few of the riders, for, in spite of the rather favourable breeze, only one record went in this event, E. B. Ware, on his 6 h.p. single-seated Morgan, reducing the kilometre time to 34.36=65.1 m.p.h and the mile to 57.06=63.09 m.p.h. in Class J.

Time trials are rather dull performances to watch, and the chief interest centred round Stanley and Cocker, who made their first public appearance on Triumph machines. The former made the fastest times in his class, though no records fell. He was closely followed by O'Donovan, whose record-breaking Norton had been re-bushed, and was not in quite its best form. Cocker was a good third.

Rider, Machine, and No. of Cylinders.	Bore and Stroke.	C.C.	Kilometre.		Mile.	
			Time.	Speed.	Time.	Speed.
CLASS A.	mm.		secs.	m.p.h.	secs.	m.p.h.
W. A. Jacobs, 2½ Singer (1) ..	65 × 75	248	40.6	55.1	66.2	54.38
H. Martin, 2½ Martin-Jap (1) ..	76 × 54.5	247	47.2	47.39	81.8	44.01
CLASS A1.						
H. Martin, 2½ Martin-Jap (1) ..	76 × 54.5	247	46.0	48.63	78.4	45 92
CLASS B.						
S. L. Bailey, 2¾ Douglas (2) ...	60.5 × 60	350	32.0	69.9	53.2	67.67
H. Greaves, 2¾ Enfield (2)	54 × 75	347	35.4	63.19	58.0	62.07
E. Keyte, 2¾ Enfield (2)	54 × 75	347	36.2	61.79	60.0	60.0
F. A. McNab, 2¾ Nut-Jap (2)..	60 × 60	350	37.6	59.49	63.0	57.14
F. J. P. Disney, 2¾ Douglas (2)	60.5 × 60	350	41 4	54.03	69.2	52.02
CLASS C.						
G. E. Stanley, 3½ Triumph (1)	85 × 88	499	28.6	78.22	47.4	75.95
D. R. O'Donovan, 3½ Norton (1)	79 × 100	490	29.0	77.14	48.6	74.07
J. Cocker, 3½ Triumph (1)	85 × 88	499	29.6	75.57	49.0	73.47
T. McKenna, 3½ Norton (1) ...	79 × 100	490	31.6	70.79	52.6	68.44
C. H. Walden, 3½ Singer (1) ...	85 × 88	499	34.0	65.79	56.0	64.29
R. F. Collins, 3½ Rudge (1) ...	85 × 88	499	35.0	63.91	57.4	62.72
G. H. Fry, 3½ Rudge (1)	85 × 88	499	38.2	58.56	63.4	56.78
CLASS D.						
G. E. Stanley, 3½ Triumph (1)	85 × 88	499	30.0	74.57	49.2	73.17
D. R. O'Donovan, 3½ Norton (1)	79 × 100	490	30.25	73.95	50.24	71.66
J. Cocker, 3½ Triumph (1)	85 × 88	499	30.29	73.85	49.79	72.3
CLASS E.						
S. George, 7 Indian (2)	82.5 × 93	994	25.4	88.07	42.2	85.31
O. M. Baldwin, 8 Matchless (2)	90 × 77.5	986	26.0	86.04	43.2	83.33
H. Reed, 8 Dot (2)	90 × 77.5	986	26.4	84.73	43.6	82.57
A. J. Luce, 8 Zenith (2)	90 × 77.5	986	31.8	70.34	52.6	68.44
CLASS F.						
S. L. Bailey, 2¾ Douglas (2) ...	60.5 × 60	350	44.11	50.71	73.76	48 81
CLASS G.						
J. Cocker, 3½ Triumph (1)	85 × 88	499	36.4	61.45	60.0	60.0
K. Holden, 3½ B.S.A. (1)	85 × 88	499	40.6	55.1	66.4	54.22
CLASS H.						
J. Cocker, 3½ Triumph (1)	85 × 88	499	36.8	60.79	61.4	58.63
K. Holden, 3½ B.S.A. (1)	85 × 88	499	41.4	54.03	68.4	52.63
CLASS I.						
J. Chater-Lea, 8 Chater-Lea (2)	86 × 85	987	35.0	63.91	57.2	62.94
E. B. Ware, 8 Zenith (2)	85 × 85	964	36.0	62.14	60.4	59.6
R. H. Hoare, 8 C. and H.	—	—	38.2	58.56	63.2	56.96
CLASS J.						
E. B. Ware, 6 Morgan (2)	76 × 82	750	34*36	65.1	57*06	63.09
CLASS K.						
L. Martio, 10 Singer (4)	63 × 88	1097	30.2	74.07	50.6	71.15
E. B. Ware, 8 Morgan (2)	90 × 85	1100	35.4	63.19	58.0	62.07

*Record.

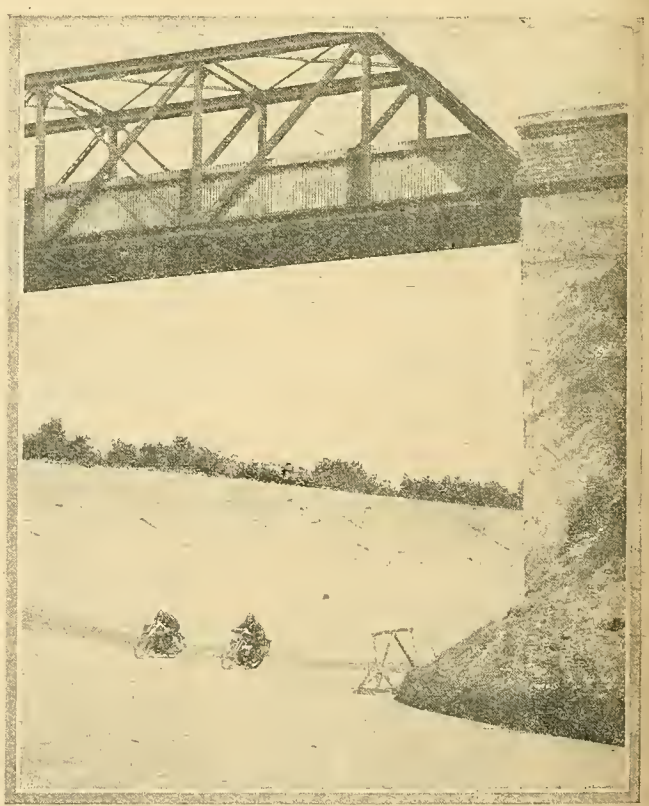
Afternoon Events.

The actual racing started at two o'clock with a ten mile race, starting from the railway straight and finishing at the fork on the fourth circuit. The track was ridden in the usual direction. From the very beginning the race became a three-cornered event between Stanley, O'Donovan, and Cocker, with Bownass (3½ N.U.T.) and Graham Dixon (3½ James) following.

On the first lap Stanley led, with O'Donovan and Cocker at about equal intervals behind. As they passed the fork the second and third times O'Donovan had gradually drawn up and was riding hard on Stanley's heels, and when the riders came into view for the last time it was almost impossible to tell who was in the lead, and both men crossed the line at a terrific speed, the Norton rider winning by his front wheel; the race caused intense excitement and provided one of the closest finishes that has been seen on Brooklands for some time past. This is Stanley's first defeat for about two years, and he told us that he believed the second man to be his stable companion, Cocker, until he was passed in the last lap, too late to regain the lead. Both men rode magnificently. Graham Dixon was using a new carburetter with a flat barrel and apparently an expanding choke tube. S. Yano was riding a Triumph built into a very short, low frame, but apparently had trouble, as he did not come round for some time. In each ten mile event the speeds for the flying five miles were taken, starting from a point behind the members' hill on the first lap. Results :

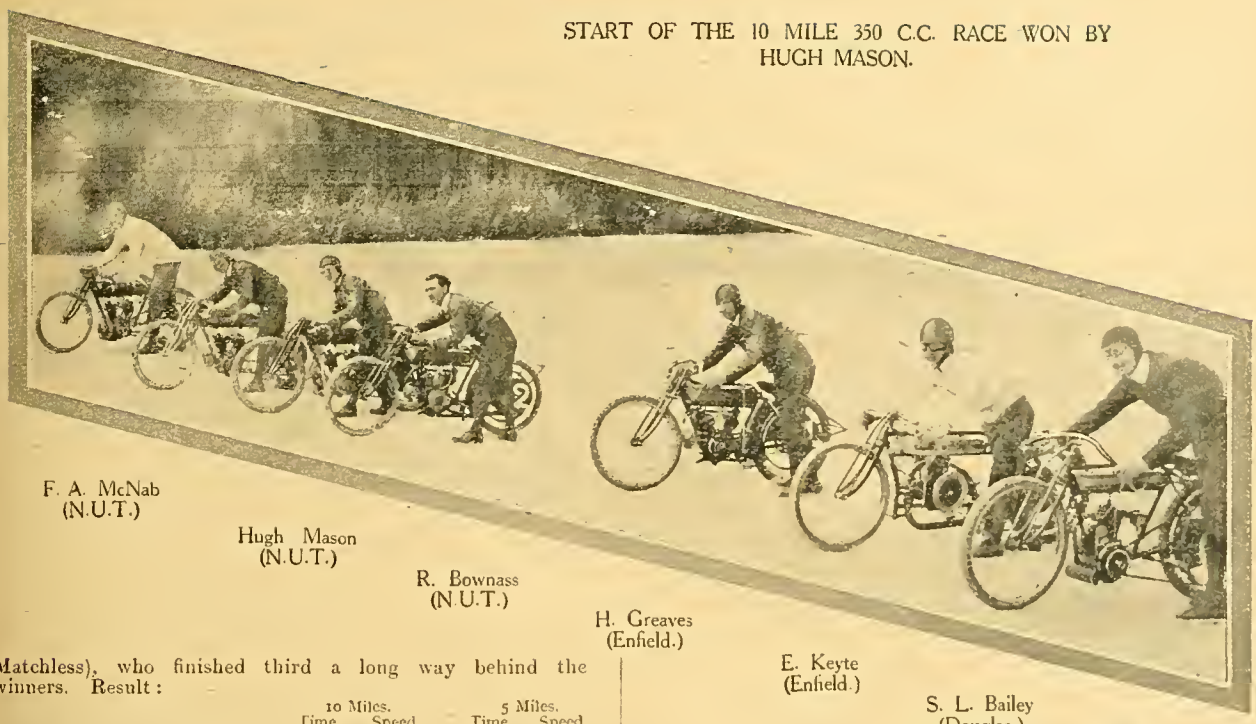
	10 Miles. Time.	Speed.	5 Miles. Time.	Speed.
	M. S.	M.P.H.	M. S.	M.P.H.
D. R. O'Donovan (3½ Norton)	8 34	= 70.31	4 11⅘	= 71.29
G. E. Stanley (3½ Triumph)	8 34⅕		4 11⅗	
J. Cocker (3½ Triumph)	8 49⅘		4 20½	

The next race was over the same distance, but for machines up to 1,000 c.c. Once again the event was most exciting, for S. George on the eight valve Indian and H. Reed on his ported Dot were close together throughout the race, and, though George held the lead nearly all the time, Reed came off the banking faster and made the best time over the flying five miles. A. J. Luce (8 Zenith) lay fourth on the first lap, but was passed by E. Baragwanath (8



A duel under the members' bridge. Often spectators at B.M.C.R.C. meetings who station themselves at the fork miss some of the most interesting and exciting events of the afternoon.

START OF THE 10 MILE 350 C.C. RACE WON BY HUGH MASON.



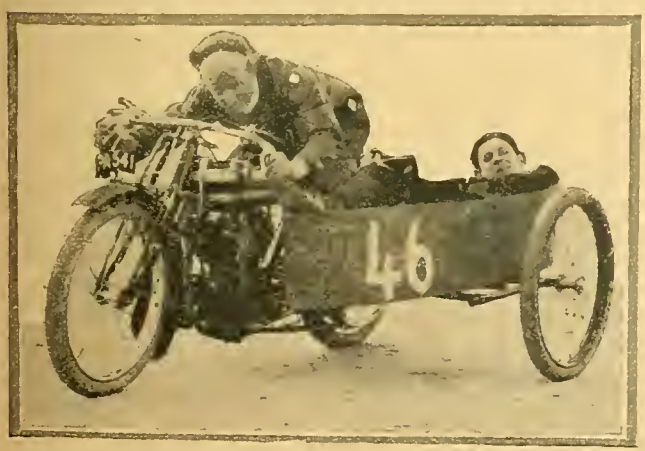
Matchless), who finished third a long way behind the winners. Result:

	10 Miles. Time. M. S.	Speed. M.P.H.	5 Miles. Time. M. S.	Speed. M.P.H.
S. George (7 Indian)	7 46⅘	= 77.56	3 47	
H. Reed (8 Dot)	7 47⅕		3 45⅘	= 79.82
E. Baragwanath (8 Matchless)	12 33⅘		4 9	

The third race over the same course was for machines up to 350 c.c., and did not provide so good a finish, for though S. L. Bailey at once took the lead he dropped out in the second lap with a broken rocker, and Hugh Mason took his place with a good lead from H. Greaves. E. Keyte and R. Bownass followed, and W. A. Jacobs on his little 65 × 75 (248 c.c.) Singer brought up the wear. He was travelling very well considering the size of his engine, and results showed that he broke records for Class A. The positions remained unaltered at the finish. McNab's N.U.T. caught fire in the first lap owing to a terminal coming off, but no damage was done. Result:

	10 Miles. Time. M. S.	Speed. M.P.H.	5 Miles. Time. M. S.	Speed. M.P.H.
H. Mason (2¾ NU.T.)	9 57⅘	= 60.20	4 51	= 61.86
H. Greaves (2¾ Enfield)	10 10⅘			
E. Keyte (2¾ Enfield)	10 36⅘			
W. A. Jacobs's times were	*11 40⅘	= 51.4	*5 44⅕	= 52.20

*Records for Class A.



A. V. Sumner (3 h.p. Zenith sidecar), who in addition to winning the sidecar event broke the five mile sidecar records.

More Records Broken.

The ten-mile cycle car race only produced four starters, and Lionel Martin and E. B. Ware had it all their own way. Ware's little 6 h.p. Morgan was travelling magnificently, and hung on to the Singer in a wonderful way. W. Harriss (Marlborough) was fairly fast, and travelled very smoothly, but Newbold (Warren Lambert) was rather slow. Martin gradually increased his lead, but appeared to miscount his laps, for just before the finish he shut down and drew in towards the finishing straight when Ware could have passed him easily had he not suffered from the same delusion and cut out. In spite of this his times for the five and ten miles are class records. Results:

	10 Miles. Time. M. S.	Speed. M.P.H.	5 Miles. Time. M. S.	Speed. M.P.H.
L. Martin (10 Singer)	10 3	= 59.70	4 51	= 61.86
E. B. Ware (6 Morgan)	*10 5	= 59.50	*4 53⅕	= 61.22
W. Harriss (10 Marlborough)	10 5⅘			

*Records for Class J.

The ten-mile sidecar race for machines up to 500 c.c. proved a runaway event for Cocker. His Triumph was travelling in its best form, and finished about a mile ahead of Holden (B.S.A.), who, in his turn, had a long lead over de Lissa (Motosacoche). Cocker's record speeds rather minimised the performances of the other two machines, which would have been quite fair in the usual field. Results:

	10 Miles. Time. M. S.	Speed. M.P.H.	5 Miles. Time. M. S.	Speed. M.P.H.
J. Cocker (3½ Triumph sc.)	*10 31⅕	= 56.71	*5 10⅕	= 58.06
K. Holden (3½ B.S.A. sc.)	12 22		6 0⅕	
O. de Lissa (3½ Motosacoche)	13 0⅘		6 26⅘	

*Records for Class G.

A ten-mile event for 1,000 c.c. sidecar machines followed, and here again a record fell, Sumner securing the five-mile time for Class I. Luce had magneto trouble and did not start, and Openshaw had plug trouble, which delayed him considerably. Chater-Lea took up the lead and held it well for the first lap, though afterwards his engine seemed to dry up, and Sumner and Taylor came to the front, running very close together. R. H. Hoare, on the C. and H., a Cornish production and a newcomer to the track, had been travelling well, but his engine dried up—a habit well known on Brooklands. Results:

B.M.C.R.C. July Meeting.—

	10 Miles. Time. M. S.	Speed. M.P.H.	5 Miles. Time. M. S.	Speed. M.P.H.
A. V. Sumner (8 Zenith sc.)	11 20⅘	= 52.90	*5 38	= 53.25
C. R. Taylor (8 Zenith sc.)	11 26⅕			

*Record for Class 1.

Sumner's record is all the more meritorious as it was accomplished on one of the first of the new 85 × 85 J.A.P. engines.

Handicap Races.

Out of the thirty-five entrants for the allcomers' three-lap handicap twelve failed to turn up.

The men lined up at the fork and were sent away at intervals according to their handicaps. F. Pigot Disney (2¾ Douglas), F. A. McNab (2¾ N.U.T.), and W. A. Jacobs (2½ Singer) were on the limit mark. But S. L. Bailey, who started thirty-nine seconds later, made a splendid start, and was soon on their heels. As the men passed at the end of the first lap Bailey was travelling at great speed, and looked like a winner, but soon after the fork both he and McNab dropped out with plug trouble. Stanley had crept up several places, and Reed was improving his nine seconds start from George.

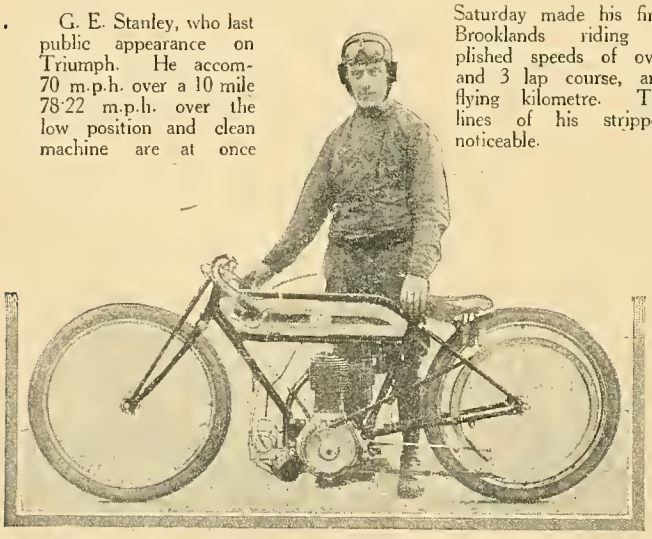
In the second lap Jacobs had run into first place, followed by Keyte (2¾ Enfield), but Stanley was close behind them travelling at a great speed and looked an easy winner. Bownass was fourth, followed by Pigot Disney, Walden (Singer), Graham Dixon (James), McKenna (Norton), Oubershott (Rudge), and Reed, while George had picked up several places. Hugh Mason blew off the rear cylinder head. Stanley finished an easy winner, with Reed, Bownass, Keyte, and George following. Results:

	Speed.
G. E. Stanley (3½ Triumph) 57 secs.	70.28 m.p.h.
H. Reed (8 Dot) 9 secs.	77.16 m.p.h.
R. Bownass (3½ N.U.T.) 1 min. 18 secs.	64.62 m.p.h.

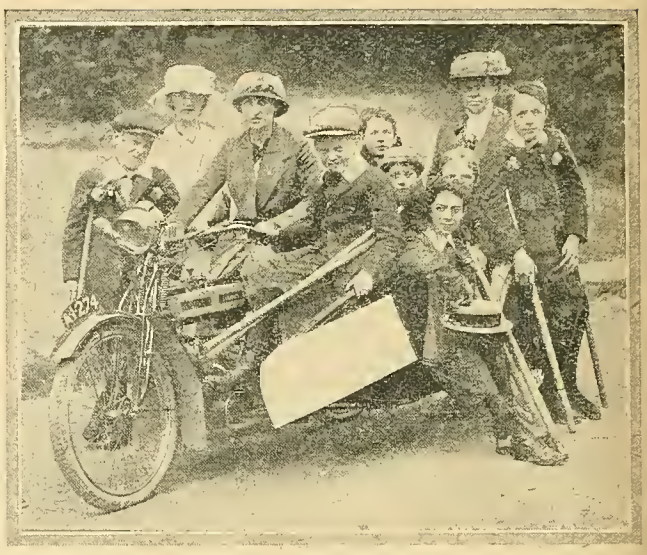
The last event was a three-lap passenger handicap, which was won by H. Greaves (2¾ Enfield sc.) with ease. He started on the limit, having 4m. 33s. start from L. Martin (10 Singer), and was well away on his second lap before the scratch man received the signal to go. He was followed by de Lissa, who afterwards gave way to T. Brown (6 Zenith) and K. Holden (B.S.A.). Luce was working his way up, and Sumner and Martin made a good fight of it, but their handicaps proved too heavy for them. Greaves had hard luck in that though his speed was much better than the record in his class it does not stand, as the race was a three-lap handicap. Results:

H. Greaves (2¾ Enfield sc.)	47.58 m.p.h.
K. Holden (3½ B.S.A. sc.)	50.81 m.p.h.
A. J. Luce (8 Zenith sc.)	56.37 m.p.h.

The meeting was attended by only a moderate number of spectators.



G. E. Stanley, who last Saturday made his first public appearance on Brooklands riding a Triumph. He accomplished speeds of over 70 m.p.h. over a 10 mile and 3 lap course, and 78·22 m.p.h. over the flying kilometre. The low position and clean lines of his stripped machine are at once noticeable.



Mrs. Gordon Fletcher (3½ h.p. Douglas sidecar), who assisted in the Essex M.C. annual cripples' outing.

IRISH END-TO-END RESULTS.

THE results of the Irish End-to-end reliability trial organised by the Motor Cycle Union of Ireland (Ulster Centre), and described on page 126B of our last issue, are given hereunder. Stewart, the well-known Belfast rider who carries off the Palmer trophy on a Douglas, has competed in every End-to-end trial held so far. The team prize was won by the three B.S.A. riders, W. J. Woods, R. Jones, and W. J. Chambers.

	Marks.	Flexibility.
J. Stewart (2¾ Douglas), Palmer Trophy, gold medal, and Shell Cup	156 max	6 secs.
W. Cameron (4 Triumph), 2nd prize, gold medal and special Pratt's prize	150	2 secs.
L. A. Bees (4 L.M.C.), 3rd prize and gold medal	150	2 secs.
W. B. Gibb (2¾ Douglas), 4th and gold medal	150	1⅘ secs.
"Sou'-wester" (2¾ Douglas), lightweight prize and gold medal	150	1 sec.
V. J. Farrell (4 Triumph), gold medal	150	1⅘ secs.
W. J. Woods (3½ B.S.A.), gold medal	150	2⅘ secs.
G. E. Gregson (4½ Bat), gold meda	150	4⅘ secs.
T. Mallon (2¾ Sunbeam), gold medal	150	5⅘ secs.
J. Dwyer (4 Triumph), gold medal	150	8 secs.
A. Wilhelmj (5-6 Bradbury sc.), sidecar prize and gold medal	150	8⅘ secs.
F. Smith (6 Clyno sc.), silver medal	140	8⅘ secs.
C. Jones (3½ B.S.A.), silver medal	140	6⅘ secs.
W. J. Henderson (6 Rudge), silver medal	140	8⅘ secs.
P. J. Fox (3½ Rudge), silver medal	140	Kicked on hill
T. E. Greene (3½ Rudge), silver medal	140	Failed on hill
G. I. Francis (3½ Lea-Francis), silver medal	140	Failed on hill
P. J. Cox (3½ Douglas), silver medal	136	Kicked on hill
W. J. Chambers (3½ B.S.A.), silver medal	130	Failed on hill
Dr. Armstrong (3½ Triumph), silver medal	130	Kicked on hill
J. M. Summerfield (6 New Hudson sc.), silver medal	129	Failed on hill
W. H. Longton (3½ Alldays), silver medal	125	Clean ascent
J. Brown (3½ Rover), silver medal	123	Failed on hill
J. B. A. Day (2½ Sun), silver medal	109	Failed on hill

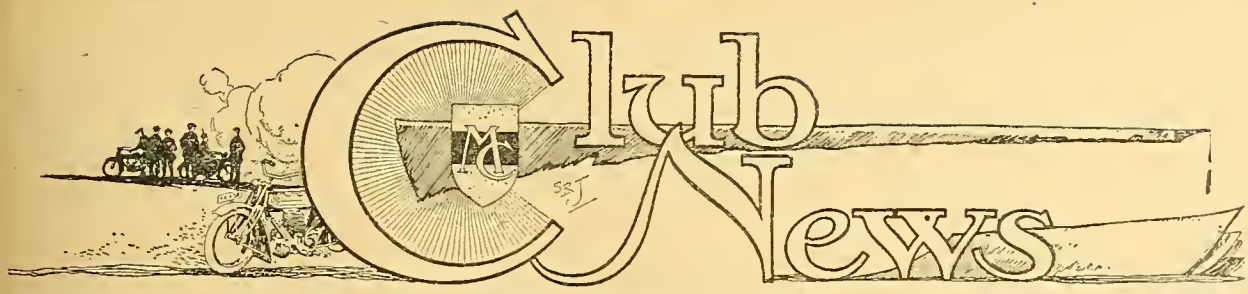
The following were disqualified owing to being ahead of schedule more than ten minutes at any point on the journey: H. Gibson (2½ Clyno), P. Phillips (2¾ Douglas), W. Allen (2¾ Douglas), A. Beatty (2¾ Sunbeam), and C. Hosford (3½ Rover).

SHEFFIELD AND HALLAMSHIRE M.C.C.

The sixth annual trial to Holyhead and back, a distance of 316 miles, took place on the 25th inst. Fifteen riders faced the starter. Of these eight were driving sidecar combinations. The weather was terribly wet and very boisterous. The going over the Cat and Fiddle was exceedingly rough, a thick white mist over portions of the hill, together with the strong westerly wind, making it very trying for the riders, so that only two of them reached the Angel Hotel, Knutsford, to time.

Winner of the Hulton Shield and special award presented by W. H. Pearson, Esq.—S. Sawer (3½ Premier).

Winners of silver medals.—S. Raynes (3¼ Lea-Francis), H. Eggington (6 Excelsior sc.), L. Fisher (3¼ Lea-Francis), F. Ronksley (6 Zenith sc.), R. M. Davy (2¾ Enfield), G. Wilkins (6 Rex-Jap sc.), and E. Thompson (2¾ Douglas).



"THE MOTOR CYCLE" LIST OF CLUB EVENTS

Aug. 1st.—Woolwich, Plumstead, and District M.C.C. Run to Leaves Green Brookdale.
" 1st.—Coatbridge and District M.C.C. Run to Balloch
" 1st.—Mersey (Liverpool) M.C. Run to Brooklands.
" 1st.—Streatham and District M.C.C. Impromptu run.
" 3rd.—Surrey M.C.C. Hill-climb.
" 3rd.—Bury and West Suffolk M.C.C. Run to Felixstowe.
" 3rd.—Cardiff and District M.C.C. Social gipsy outing.
Aug. 5th.—Middlesbrough and District M.C.C. Ladies' day at Marske.
Aug. 5th.—Newport Pagnell M.C. Gymkhana at Tickford Abbey Park

BANK HOLIDAY TOURS.

M.C.C. to Devon.
North-west London M.C.C., to Chichester.
Cyclecar Club, to the Wye Valley.
Westmorland M.C.C., to Portobello.
Bristol B. and M.C., to Land's End.
Finsbury Park C. and M.C.C., to Goring Heath, near Pangbourne.

Leeds M.C.C.

A gymkhana took place on Saturday. The decorated sidecar class was won by Mrs. A. T. Jenkins (4 Triumph).

Malvern and District M.C.C.

An inter-club speed trial will be held on August 15th on Blackmore Park drive, which is perfectly straight and has a good surface. Events will be electrically timed, and there will be eleven classes.

Buckingham M.C.C.

At the invitation of the Triumph Cycle Co. the members visited the factory at Coventry and were much interested in the various processes which they saw. Tea was afterwards provided by the company.

Eastern Counties M.C.

A reliability run was held last week to Yarmouth and back. Ten started, and the following finished to time: S. Chapman (3½ Triumph), A. W. Chapman (7 Matchless sc.), W. Crook (6 Bradbury sc.), and W. A. Booth (6 Ariel sc.).

Derby and District M.C.C.

The reliability trial for the Henmore Cup resulted in a tie between H. Baker (7 Indian), second time holder, and A. Ainsworth (3½ Rudge). The re-run of fifty miles non-stop caused considerable interest, both men being keen riders. The riders were checked every few miles, the result on time being: 1, Ainsworth, time error 7m.; 2, Baker, error 11¼m. Both made non-stop runs.

York County M.C.C.

The annual Leeds-London-Leeds reliability trial was run off most successfully on the 18th and 19th inst. with a record entry. Very little trouble was experienced by the competitors, punctures accounting for most. H. H. Charge won the Byrom Cup, A. C. Thornton the special gold medal, and G. Hemingway the standard gold medal.

Lincolnshire A.C. (Motor Cycle Section)

The results of the hill-climb held on the 25th inst. on the knock-out principle at Scamblesby are as follow:

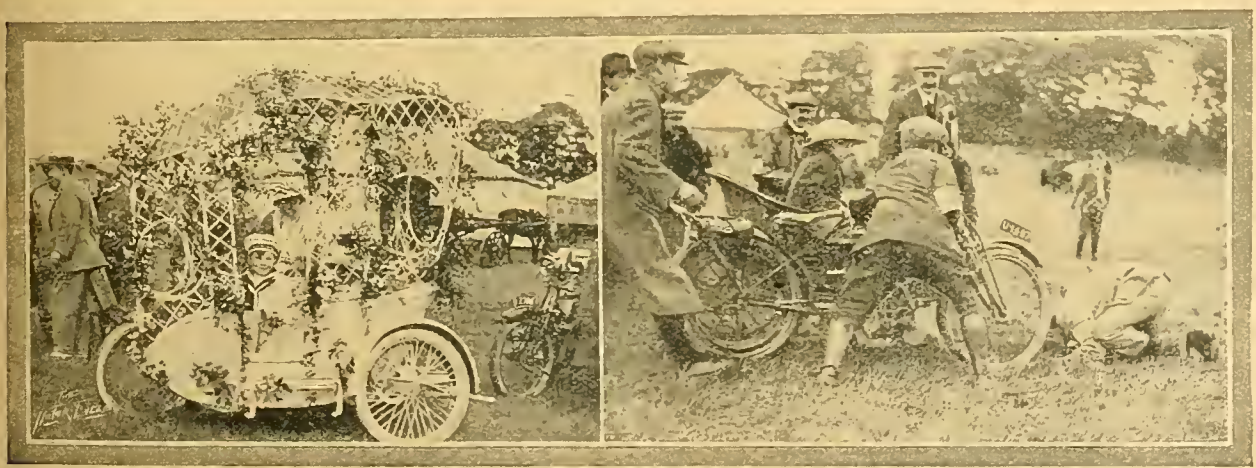
CLASS I. under 350 c.c.)—1, C. H. Jennison (2¾ Douglas; 2, Mrs. M. C. Jennison (2¾ Douglas).
CLASS II. (under 600 c.c.)—1, A. Hodgson (4¼ New Comet); 2, A. W. Grocock (3½ Zenith).
CLASS III. (under 1,000 c.c.)—1, B. Rhodes (8 Zenith); 2, L. W. Forinton (7 Indian).
CLASS IV. Sidecars.—1, B. Rhodes (8 Zenith); 2, S. Townend (9 Indian).

Deal, Walmer and District M.C.C.

A petrol consumption trial was held on the 25th inst. over a sixty-five miles course under real touring conditions. Official results:

	Weight m lb.	Miles per gall.	Ton Miles per gall.
1, K. Henshaw (4 B.S.A. Combination)	652 ..	129.3 ..	37.7
2, — Kirby (3½ B.S.A., with passenger)	588 ..	129 ..	33.9
3, R. Jewry (6 Sunbeam Combination)	776 ..	92.2 ..	32.0

The best consumption was 143.8 m.p.g. by Spicer (3 Enfield).



SCENES AT THE LEEDS M.C.C. GYMKHANA ON SATURDAY

(1) A beautifully decorated 4 h.p. Triumph sidecar owned by Mrs. A. T. Jenkins, who won a first prize.

(2) The Adam and Eve Race. A competitor endeavouring to pick up an apple from the ground with his mouth. The apples were originally to have been picked out of a tub of water.

Club News.—

Purley M.C.C.

W. H. Carson duly exhibited the hill-climbing capabilities of his "big single" Excelsior outfit to Purley club members on the 18th inst., and, accompanied by a crowd of members and visitors, went the round of some of the local test hills. The question was not whether he could get up them, but how many he could carry, and the load, including driver, was four on Soocombe Hill, Caterham, four on Chalkpit (an attempt with five up just failed on the top of the bend), and four on Crown Ash, whilst a stiff little bit of 1 in 3, just off Polsteeple, was twice successfully tackled with two up.

W. H. Carson (Excelsior sidecar) during his hill-climbing exploit with the Purley club.

Chipping Norton and District M.C.C.

A visit was paid to the Triumph factory on the 23rd inst., after which the club was entertained to tea by the company. A most instructive day was spent in going through the various shops.

Tunbridge Wells and District M.C.C.

Results of speed trials held on the 21st inst.:

		Time.		Formula.
1.	Carey (B.S.A.)	32⅜ secs.	....	1353
2.	L. C. Rumens (Douglas)	37⅕ secs.	....	1385
3.	Gardner (Douglas)	40⅝ secs.	....	1690
4.	Rawson (Rover)	37 secs	....	1701

The Motor Cycle formula was used.

Norfolk M.C. and L.C.C.

A 100 mile reliability run took place on the 16th inst., starting from Norwich at 1.30 p.m. on a circular route by Dereham, Fakenham, Wells, Cromer, Mundesley, and back to Norwich. There were three secret checks *en route*, besides checks at tea stop and finish. Results: 1, R. O. Clark (Singer light car), error 30 secs.; 2, A. Adcock (7-9 F.N. sc.), 4¼m.; 3, S. Rudd (2¾ Sunbeam), 4¾m.

The Cyclecar Club.

The winners on formula at the South Harting hill-climb, held on the 18th inst., are as follow:

Class II. Standard Touring Light Cars and Cycle Cars under 1,100 c.c.—1, W. R. Morris (10 Morris-Oxford), fig. of merit 1140; 2, L. Davies (10 Morris-Oxford), 1070.

Class IV. Lady Drivers of Standard Machines.—1, Miss Henry (8 G.W.K.), fig. of merit 695; 2, Mrs. Warren-Lambert (9.8 Warren-Lambert), 655.

Class V. Standard Touring Monocars.—1, W. E. Humphries (5 Carden), fig. of merit 1120; 2, J. V. Carden (5 Carden), 840.

The Team Prize was won by the G.N. team: A. G. F. Nash, H. R. Godfrey, and Dr. Colver-Glauert.

The positions on time, given last week, are confirmed with the exception that Miss Henry (8 G.W.K.) takes second place in Class IV.

FORTHCOMING OPEN EVENTS.

Race Meeting at Brooklands.

The Essex M.C. will hold an open and members' race meeting at Brooklands on August 15th, commencing at 2 p.m. The open events for motor cycles will be as follow: All comers' handicap, two laps; ditto, three laps; sidecar handicap, two laps; and for cycle cars; cycle car handicap, two laps. Motor cycles may be stripped, but must be efficiently silenced. Entries, which should be sent to Mr. E. J. Bass, Bishop's Stortford, close on August 5th

Bristol to Land's End and Back.

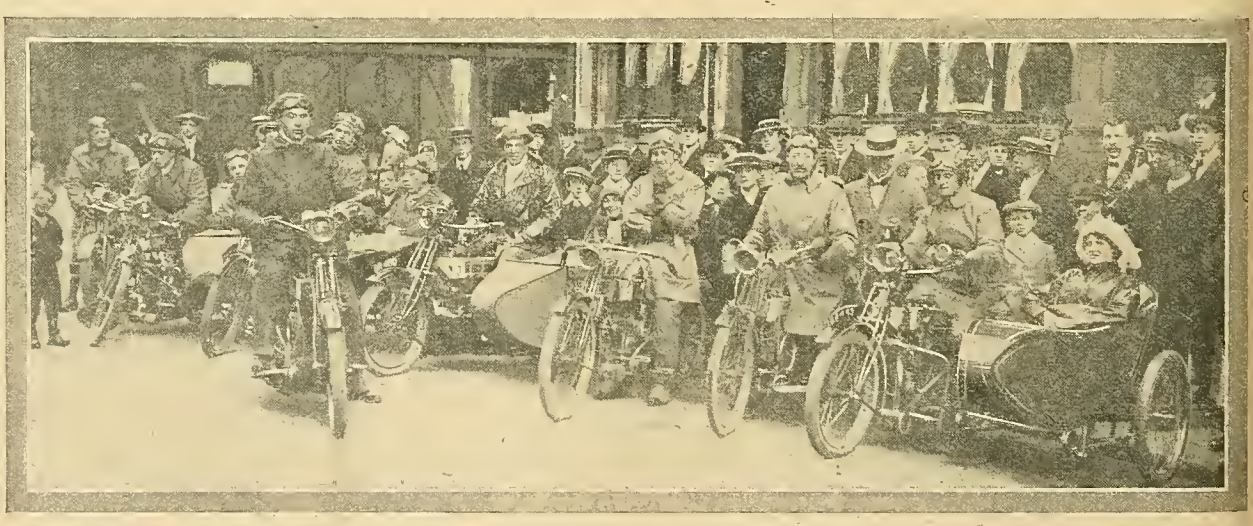
The Bristol Motor Cycle Club is applying for a permit to have a twenty-four hours run to Land's End and back on Friday and Saturday, September 4th and 5th, for motor bicycles, sidecars, and cycle cars. The route will be *viâ* Porlock, Lynton Hill, Barnstaple, Launceston, etc., and homewards *viâ* Dartmoor, Barnstaple, Beggars Roost, Hunters Inn, etc., etc., distance about 430 miles. All information from Rev. P. W. Bischoff, 17, Goldney Road, Clifton, Bristol.

SPEED TRIALS AT PORTMARNOCK.

The second race meeting of the season at Portmarnock under the auspices of the Dublin and District M.C.C. was held on Saturday last. The programme was made up of two open events, a ten-mile scratch race and a hundred miles handicap. The first-named resulted in a very easy win for C. B. Franklin, on a 3½ h.p. single-cylindered Indian. He was on scratch in the long distance race, but was in trouble before going very far and retired. The event went to J. Healy, on a 2¾ h.p. Enfield, who won comfortably by about four minutes, despite a petrol fire while replenishing. Results:

Ten Miles Scratch Race (under 500 c.c.).—1, C. B. Franklin (3½ Indian), time 13m.; 2, R. White (3½ Rudge), 14m. 4s; 3, W. A. Campbell (3½ Rudge), 14m. 15s.; 4, A. K. Wilhelmj (3½ Triumph), 14m. 25s.; 5, D. Harding (3½ Rudge), 15m. 30s.

One Hundred Miles Handicap (unlimited c.c.).—1, J. Healy (2¾ Enfield), 45 mins. start, time 2h. 51m. 50s.; 2, R. White (3½ Rudge), 20 mins. start, 2h. 30m. 40s.; 3, F. Holmes (3½ Rudge), 15 mins. start, 2h. 28m. 10s.; 4, A. K. Wilhelmj (3½ Triumph), 27 mins. start; 5, J. Clarke (3¾ Scott), 15 mins. start; 6. C. B. Franklin (3½ Indian) scratch.



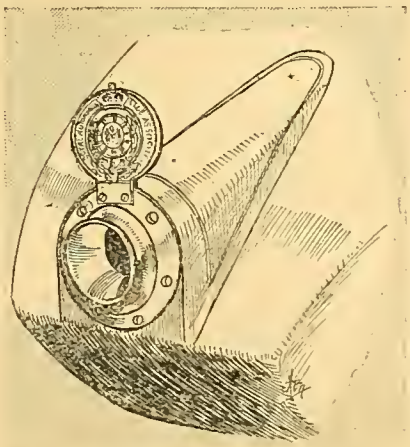
THE SUNDERLAND M.C.C. 200 MILE TRIAL.—Competitors leaving the luncheon stop at Doncaster on the homeward journey.

THE ANGLO-DUTCH TRIAL.

Third and Final Event of the Series for the N.M.V. Beker.

THIS year the Anglo-Dutch Trial will be held in Holland from September 6th to the 9th. The distance of the route will be 190 miles. There will be special prizes for Dutch and English private owners, and a prize for the best performance by English and Dutch trade riders. Those making a non-stop run will be awarded a large silver medal, and those who lose not more than twenty-five marks will receive a bronze medal. If more than one rider qualifies for a special award the prize will be granted to the rider who has adhered most closely to schedule time. The teams will consist of twenty English and twenty Dutch riders, ten of whom are private owners and ten trade riders, while all must be members of the F.I.C.M. or a body affiliated to it. The machines will be inspected at the Darracq Garage, 100, Stadhoudskade, Amsterdam, on September 6th, between 3.30 and 4.30 p.m. Circular number plates are to be fitted to the front wheels as in 1912 and 1913, the Dutch plate being orange and the English green, the numbers being in white. In addition, linen numbers must be carried on the back of the machine. Motor cycles must conform to touring conditions and must be fitted with horns, lamps, etc. Cut-outs are not allowed, and the exhaust must not discharge directly on the ground. The average speed will be between twenty-one and twenty-two miles per hour, while ten-mile limits must be observed. One mark per minute will be deducted for a competitor who is late or early of schedule time, but five minutes grace either way will be allowed. Any competitor making a compulsory stop will lose five marks. Checks close thirty minutes after schedule time of the latest man. Any competitor arriving after a check has been closed will lose forty marks.

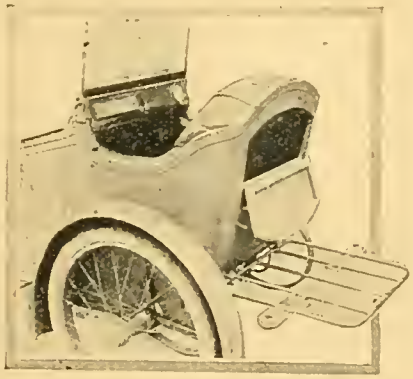
The question of the selection of the British team was gone into on Tuesday evening last week by the A.C.U. Competitions Committee, and an announcement was expected this week.



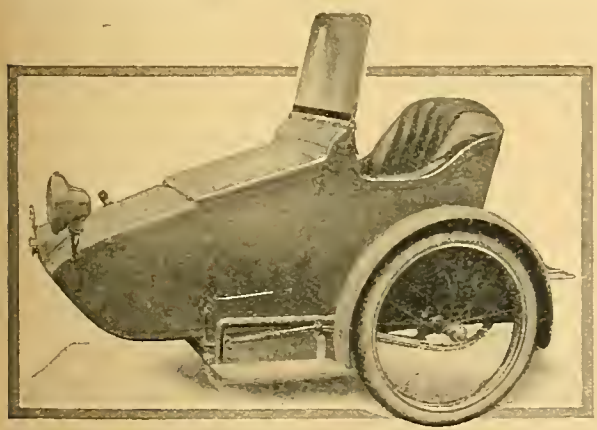
Position of mounting horn and R.A.C. badge on the front of the sidecar on the P. & M. described below.

A HANDSOME SIDECAR.

ONE of the most practical sidecars we have had the pleasure of inspecting was shown to us the other day at the premises of Messrs. Phelon and Moore, Ltd. It had been built to the order of Mr. B. Marians for his own use. The body is luxuriously upholstered, and at the back thereof is a spacious locker. The chassis is a Mills and Fulford, and a folding luggage grid is fitted behind. This is designed to take a Brooks travelling case, which is secured by a Brooks Instanta locking device. On the flap which goes over the passenger's knees are fitted shelves for goggles, maps, etc., a clock and a curved wind screen, while there is a further locker underneath the front portion which comes over the passenger's feet. A C.A.V. side lamp is fitted, and a Klaxon horn is neatly housed in the front of the body. Altogether it is a most luxurious and handsome affair, and is one of the best appointed sidecars we have yet seen.



The P. & M. sidecar, showing locker at the back and miniature "dash" with drawers and clock.



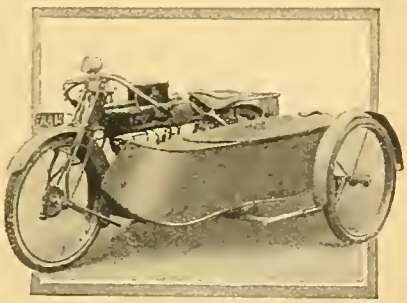
A handsome sidecar belonging to Mr. B. Marians, a director of Messrs. Phelon and Moore, Ltd.

PETROL ECONOMY.

In our report of the Midland Light Car Club's trial in the last issue, we mentioned the low consumption of the Morgan driven by V. Busby, but it now transpires that the winner of the President's Cup, Martin Anderson, on the Humberette, actually recorded the lowest consumption of the day. According to the official figures the petrol consumption was one gallon three pints for the ninety-two miles course, which equals a consumption of sixty-seven miles per gallon, or thirty-six ton miles to the gallon. These figures are certainly very remarkable for a 1,000 c.c. cycle car, and it may be mentioned that Anderson's Humberette was of the air-cooled type, and was fitted with a Smith four-jet carburetter, Harcourt radiators, and a Bowden extra air control.

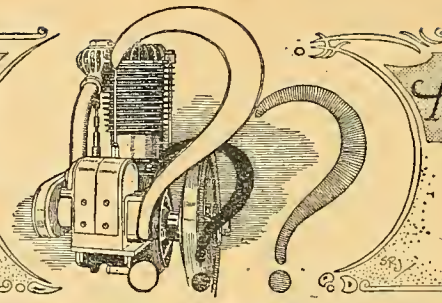
THE RALLY SIDECAR.

A SMART looking sidecar, which is extremely light withal, is the touring model Rally. The sporting model is now so well-known through its constant appearance in recent competitions, when it has more than once been driven to victory, that it needs no description. The touring model is on similar lines, but is more roomy and provides a more upright position for the passenger. The touring model retains the fine lines forward, and is extremely light, so much so that the manufacturers recommend it for use with quite light motor cycles. Whilst the body gives a low riding position there is ample ground clearance, and the excellent finish on the coach-built body may be carried out in any colour to suit customers' requirements. Prompt delivery can be obtained from the Rally Sidecar Company of Bradford Street, Birmingham.



A low-built Rally sidecar.

QUESTIONS AND REPLIES



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly, and on one side of the paper only, numbering each query separately, and keeping a copy for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Long Run for a Lightweight.

Can you oblige me with the best route from Horsham to Aston, near Sheffield, and the approximate distance? My machine is a 2¼ h.p. two-stroke. Could it do the journey in one day? —A.R.

We advise you to proceed *viâ* Guildford, Chertsey, Egham, Windsor, Slough, Beaconsfield, Amersham, Tring, Dunstable, Fenny and Stony Stratford, Towcester, Weedon, Daventry, Hinckley, Castle Donington, Derby, Chesterfield, Staveley, Beighton, and Aston. Since the distance is approximately 200 miles it would mean a very long day's ride, and we should certainly not advise you to push the machine to its utmost limits for any length of time, as you would have to do if you attempted to do the journey quickly. It would be much better to break your journey halfway, say at Daventry or Hinckley.

Excessive Oil Consumption.

My 3½ h.p. single-cylinder uses more lubricating oil than I think it ought to. I have to give it about five pumpfuls in every ten miles, which seems to me exorbitant, and even then I never have any trouble with the plug sooting up, and no oil leaks from the crank case; the crank case gets pretty hot as well. Recently, while out riding, the engine began gradually to require more and more gas and less air, until finally it would only run with the gas full on and the air off. I thought the jet of the carburetter must be choked, but after dismantling I found that such was not the case. Can you suggest to me what is the trouble?—W.R.C.

The piston rings may be too tight and cause binding, or too slack and cause blow back. Why we draw this conclusion is because of your remark with regard to overheating, which seems to point to blowing back of the exhausted charge. The consumption is, of course, tremendous, and the reason why the plug does not soot up is probably because it is in such a position in the cylinder as not to be in the path of any oil which might be flying about. The engine should certainly be examined internally. With regard to your other question, it is somewhat difficult to give a correct answer. What we think, however, it might be is that the inlet pipe flange has become loose and caused a large air leak to take place.

Silencing a Big Engine.

I have a big twin with an inefficient silencer. The front cylinder is effectively silenced, but the rear one is not. Would a tail pipe be any use? I have about two foot length where I could put such a pipe. Would it be better if the end of the pipe were closed and the cover or the side of the pipe drilled?—C.C.H.

The additional length of exhaust pipe would effect a great deal of improvement with regard to the silence. If you find that the silence is not as it ought to be, try flattening up the pipe and drilling a number of fine holes, or making saw cuts in the pipe, when we think you will be quite satisfied with the result.

Interesting Valve Query.

Can you kindly explain these points to me? Why do motor cycles not have rotary or sleeve valves? Are not rotary valves more simple in operation than poppet or sleeve valves? What are the respective merits of the long and short stroke engines? Which is the more economical on petrol?—R.M.M.

The reason why rotary valves have not been fitted to motor cycle engines is due to the fact that lubrication is a very difficult problem for such a type on an air-cooled engine. Again, sleeve valves have been experimented with, but they are extremely heavy for the capacity of the engine; also lubrication is not easy to arrange satisfactorily. A rotary valve is an ideal arrangement if designed correctly, but it is extremely difficult to keep the compression, especially if the engine is somewhat small. It is certainly silent, and, of course, will not break, but you are always up against the trouble of its seizing up when used in an air-cooled engine. The advantage of a long stroke engine is larger radiating surface per cubic capacity, and probably rather greater flexibility. You also get, in theory at any rate, more expansion out of the charge. It is impossible to say which is the more economical on petrol; it really depends entirely on the state of the carburation. The relative advantages of long and short strokes are much discussed.

A Trip to France.

I intend taking my 2½ Levis with me to France shortly, and should be much obliged if you would give me some particulars about the Customs, licences required, etc. I intend riding to Paris and then to Tours. As I understand the roads near Paris are very bad, I thought of leaving my machine in some town or village west of Paris. Would you advise me as to the best route, and the most convenient place to leave my bicycle while visiting Paris?—J.L.

You should join either the Auto Cycle Union or the A.A. and M.U. Procure an international travelling pass, and they will hand you a Customs card which will see you through the Customs without difficulty. You should cross either from Newhaven to Dieppe or Southampton to Havre, and avoid riding into Paris as you would the plague, as the roads in the suburbs are practically impassable. Pontoise is the nearest town to Paris where we recommend you to leave your machine.

Loss of Power.

I have a 1¾ h.p. Quadrant. The trouble is no power. I have taken the engine down, and have found that part of a rim, which projects about $\frac{1}{16}$in. above the cylinder, and which fits into a recess in the cylinder head, has been worn away, and that most of the charge escapes through it. I have tried packing with brown paper soaked in linseed oil, but it blows out again. Can you help me?—S.H.

Apparently the trouble is excessive loss of compression through the cylinder head joint. This joint will probably have to be treated by an engineer, put in a lathe, trimmed down, and a good copper and asbestos washer fitted. A brown paper washer is no good in this place. If the piston is a perfect fit and new rings are fitted, and also the engine bearings are in good order, there is no reason why the machine should not go as well as ever after you have cured the trouble you refer to.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and all that are notified to us are inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

Welding Cracked Cylinders.

I have just bought an old Bat motor cycle with M.M.C. (De Dion pattern) engine, and it is not running at all well. I find there are cracks in the exhaust valve seating. Would you recommend welding?—W.M.

Welding is quite satisfactory, but you would have to submit the cylinder to a welding expert before he could tell you if the repair could be carried out.

Blow Hole in Cylinder.

I have discovered a small blow hole in the valve pocket of the cylinder of my 3½ h.p. motor cycle. I shall be much obliged if you can tell me of a way in which I can repair same. Would it be better to bore a small hole and screw a bit of spoke in, or is there any iron cement made which would block it up to stand compression?—A.R.P.

There are iron cements, but, on the whole, we should advise you to bore a hole, thread it, and screw a plug tightly in with a copper washer under the head.

An Aid to Pedalling.

I have ridden an ordinary cycle for 34 years, but, although only 43, I find the hills rather trying, especially up and down in Plymouth as I go visiting my people. My mind wavers between an Auto-wheel and a lightweight. I weigh 13½ stones and stand 6ft. 3in. I feel that in and out of Plymouth streets I do not want a heavy motor cycle. I have been offered an old 3½ h.p. mount in very good condition for £18, but it has to be started with a run, and seems too big and heavy for street traffic. My work is mostly in town, though with an occasional run out, and I am not anxious for a machine that relieves me altogether from the pedal.—J.P.B.

As you wish to retain your pedals, we are inclined to advise an Auto-wheel. Pedals are almost unknown on motor cycles in these days.

READERS' REPLIES.

The Noises of a Two-stroke Engine.

Referring to letter from and reply to "Enquirer" in *The Motor Cycle* of July 9th, and to the fact that an engine makes a louder noise when approaching the hearer than it does when receding, I am not an engineer, but this is explained by the well-known "Doppler's Principle." When the engine is approaching, each wave of sound that leaves the engines has less distance to travel to the hearer than has the wave which preceded it, and this has the same effect as a shorter wave length, giving a higher note. When the engine passes the hearer, each wave has further to travel than the preceding one, and consequently the note falls. The best illustration of it is a railway engine whistle when a train is passing at full speed.—J.C.

In your issue of July 9th mention is made of the fact that the noise of a two-stroke engine is more apparent on the approach than on the departure, and the reply mentions the same thing in regard to other engines as well, but does not suggest an explanation. I think the explanation is simple. In the approach the ear receives a constantly increasing number of vibrations, whereas in the departure the vibrations as constantly decrease. Hence the change of pitch in the sound of a locomotive's whistle when an express rushes past—the pitch rising on the approach and falling on the departure.—AB 668.

I note that in your issue of the 9th inst. one of your correspondents remarks that the sound of a motor cycle engine is more noticeable when the machine is approaching than when it has gone by, and that you yourselves have been puzzled by the same phenomenon in the Gnome engine. I think the explanation of this difference lies in the fact that sound takes some appreciable time to travel, the velocity being known to be about 1,100 feet per second. Suppose an engine to be running "free." Each explosion will reach an observer at a certain definite interval after it has been made, according to his distance from the machine, but these intervals will all be the same, and he will hear the same number per second as if he were standing by the machine. Now imagine the clutch in and the machine moving rapidly towards him at the same engine speed. Each explosion will now reach him at a definite interval after it has been made, but these intervals will gradually diminish as the machine approaches and reduces the distance over which the sound has to travel, until they become zero when the machine reaches him, after which they will increase again. Thus, though the explosions all occur at intervals equal to the time of revolution of the engine (if a two-stroke), to the observer they will appear to occur at slightly smaller intervals, and the engine speed will appear to be greater than it is. Similarly, when the machine is receding, the engine speed will appear to be smaller. Taking an example. Suppose the engine running at 2,000 r.p.m., gear ratio 5 to 1, road speed approximately 30 m.p.h. It can be found by calculation that the engine revolutions will appear to be 2,080 when the machine is approaching and 1,920 when receding, which, I think, is quite sufficient to account for the observations made by you and your correspondent. —T.A.S.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"A.J.S." (Croydon).—Binks two or three-jet carburetter on 2¾ Levis. Easy starting, slow running, economy, and hill-climbing compared with Amac. Jet sizes.

"W.A.B." (Lee).—Single-geared Rudge. Wear of engine and reliability.

"D." (Northumberland).—Binks three-jet carburetter fitted to 7 h.p. Matchless or 8 h.p. J.A.P., comparing consumption and power with Amac carburetter.

"M.Q." (Rouen).—Side-slip with a Wall Auto Wheel.

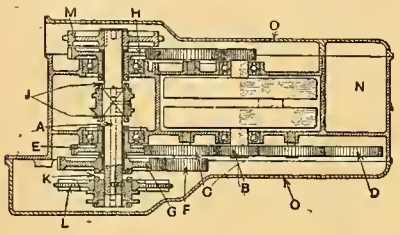
"M.W.B.S." (Bristol).—2¼ Baby Levis. Wear of belt; petrol consumption, capabilities of engine, general wear and tear, and ease of starting.

CYCLE CAR HILL-CLIMB AT SOUTH HARTING.

Nearing the summit in the class for racing machines. The driver is L. W. Spencer (8 h.p. Morgan).

Combined Engine and Speed Gear.

Behind the engine is arranged a counter-shaft A, which can receive power through three sets of gears, so that a three-speed gear is provided. On the engine crankshaft is a gear wheel, which meshes with the half-time gears C, of which the front one drives the magneto gear wheel D. The rear one drives a gear wheel E, which runs free on the counter-shaft. Alongside the rear half-time wheel is another gear F, which drives a gear wheel G free on the counter-shaft. On

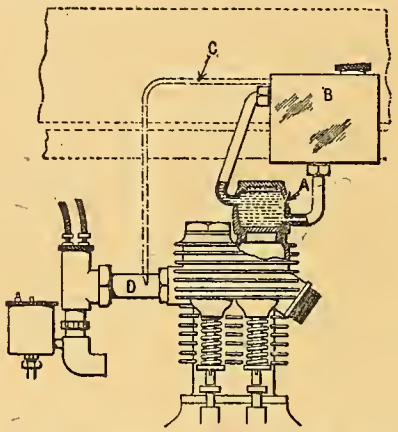


the opposite side is another gear wheel H, also free on the counter-shaft and driven from the crankshaft. By means of dog clutches at J and K any one of the gear wheels E, G, and H can be locked to the counter-shaft. Part of the kick starter is shown at L, and at M is a chain sprocket transmitting power to the rear wheels. The magneto is enclosed at N, and cover plates O are provided at each side to enclose all the gearing, which is lubricated by oil passing through apertures in the sides of the crank chamber.—A. E. Thomas, No. 12,617, 1913.

PATENTS, by Eric W. Walford

A Water-cooling Arrangement.

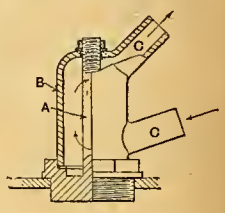
The exhaust valve cap is removed, and in its place is screwed the chamber A. This is connected by two pipes with a



water tank B. In this way the cap for the exhaust valve is water-cooled. By means of the tube C any steam forming in the tank is led into the induction pipe. —G. Lea, No. 13,966, 1913.

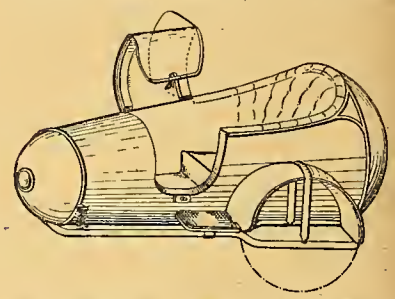
A Simple Water-cooling System.

The valve cap is provided with a central stud A, which clamps down on to the cap a chamber B formed with branches C. These branches are connected to a water tank or radiator, enabling the exhaust valve cap to be water-cooled. — W. W. Brown and A. W. Holland, 17,002, 1913.



A Sidecar Body.

Invention is claimed for the particular shape of this body, which is circular in cross section and tapers towards the front. The particular door and scuttle



arrangements will easily be understood from the illustration. In front of the door is a step, and to this is hinged the mudguard. Behind the seat is a receptacle for spares, etc.—J. Wathen, No. 5,514, 1913.

Consistent Wins.

At the recent M.C.C. Brooklands meeting M.A.G. engines gained no fewer than seventeen awards in various classes. Truly, a fine performance.

A Long List of Awards.

The successes of the Senspray carburetter during the month of June alone form an imposing list as long as the proverbial arm. Speed trials, hill-climbs, and reliability trials have all provided first awards to swell the numbers.

Three Speed Hubs.

A letter from H. G. Braybrooke, Port Elizabeth, S.A., speaks in the highest terms of the Armstrong three-speed hub. In the recent Rand-Durban race Mr. Braybrooke started forty-fourth and finished ninth, and his was the first hub-geared machine to finish.

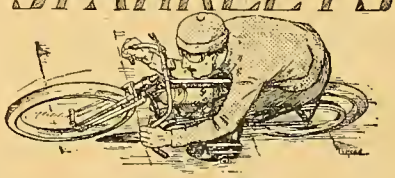
Avon Tyres.

Avon tyres put up an excellent record in the Six Days Trials. Three gold medals, the sidecar cup, and a bronze medal were won by machines using these covers. In the Colwyn Bay speed trials the same make secured five first places, six second, and four third.

Paris to the Hague.

We understand that Mynheer Emons, riding one of the new 7 h.p. four-cylinder F.N. motor cycles, has completed the journey between Paris and the Hague in 13h. 2m., thus securing a gold medal which was put up by *L'Auto Leven*, which was offered to any motor cyclist breaking the record of 13h. 18m.

SPARKLETS



Tyres and Trials.

Hutchinson tyre users scored in the strenuous A.C.U. Six Days Trials. Ten medals, seven gold, two silver, and one bronze, also the team prize, fell to riders of these tyres.

A Speedometer Refinement.

In a recent issue in which we published the description of the Stewart speedometer, we mentioned that the flexible shaft was covered in leather. This is not the case, the covering being of rubber, which is better suited to the exclusion of moisture from this delicate part of the mechanism.

Rims and Tyres.

The 2 h.p. O.K. which performed so well in the A.C.U. Six Days Trials, in the hands of N. Hall, was fitted with Roman rims, a fitting which is bound to be of great service over such rough surfaces, owing to the fact that they will not break and do not dent easily.

In the same eventful trials, Palmer tyre users were awarded six gold medals and one bronze.

The Ariel Abroad.

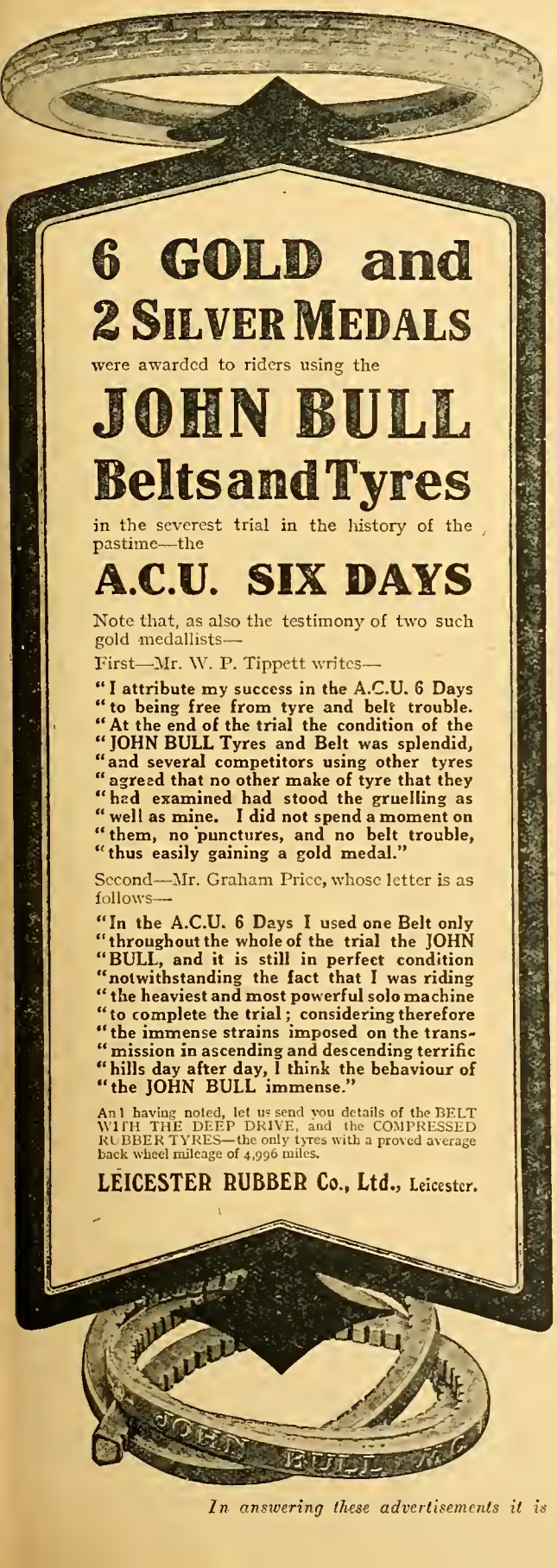
We have received an appreciation of the excellent performances of the 3½ Ariel in the Colonies. Mr. R. W. McClure, who lives in the western part of New South Wales, writes that he has ridden all models from 1909 to 1914 inclusive, and his testimony of their performances over the rough cart tracks and bumpy roads is a good proof of the excellence of manufacture.

Royal Ruby Successes.

An 8 h.p. Royal Ruby and sidecar, piloted by J. Ellis Walker, is making a reputation for itself in Yorkshire. In the Bradford Club's handicap hill-climb it obtained a first award, and in the speed trials held by the same club, besides winning the sidecar event, it was awarded a special gold medal for making fastest time of the day, its speed being only just under 60 m.p.h.

Economy of Efficient Radiators.

A point which is not generally recognised in connection with cool running engines is their economy in oil consumption. This is one of the claims put forward by the inventor of the Harcourt radiator, which fitting is, incidentally, being extensively adopted. During the A.C.U. Six Days Trials C. O. Henfrey ran out of oil on his 3½ h.p. Ariel, and was obliged to cover the remaining seventy miles without any lubricant. He considers that this would have been impossible without Harcourt radiators, but by their aid he was actually successful in covering the distance stated.



6 GOLD and 2 SILVER MEDALS

were awarded to riders using the

JOHN BULL Belts and Tyres

in the severest trial in the history of the pastime—the

A.C.U. SIX DAYS

Note that, as also the testimony of two such gold medallists—

First—Mr. W. P. Tippett writes—

"I attribute my success in the A.C.U. 6 Days "to being free from tyre and belt trouble. "At the end of the trial the condition of the "JOHN BULL Tyres and Belt was splendid, "and several competitors using other tyres "agreed that no other make of tyre that they "had examined had stood the gruelling as "well as mine. I did not spend a moment on "them, no punctures, and no belt trouble, "thus easily gaining a gold medal."

Second—Mr. Graham Price, whose letter is as follows—

"In the A.C.U. 6 Days I used one Belt only "throughout the whole of the trial the JOHN "BULL, and it is still in perfect condition "notwithstanding the fact that I was riding "the heaviest and most powerful solo machine "to complete the trial; considering therefore "the immense strains imposed on the trans- "mission in ascending and descending terrific "hills day after day, I think the behaviour of "the JOHN BULL immense."

And having noted, let us send you details of the BELT WITH THE DEEP DRIVE, and the COMPRESSED RUBBER TYRES—the only tyres with a proved average back wheel mileage of 4,996 miles.

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Chemical or physical tests of oil are often misleading.

Two oils of the same gravity or weight differ in efficiency, and two oils of the same flash point may be entirely unlike in action.

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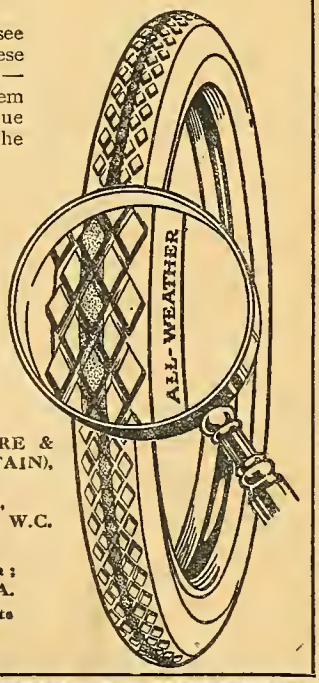

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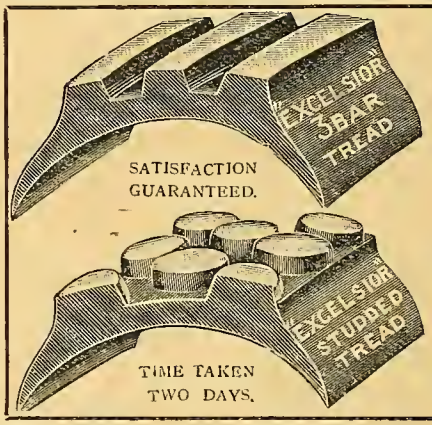

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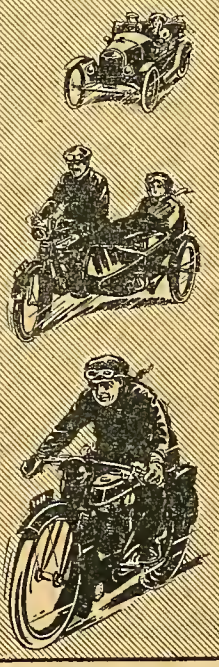

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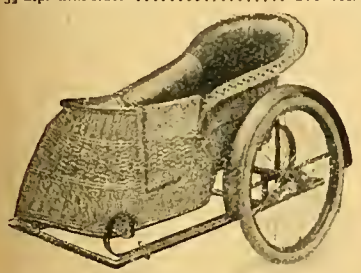
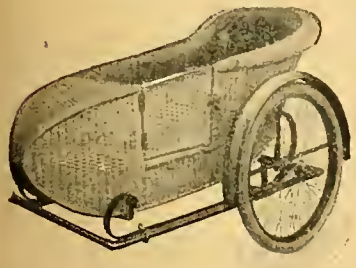


MODEL 9.—£7 7s.



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1913 Bat, 8h.p., not run 500 miles; £40; exchange lower power.—Brown, Bishopthorpe, York. [5758

BAT, 1914, 4½h.p., No. 1 model; catalogue price £57/10, cash offers wanted.—Layton's, Bicester, Oxon. [X6614

BAT-J.A.P., 1911, 3½h.p., accessories, good running order, tyres good; nearest £12.—Dawes, Stourport Rd., Bewdley. [X6549

BAT, 1914 models, in stock for immediate delivery; cash, exchange, or easy payments.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0438

1913 6h.p. Bat, chain drive, 2-speed, with 1914 large coachbuilt sidecar, all as new; £56.—Nuttall, 54, St. Germain St., Farnworth, near Bolton. [X6555

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BAT Cycle for sale, 5-6h.p., free engine, just overhauled and re-bushed, 1913 B. and B., Roia tyre, 1in. Lyso belt; £30; seen by appointment.—Cusden, 44, Melford Rd., Dulwich, S.E. [5731

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BRADBURY, 1911, 2-speed, lamp, horn, speedometer; £22.—137, Wakehurst Rd., Clapham Common. [5943

1912¾ Bradbury, 3-speed, and sidecar, 1913 fittings; any trial; £38.—45, Redgrave St., Oldham. [X6514

BRADBURY, 6h.p., 3 speeds, shop-soiled only; offers wanted.—Turpins 22 and 29, Preston Rd., Brighton. [0510

1913 Bradbury, new, 3-speed, belt drive; accept 47 gns.—Morriss, 139, Finchley Rd., Swiss Cottage. [X6044

BRADBURY, 1913, 3-speed, Dunlop tyres and belt, all like new; £40, or best offer.—Loke, Winchester. [X6603

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BRADBURY, 1913, 2-speed, 3,000 miles, excellent lamp and horn; £32/10; appointment.—Holmewood, Capel Rd., E. Barnet, N. [X6046

BRADBURY, 2¾h.p., B.B., Michelin, Avon, footrests, lamp, horn, good condition; trial after 6; £9.—Albrow, Stoke Poges, Slough. [5814

BRADBURY and Sidecar, 4h.p., splendid combination; cheap for cash.—Longman, 46, Hillcrest Rd., Acton. Tel.: Chiswick 54. [5873

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£20	**KERRY**, 3½ h.p., 1912, Bosch, excellent order and condition, bargain	£28
£32	**BAT**, 8 h.p., 1912, variable gear, torpedo Sidecar, excellent order	£40
£20	**PREMIER**, 1913, 2½ h.p., fixed gear, excellent lightweight	£22
£20	**ARNO**, 3½ h.p., 1912, grey finish, magneto, good tyres, spring forks	£22
£39	**REX-J.A.P.**, 6 h.p., 2 speeds, Cowey indicator, excellent order and condition	£40
£22	**HUMBER**, 3½ h.p., 1909, 2-speed model	£25
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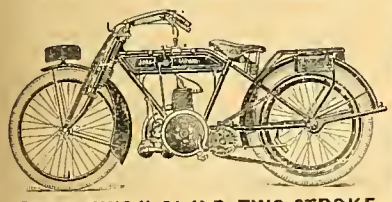

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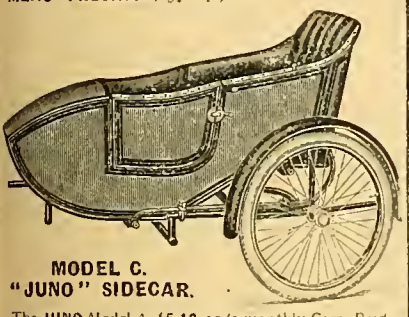

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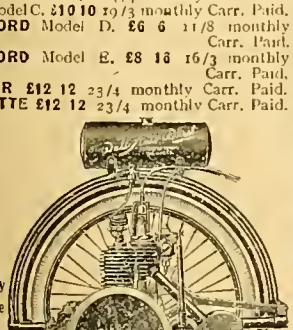

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F.N., 4-cyl., 5-6h.p., splendid condition; £18; exchange entertained.—5, Elsdon Rd., Tottenham. [5699

F.N., 5-6h.p., 4-cyl., 1912, magnificent order; bargain, £22/10.—Apply, 48, Sumner Rd., Peckham, London. [5834

1914 7h.p. 3-speed F.N.'s; £78; immediate deliveries.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [3759

2-SPEED Shaft-driven Lightweight F.N., in splendid order; accept £14 for quick sale.—Earl, 5, Heath St., Hampstead. [X6589

F.N. Lightweight, mag., 1914 B.B. carburetter, good tyres, very low; accept £8/5, offers.—E., 208, Camberwell Rd., S.E. [5849

F.N., 4-cyl., 1913½, fully equipped, foot plates, etc., faultless, fast; £40.—Copeland, The Cottage, Lower Park, Loughton, Essex. [5798

SMART 1914 F.N., 2½h.p., as new, at a bargain price; also immediate delivery of 1914 F.N. models.—Heath, F.N. Agent, Salford Priors, Warwickshire. [X6636

7h.p. 1914 New 4-cyl. F.N. m.o.v. Models, for immediate delivery from stock; solo price £78, fitted with the F.N. sidecar £96; easy terms or exchange arranged.—Wauchope's, 9, Shoe Lane, E.C. [X6483

Grado.

4h.p. Grado Motor Cycle, T.D.C. engine, Bosch mag., Avon tyres, 2-gallon tank, Lycetts T.T. saddle, toolbags, free engine, variable pulley; £25, or with coachbuilt sidecar, Lindum couplers, Avon tyre, £30, complete.—Osborne, 67, Stratford Rd., Birmingham. [X6550

Grandex.

1914 Grandex Green Precision, 2¾h.p., 3-speed, very fast machine; £30.—Porter, 3, Logan Mews, Earl's Court Rd. [5765

Hazlewood.

5h.p. Hazlewood-Jap, 1913½, 13 gn. coachbuilt sidecar; cost £80, £55.—Box 6,489, *The Motor Cycle* Offices, Coventry. [X6377

1914 5-6h.p. Hazlewood, 3 speeds, new Whit. week, and only ridden 500 miles; cost £68/5; sacrifice for £58.—125, London Rd., Manchester. [0562

HAZLEWOOD Competition Machine, 1914 5-6h.p. twin model, special J.A.P. engine, all gold medal winner, good as new; £40.—52, West Orchard, Coventry. [5939

Henderson.

HENDERSON, 1914, Feb., not 4,000 miles, 2-speed, F.E.; 57 gns.—Morriss, 139, Finchley Rd., N.W. [X6047

HENDERSON Combination, 8-10h.p. 2-speed model, practically new; cost £110, accept £75.—Earl, 5, Heath St., Hampstead. [X6588

Humber.

HUMBER, 2h.p., mag., B. and B. carburetter; £15/10.—Shuker, Shrewsbury. [0542

HUMBER, 3½h.p., 1911, 2 speeds, F.E., perfect; £21.—153, Wansbeck Rd., Jarrow. [X6674

HUMBER, 3½h.p., 2-speed, and coachbuilt sidecar; £32.—Seal and Ball, Southport. [X6585

2¾h.p. Humber twin-cyl., 3-speed gear, scarcely used; £35.—A. D. Clarke, 53, Hall Gate, Doncaster. [0519

HUMBER, 1913, 2¾h.p. twin, splendid condition, speedometer; £25.—Seal and Ball, Southport. [X6583

HUMBER, 2h.p., 1912, in splendid condition, lamp, horn; £14.—L. Nicholson, Caynton, Newport, Salop. [X6460

1913 2h.p. Humber, only done few hundred miles; £19; seen any time.—68a, Delancey St., Camden Town. [5702

HUMBER, 3½h.p., 1912, free engine, 2-speed; £25, or with wicker sidecar £30.—43, Brisbane Av., Merton. [5806

HUMBER, 3½h.p., 2-speed, handle starting, mag., B. and B. carburetter, good order; £25.—Shuker, Shrewsbury [0543

HUMBER, 1914, 2¾h.p., 3-speed twin, brand new; list 50 gns., accept £38.—P. J. Evans, John Bright St., Birmingham. [X6539

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NEW 1914 MOTOR CYCLES.

DOUGLAS, Model "B"	£62 0
B.S.A., 3½ h.p., 3-speed, chain drive	£63 0
EDMUND-M.A.G., 3½ h.p., twin-cyl., 2-speed, spring frame	£63 0
TRIUMPH, 4 h.p., 3-speed	£60 0
DOUGLAS, Model W	£52 0
ZENITH, 6 h.p., clutch model	£75 12
DOUGLAS, Model V	£48 0
NORTON, 3½ h.p., T.T. Roadster	£50 0

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ZENITH-GREEN, 3½ h.p., water-cooled .. ,,	£43

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1576.	**INDIAN,** 2-speed	£56
1569.	**ROYAL ENFIELD** and Sidecar, large lamp and horn, spares, etc.	£74

1913

	ALCYON, 2 h.p.	£24
	ALCYON, 2½ h.p.	£29
1581.	**DOUGLAS,** Model R	£40
1580.	**RUDGE-MULTI** and sidecar	£44
1533.	**B.S.A.,** 3½ h.p., 2-speed	£42
1565.	**HENDERSON,** 8-10 h.p., 4-cylinder	£55
1553.	**INDIAN,** 7 h.p., 2-speed	£48
1433.	**REGAL,** 4¼ h.p., 1912 frame, 2-speed	£37
1542.	**ZENITH,** 6 h.p.	£45
1572.	**ZENITH,** 8 h.p., special competition machine, large tank, etc.	£56
1566.	**B.S.A.,** 1913-14, Special, fitted with Armstrong 3-speed gear, and large tanks	£45

1912

1457.	**HENDERSON,** 7 h.p. F.E.	£39
1582.	**ZENITH,** 9 h.p., and sidecar	£45
1579.	**MATCHLESS,** 6 h.p. F.E.	£35
1575.	**BRADBURY,** 3½ h.p.	£25
1578.	**BRADBURY,** 3½ h.p.	£27
1430.	**F.N.,** 5-6 h.p., 4-cylinder, 2-speed, and Sidecar	£29
1453.	**ZENITH,** 8 h.p., and Sidecar	£46
1542.	**ZENITH** 6 h.p.	£42
1567.	**ZENITH,** 6 h.p., T.T. roadster	£39

1911

1545.	**CHATER-J.A.P.,** 2½ h.p.	£16
1478.	**ZENITH,** 3½ h.p.	£26
	— ALSO —	
1571.	1910 **DOUGLAS,** 2¾ h.p.	£15

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Humber.

HUMBER, 3½h.p., 2-speed, 1913, 13 gn. sidecar (optional); nearest £42; trial; want 2¾h.p.—Hirst, Park View, Holmfirth. [X649

HUMBER, 1914, water cooled, brand new, Sturmey Archer 3-speed, with £12/12 coachbuilt sidecar, £62.—Plastow, Grimsby. [X652

1913 3½h.p. Humber, Sturmey-Archer 3-speed and free engine, only run 500 miles; 40 gns.—Carnforth Motor Co., Carnforth. [509

HUMBER, 1911½, 2-speed, free, handle starting, coachbuilt sidecar; offers wanted, or exchange twin.—330, High Cross, Tottenham. [589

HUMBER, 1913 2¾h.p. twin, 3-speed, free engine, horn, and all tools, just overhauled; genuine, £3 —Joyes, The Laurels, Fittleworth, Sussex. [X641

HUMBER 2¾h.p. Twin, 1913¾, F.E., as new, T.T. very fast, accessories; £29, or exchange 3½h.p. Thos. Bradshaw, 865, High Rd., Tottenham. [X656

HUMBER, 1911, 2-speed, free engine, splendid condition, coachbuilt Paragon sidecar, as new; £30. Macey, 178, Pentonville Rd., King's Cross. [588

1913½ Twin 2¾h.p. Humber, 3-speed, free engine, Dunlop tyres, scarcely used; £35, or nearest offer.—Box 6,488, *The Motor Cycle* Offices, Coventry. [X63

1913 Twin 2¾h.p. Humber, Dunlop cover front, new studded Hutchinson back, Lycett saddle, lamp and horn; £20.—Robinsons, Green St., Cambridge. [863

HUMBER, 3½h.p., 1912, 2-speed gear, handle starter with Millford £13 sidecar, guaranteed; £35.—Premier Motor Co., Ltd., Aston Rd., Birmingham. [053

BRAND new 1914 2¾h.p. 3-speed Twin Humber, unsoiled, fully guaranteed by makers; usual price £52/10, our price £40.—Parker and Son, St. Ives, Hunts [045

2¾h.p. Twin Humber, Armstrong 3-speed gear, excellent condition, perfect order, fast and reliable, only been run 12 months; £25.—Timberlake, Wigan. [X65

HUMBER Lightweight, 1913, 2h.p., in splendid order, lamps set, horn, and tools, complete £20.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [05

HUMBER, late 1913, many improvements; £18/10 complete with lamp and horn; opportunity for picking up cheaply an absolute genuine motor cyclette.—Cumnore Depot, 31, Colmore Row, Birmingham. [X64

3½h.p. Humber, Sensspray, Empire de Luxe pan, multi-speed pulley, spring forks, carrier, lamp, horn, spare valves, all good condition guaranteed; photo £11; extra low.—W. W. Ridler, Dunster, Somerset. [58

3½h.p. Humber, 1912, 2-speed, handle start, P. and H. lamp (rear), horn, Whittle, new exhaust valve, recently overhauled, Millford castor sidecar, Palmer Dunlop, Rom tyres good, condition like new; £40; seen after 6 p.m., except Saturday and Sunday.—Arch, 19 Carlisle St., Westminster Bridge Rd., S.E. [59

Indian.

INDIAN, 1911, 7h.p., clutch, good condition; £30 Seal and Ball, Southport. [X65

INDIAN, Hendee Special model; £80, complete; stock.—The Exeter Motor Cycle and Light C Co., Ltd. [05

INDIAN, 1913, 7h.p., spring frame, with Millfo sidecar and all accessories; £53.—Seal and Ba Southport. [X65

5h.p. Red Indian, 1912 model, complete with rea smart sidecar; £30.—Cordingley, Hasliogde Tel.: 102. [X50

INDIAN, 1911 model, 3½h.p., 2 speeds, free engi complete with sidecar; £28/10.—Cordingley, H lingden. Tel.: 102. [X50

INDIAN 1914 7h.p. Coach Combination, electric lamp horn, and speedometer; £68.—P. J. Evans, Jo Bright St., Birmingham. [X68

INDIAN, 7h.p., 1914, electric equipment, Gloria coa built sidecar, run 1,600, bought May; owner chased car; £70.—Denkin, Fieldhead, Selly Oak. [X64

INDIAN, 1913½, 7h.p., Millford coachbuilt si car, very fast, good condition, tools, spares, Mil lamp set; 55 gns.—Butterworth, 64, Mill La Brixton Hill. [X65

1914 Indian, 7h.p., standard model, complete w electric lighting set, electric horn, speedome and all spares, together with coachbuilt sidecar, only 500 miles, perfect condition; first good offer secure W. Knight, Stockton Heath, Warrington. [X6

1914 Hendee Special, with coachbuilt sidecar, in re blue (Mills-Fulford), electric self-starter, l lamps, etc., complete, scarcely used, in perfect conditi 75 gns., no offers; owner going abroad sole reason selling.—Box L5,470, *The Motor Cycle* Offices, 20, Tu St., E.C. [4

Ivy.

IVY-PRECISION, 1913½, Armstrong 3-speed, Sensi carburetter, F.E.S. lamp set, Isochronous spe ometer, all spares, perfect, only done 400 miles; £58/18, bargain, £45.—H., 188, Fore St., Edmonto [5

James.

JAMES, 1913½, 4¼h.p., 3-speed gear box combinat coach sidecar, in very good order, ridden under 2 miles; £58/10, or on E.P.—Lamb's, 151, High St., Thamstow. [5

MOTOR CYCLES FOR SALE.

Precision.

PRECISION Lightweight, 1914, 2h.p., 2-speed, condition as new, not run 500 miles bargain; owner bought sidecar combination; any trial; photo.—49, Constitution Hill, Birmingham. [X6627

Premier.

PREMIER Depot, 20, Holborn Viaduct.

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1912 3½h.p. Premier, Sturmey 3-speed gear, and new coachbuilt sidecar; £40.

1912 3½h.p. Premier, 2-speed gear, and £13/13 cane sidecar; £35.

1913 3½h.p. Premier, 2-speed counter-shaft or 3-speed hub gear; from £35.

ALL Second-hand Premiers before re-sale are thoroughly overhauled, and we guarantee them to be in perfect order.

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PREMIER Showrooms, 20, Holborn Viaduct. Call, 'phone, or write. [5914

PREMIER, 1914, 3½h.p., counter-shaft, 3-speed, only soiled; accept £55.—Seal and Ball, Southport. [X6580

PREMIER 1912 2½h.p. Lightweight, good condition, lamp, horn; £16/10.—Layton's, Bicester, Oxon. [X6603

1912 Premier, 3½h.p., 3-speed, and sidecar; £35; exchange.—Hilton and Son, Foxhall Sq., Blackpool. [X6494

PREMIER, 2½h.p., May, 1914, Armstrong Mark VII. gears, large tank, speedometer; 36 gns.—14, Gilbert Rd., Bromley, Kent. [5736

PREMIER, 3½h.p., 3-speed counter-shaft; £61/10; actually in stock.—The Exeter Motor Cycle and Light Car Co., Ltd. [0508

PREMIER, 1914, 2½h.p., single-gear model; catalogue price £36, our price whilst they last £25/10.—Layton's, Bicester, Oxon. [X6616

PREMIER, 1912, 3½h.p., 3 speeds and clutch, splendid order, ridden solo only, a good sidecar mount, in guaranteed good order; £34.—Below.

PREMIER, 1912, 3½h.p., standard touring model, in good order, with accessories and tools complete, and guaranteed; £22.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0460

PREMIER, 3½h.p., Armstrong 3-speed, wicker sidecar, splendid condition; no reasonable offer refused for quick sale.—70, Wayland Rd., Sheffield. [X6037

PREMIER, 1914, 3½h.p., counter-shaft 3-speed, kick starter, new, only done 200 miles; £53, or nearest offer.—Dovidson, 344, Fore St., Edmonton. [5990

PREMIER, 3½h.p., 3-speed, F.E. clutch, and torpedo sidecar, all accessories, lamps, etc., in excellent condition; £35.—Crisp, 62, Wellington St., Woolwich. [5762

PREMIER, 1913, 3½h.p., 2-speed counter-shaft gear, with Millford sidecar, and all accessories, only done 1,000 miles, better than new.—Boyce, 275, Archway Rd., Highgate. [5811

EXCEPTIONAL Bargain.—2½h.p. Premier, Bluks latest automatic carburetter, hand controlled clutch, accessories; £24, new machine.—H. Messent, 7, Beresford St., Camberwell. [5769

PREMIER, 1912½, 3½h.p., 2-speed, lamp, horn, £36/10; also another, 1912½, 3-speed, £35, or E.P., quarter down, and 12 instalments.—Lamb's, 151, High St., Walthamstow. [5896

1913 3½h.p. 2-speed counter-shaft Premier, speedometer, lamp, horn, Corvette sidecar, fine climber, superb order; £45.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [5920

1913 3½h.p. 2-speed Premier, handle starting, with lamp and Lucas horn, Kempshall tyre on back, Dunlop front, with all tools, etc.; price £28.—Robinsons, Green St., Cambridge. [8623

PREMIER, 1912, 3½h p. T.T., recently overhauled makers, new cylinder and piston last month, many 913 improvements, very fast, lamp, horn, tools; 24 gns., r nearest; owner going abroad.—Farquhar, Chantry Garage, Hatch End. [5788

Puch.

1912 5-6h.p. Puch and sidecar, Mabon clutch; £19/10 —Sproston and Grace, 154b, Gt. Titchfield St., W. [5831

Quadrant.

3½ Quadrant, mag., free, 2-speed, good tyres, low, mechanically sound; £21.—Oglanby, Spennymoor. [5773

3h.p. Quadrant, 2-speed, mag., and sidecar; clear for £6/10.—Cordingley, Haslingden. Tel.: 102. [6010

Regal.

REGAL-GREEN Motor Cycle for sale, water-cooled, 1913-14 model, complete with sidecar; special cash offer, £45.—Hanley Garage, Ltd., Cheapside, Hanley, Staffs. [5433

REGAL-PRECISION, 1913, 3½h.p., Jardine 2-speed gear, chain drive, spare sprockets and chains, splendid sidecar machine; £36, with sidecar £40.—Abraham, Grove Lodge, Muswell Hill. [5959

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CLYNO Combination, 6 h.p.	£91 0
LEA-FRANCIS, 3½ h.p.	£68 5
P. & M., 3½ h.p., 2-speed	£65 0
F.B., 2½ h.p., 2-stroke	£26 5

1914 SIDECARS.

MILLFORD Corvette	£12 12 0
MONTGOMERY Coachbuilt	£10 10 0
GLORIA No. 5	£23 2 6

THIS WEEK'S BARGAINS

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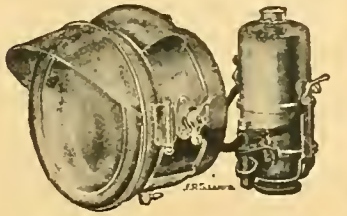
CLYNO 1914 Combination, run only 50 miles; cost £93	£88 0
CORAH-J.A.P., 3½ h.p., very fast	£29 0
HENDEE Special 1914 Combination, hardly used	£78 15
P. & M., 1912, 2-speed	£37 10
TRIUMPH, 1911, clutch model	£24 0
TRIUMPH, 1911, 2-speed, and coachbuilt Sidecar	£32 0
ZENITH, Gradua gear, and Sidecar	£31 0



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Rex.

5-6h.p. Twin Rex, new piston.—Patient, Gt. Totham, Essex. [X6435

£5.—Rex, good tyres, wants tuning up.—65, Pitfield St., Shoreditch. [X6053

1911 6h.p. Twin Rex, 2-speed and free engine; £24.—Baines, Crane St., Leicester. [5978

1913 4h.p. Rex, 2-speed, and free engine; £27/10.—Baines, Crane St., Leicester [5981

6h.p. 2-speed Rex, and wicker torpedo sidecar; £30.—Meadley, Ruskin College, Oxford. (D) [X6440

REX, 3½h.p., Bosch mag., fine machine, fast and powerful; £12.—Speechley, 45, Church Rd., Acton. [5928

REX, 3½h.p., Mabon clutch, Sensspray, P. and H. lamp, Bosch; bargain, £20.—50, Sherwood St., Nottingham. [X6510

REX Sidette, 1914, twin-cyl., 2 speeds, coachbuilt, splendid order; £57/10, bargain.—Lloyd, Victoria Terrace, Leamington. [X5773

4h.p. Rex, 1912, free engine, just fitted new frame, same as new throughout, Bosch, horn, etc.; £28.—T. Parrish, Aveley, Essex. [X6438

5h.p. Rex Twin, Bosch, B. and B., 2-speed, and F.E., with cane sidecar, and screen, complete; £18.—Boys, Montague Place, Worthing. [5739

REX, 5h.p., and sidecar, 1912, N.S.U. 2-speed, Bosch, B. and B. carburetter, new tyres and belt, splendid condition; £22/10.—Woolf, Camden Rd., Ipswich. [5960

REX Sidette, 1914, 6h.p., 2 speeds, handsome coachbuilt body, not run 100 miles; £67/10.—Bastone's, 228, Pentonville Rd., King's Cross, London, N. [5392

REX 6h.p. Twin and Sidecar, splendid condition, climb anything, 2 speeds, free engine, Bosch; £30; consider single part exchange.—Barratt, Fairfield, Buxton. [X6500

REX 6h.p. 1913 2-speed model, complete with Rex coachbuilt sidecar, splendid condition, ideal combination for touring; £48; exchange considered.—A. Holland, Clarendon St., Coventry. [X6679

REX.—Latest 1914 models for immediate delivery; no extras for easy payments; best exchange allowances. Trade supplied; largest London dealers.—Maudes, 136, Gt. Portland St., London, W. [8362

Rex Jap.

REX and Rex-Jap, 1914 models; keen exchange quotations.—Collier's, Westgate, Halifax. [0390

REX-J.A.P., 1912 De Luxe Model, 8h.p., 2-speed coachbuilt sidecar, in very good order; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

REX-J.A.P., 1913, 8h.p., De Luxe model, torpedo coachbuilt sidecar, overhauled and guaranteed perfect; £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Roc.

ROC, 2-speed, F.E., Druid forks, Bosch mag., recently overhauled, £22, bargain.—Taylor, Merrybent St., Todmorden. [X6632

Rover.

1911 Rover, 24 gns.—Julian, 84, Broad St., Reading [X6385

1912 Free Engine Rover, very nice machine; £33.—A. J. Young, Newmarket. [5924

3-SPEED Rover, late 1913, as new; £47/10, bargain.—A. J Young, Newmarket. [5923

ROVER Combination, 3-speed, late 1913, perfect condition; £52/10.—95, Willes Rd., Leamington. [X6628

3½h.p. Clutch Rover and sidecar; £35; new condition; bargain.—Simmons, Church St., near Rotherham. [X6602

1912½ 3½h.p. Rover and sidecar, horn, lamp, generator, and tools, complete; £30.—King, Sunnyside, Staplesford, Cambs. [X6604

1913 Rover Combination, Rover coach car, all best lamps and horn, excellent condition; a bargain, £50.—Timberlake, Wigan. [X6575

3½h.p. Rover, free engine, as new, only done 500 miles, speedometer, lamp, etc.; £32.—Woods, 113, Enton Terrace, 5286 Victoria. [5886

1912 3-speed Rover, recently thoroughly overhauled, and nearly new 1913 Rover coachbuilt sidecar, horn, head lamp, tail lamp, and all accessories; £40.—Turner, c/o Dan Guy, Weymouth. [X6668

ROVER, fine 1913½, 3½h.p., 3-speed model, together with Rover coachbuilt sidecar, F.R.S., speedometer, mirror, horn, etc., beautiful order, cost £85, only run 2,000 miles; first £47/10 secures this bargain.—45, Wherstead Rd., Ipswich. [X6651

Royal Ruby.

1914 Royal Ruby, shop-soiled; 22 gns.—Julian, 84 Broad St., Reading. [X6338

1914 2½h.p. Royal Ruby, as new; bargain, £19/10.—Sproston and Grace, 154b, Gt. Titchfield St., W. [5829

Rudge.

3½h.p. Rudge Multi; £58/15.—Cordingley, Haslingden. Tel.: 102. [X5098

RUDGE Multi, excellent order; exchange Douglas.—Jackson, New Rd., Kendal. [X6043

MOTOR CYCLES FOR SALE.

Rudge.

3½h.p. Rudge Multi, beautiful order; £35.—City Motor Co., 125, London Rd., Manchester. [0564

3½h.p. Rudge, free engine, T.T. bars; holiday snip, £18/10.—79, King George St., Greenwich. [X6658

RUDGE Multi, 1913, 5-6h.p., good tyres and belt; £42.—P. J. Evans, John Bright St., Birmingham. [X6540

1912 Rudge Multi, lamp, horn, tools, in really splendid trim; £35.—Cordingley, Haslingden. Tel.: 102. [X5104

RUDGE, 1914, T.T., 3½h.p., speedometer, lamp set, perfect condition; £36.—Seal and Ball, Southport. [X6581

1913 5-6h.p. Rudge Multi, in splendid condition; will accept £40, or near offer.—Walker Fishburn, Ferryhill. [X6676

1912 Rudge Multi, complete with £13/13 cane sidecar, ready to ride away; a snip, £37.—20, Holborn Viaduct. [5912

RUDGE, 1912, T.T. roadster model, Senspray carburetter; price £25.—Box L5,673, *The Motor Cycle* Offices, 20, Tudor St., E.C. [5716

3½h.p. Rudge Multi, 1913½, clutch, tyres first-rate, accessories, complete, in first-class condition; £40.—Manning, 53, Park Rd., Coventry. [X5803

FOR Sale, 1912½ Rudge, 3½h.p., free engine, with sidecar, splendid condition; £38; very fast; offers.—A. C. Madge, Camfield, Rochford, Essex. [5719

1911 T.T. 3½h.p. Rudge, N.S.U. 2-speed and free engine, lamp, horn, tools, etc.; £30, big bargain.—Cordingley, Haslingden. Tel.: 102. [X5102

RUDGE Multi, 3½h.p., 1913 model, complete with sidecar, lamp, horn, tools, etc., as new; exchange; £47/10.—Cordingley, Haslingden. Tel.: 102. [X5103

T.T. Rudge, very fast, and good condition, complete with lamp, horn, usual spares, must be sold; genuine bargain, £24/10.—Todd, 617, Finchley Rd., Hampstead. [X6565

RUDGE Multi, 3½h.p., 1912½, sidecar, speedometer, 3 lamps, accessories, spares, condition perfect; £40; trial.—Lee, Corriegills, Park Drive, Golder's Green, N.W. [5880

RUDGE Multi, 3½h.p., new Feb., 1913, run 2,600 miles, Miller 28H. head light, Watford speedometer, unpunctured, spares, overalls, horn; £45.—Vinson, Moukton, near Ramsgate. [X6467

WANTED, offers for 1914 Rudge Multi, free engine, multi plate clutch, pedal engine starter, multi speed gear, large petrol tank, not been used, just as received from makers.—J. Peck, Ely, Cambs. [X6417

1913½ Rudge Multi, 5-6h.p., Rudge sidecar, Clair silencer, Lucas horn, Cowey speedometer, 2 new tyres, 2 belts, spare valves, guaranteed sound running order; £50; privately owned.—Esquiries, Jackson's Garage, Knutsford. [X6594

1913 3½h.p. Rudge, T.T. model, Lucas lamp and generator, Cowey speedometer, horn, knee grips, new 1914 Senspray carburetter, 1914 bearings throughout engine, Bates and Dunlop tyres, Pedley belt, and full tool kit, splendid condition; any examination; fast; £33/10. — Apply, 2, Welbeck Rd., Southport. [5607

Scott.

1914 Scotts: cash or exchange.—A. J. Young, Newmarket. [5098

LATE 1913 Scott, with 1914 fitments, perfect; bargain, £45.—A. J. Young, Newmarket. [5922

1912 Scott, 3¾h.p., overhauled, splendid condition, good tyres; £35.—Batten Bros., Exeter. [5703

SCOTT 1914 models in stock for immediate delivery.—Doncaster Autocars and Cycles, Ltd., Doncaster. [0450

SCOTT, 1913, brand new, unsoiled; £55, or near offer, usual price £68; exchanges entertained.—Ginger Motors, Banbury. [X5788

SCOTT, 1914, new July 9th, used 200 miles, perfect condition; special price to clear.—Layton's, Bicester, Oxon. [X6621

BRAND New 1914 Scott, never been on road; sacrifice for £60, must sell.—Wiltshire, 52, Barnsley St., Wigan. [X6576

3¾h.p. Scott, 1911, 2 speeds, kick starter, with sidecar; a real bargain, £30.—Cordingley, Haslingden. Tel.: 102. [5695

SCOTT 1913 2-stroke, in really new condition, not done 70 miles; £49 cash.—Premier Motor Co., Ltd., Aston Rd., Birmingham. [0472

1911 Scott Motor Cycle, in thoroughly good order; £27/10 cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0547

SCOTT, 1912, T.T. model, rotary valves, all accessories, thoroughly overhauled, fast and reliable; £45.—Crawford Garage, Alfreton Rd., Nottingham. [X6038

1914 Scott, Gloria sidecar, lamps, horn, speedometer, wind screen; owner getting car; nearest offer to £70.—Rice Bros., Horsham. [5812

SCOTT, 1912¾, 3¾h.p., 2-speed, free, kick starter, Gloria 20 gn. sidecar, new inners and outers (originals just off), 3 lamps, 2 horns, mirror, spare chains, tubes, covers, all accessories, little used, excellent condition; £42, cost £95.—G., 45, Burford Gardens, Palmer's Green, N. [5708

SECOND-HAND

We have the following second-hand machines in stock. All very carefully overhauled and tested. A written guarantee is given with each one.

DEFERRED PAYMENTS ARRANGED.

Date.	H.P.	Particulars.	Price.
1911	5	**INDIAN,** clutch model	£29
1910	5	**V.S.,** 2-speed, lamp, generator, horn, mirror, and TORPEDO COACH-BUILT SIDECAR	£26
1911	5-6	**V.S.,** 2-speed, lamp, generator, and horn, and Canoe fronted MILLFORD S'CAR	£27
1911	3½	**BRADBURY,** 2-speed, with Smith speedometer, and horn	£26
1911	3½	**BRADBURY,** 2-speed, 2 lamps, generator, horn, exhaust whistle, mirror, and 1913 COACH-BUILT SIDECAR, torpedo front	£31
1912	3½	**BRADBURY,** 2-speed, F.R.S. lamp set, horn, mirror, Cowey speedometer, extra pannier bag, XL'All pan seat, and fitted with MILLFORD CANE SIDECAR	£39
1910	5	**F.N.,** 4 cylinders, B. & B. carburetter, speedometer, and horn	£15
1909	3	**N.S.U.,** magneto ignition, spring forks	£10
1913	3	**N.S.U.,** twin-cylinder engine, 2-sp. gear	£25
1909	3	**ROVER,** Bosch magneto, B. & B. carb.	£11
1910	5	**KERRY,** Bosch magneto	£15
1910	3½	**TRIUMPH,** roadster	£24
1911	3½	**TRIUMPH,** roadster	£27
1911	3½	**TRIUMPH,** clutch model and GLORIA SIDECAR	£36
1912	3½	**TRIUMPH,** clutch model	£36
1912	3½	**TRIUMPH,** clutch model, with N.S.U. 2-speed gear	£39
1913	3½	**TRIUMPH,** T.T. roadster	£35
1913	3½	**TRIUMPH,** clutch model	£40
1914	4	**TRIUMPH,** 3-speed model	£50
1912	3½	**B.S.A.,** 2-speed model	£33
1913	2¾	**DOUGLAS,** Model P, Cowey speedometer, lamp, generator, and horn	£37
1913	2¾	**DOUGLAS,** Model R	£38
1913	2¾	**DOUGLAS,** Model N (NEW)	£37
1912	3½	**RUDGE** Multi, F.R.S. lamp set, horn, and Cowey speedometer	£37
1912	2¾	**HOBART,** lady's model, 3-speed gear, P. & H. lamp set, horn	£24
1912	3½	**HUMBER,** 2-speed, lamp, and generator	£32
1912	6	**BAT-J.A.P.,** Lucas lamp set	£32
1914	8	**MATCHLESS,** M.A.G. engine, 3-speed, Swan Sidecar, hood, screen, 3 lamp sets, horn, speedometer, spares, etc	£80
1914	2½	**T.D.C.,** nearly new	£20
1909	2¾	**MINERVA,** lamp, generator, and horn	£10
1911	2¾	**ROYAL ENFIELD,** lightweight	£18
1913	2¾	**ROYAL ENFIELD,** 2-speed, kick starter	£33
1913	3	**ROYAL ENFIELD,** 2-speed model	£37
1911	6	**ZENITH,** Gradua gear, speedometer, F.R.S. lamp set, rear lamp, tools, and spares, fitted with CANOE MILLFORD SIDECAR	£44
1912	3½	**ZENITH,** Gradua gear	£30
1912	3½	**ZENITH,** Gradua gear	£32
1913	6	**ZENITH,** clutch model with Gradua gear and kick starter, speedometer, F.R.S. lamp set, horn, and MILLFORD EMPRESS SIDECAR	£68
1913	10	**TURNER** LIGHT CAR, 4-cyl. (list price £185). Extras: Hood, screen, head lamps, tail lamp, horn, tools, etc.	£95
1913	8	**ROLLO** CYCLE CAR, Jap engine, Bosch magneto, hood, screen, speedometer, head lamp, side and tail lamps, horn, etc.	£58
1913	8	**HUMBERETTE,** hood, screen, lamps, horn, speedometer, Stepney wheel, and tyre	£80
1909	8	**BABY PEUGEOT** LIGHT CAR, 2-seater body with wind screen, 3-speed gear, and reverse, magneto ignition	£30

DEFERRED PAYMENTS ARRANGED.

EASTERN GARAGE

Official Repairers: R.A.C., A.A. & M.U., A.C.U.

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Telephone: 10 Stratford.

Telegrams: "Egaraco, London"

C.D.C.

MOTOR CYCLES FOR SALE.

Scott.

SCOTTS, delivery from stock; cash, exchanges, or deferred payments from the Birmingham and Manchester agents, Colmore Depot, Birmingham and Manchester. [X6445

SCOTT, 1913, fitted with 1914 engine, just been overhauled, in absolute perfect condition, original tyres fitted with studs quite visible, mileage of this machine does not exceed 600 miles; this lot, complete with smart sidecar, for £54; an absolute genuine lot.—Colmore Depot, 31, Colmore Row, Birmingham. [X6429

Singer.

SINGER Lightweight, 1914 model, shop-soiled only; £36.—Raleigh Cycle Co., Ryde. [X6488

SINGER, 1913, 2½h.p. fixed engine model, excellent condition, lamp, horn; £23.—Layton's, Bicester, Oxon. [X6618

SINGER, 1913, 4½h.p. free engine, coachbuilt, Ivy sidecar, perfect condition; £40 cash.—Brown, 6, Dunstable Rd., Luton. [5686

SINGER, 2¾h.p., 1912¾, very little used, lamp, horn, etc., Hutchinsons, splendid condition, owner abroad, £18.—Eldridge, Fordingbridge. [5887

SINGER, 1913, 3½h.p., free engine, accessories, splendid condition throughout; £32.—Robinson, Winthorpe, Warminster Rd., Norton, Sheffield. [5818

1912 3½h.p. Free Engine Singer, as new, P. and H. lamp, horn, etc., enamel, plate, and tyres excellent; £28.—Booker, New Farmhouse, Epping. [5781

BRAND New 1913 Singer, 3½h.p., Sturmey-Archer 3-speed and free engine; usual price £58/10, take £48/10 spot cash.—Taylor, Motor Agent, Kettering. [X5471

1912 3½h.p. Singer, just thoroughly overhauled, rebushed, etc., semi-T.T. bars, Palmer and Rom tyres, excellent condition throughout; £25/10.—Parker and Son, St. Ives, Hunts. [0514

Sparkbrook.

6h.p. 2-speed Sparkbrook Sidecar Combination, slightly shop-soiled; £82; immediate delivery.—The Glendower Motor Co., Ltd., 3, Glendower Place, South Kensington. [5892

Stevens.

4½h.p. w.c. Stevens Engine, Claudel carburetter, 1913, mag., and sidecar; accept £18, or offer.—How, High St., Epsom. [X6294

Sun-Villiers.

SUN-VILLIERS 2½h.p. 2-stroke Motor Cycles; the perfect lightweight; price 25 gns.; immediate delivery; easy payments.—Cooke's, Longsight, Manchester. [X6557

Sunbeam.

SUNBEAM, 6h.p., in stock.—Chilton, High St., Watford. [X6563

3½h.p. Sunbeam, just delivered, 66 gns.; sidecar, 15 gns.—Dosser, Slingsby, Malton. [X6523

SUNBEAM, 1913, 2¾h.p., 2-speed, very good condition; £40.—Seal and Ball, Southport. [X6582

1914 2¾h.p. Sunbeam, new, in stock for immediate delivery; price 55 gns.—A. E. Gollin, The Motor House, London Rd., Grantham. [5961

SUNBEAM, 6h.p., Speedwell sidecar, hood, screen, etc., spares, only done 1,000, first cheque for £80; full particulars.—Uhique, Harlington, Milford-on-Sea, Hants. [5796

SUNBEAM, 1913, 6h.p., just overhauled, with Canocelet sidecar, screen, hood, and curtains, 2 head lamps, and rear light, Smith speedometer; cost £110, will accept £75, or will take Lewis or similar in part exchange.—Wilks, Builder, Shrewsbury. [X6450

6h.p. 1914 Sunbeam, with special Gloria coachbuilt sidecar, as supplied with Sunbeam combination, Lucas head lamp and generator, Lucas horn, Watford speedometer, cover-all apron for sidecar, only done 2,500 miles, all in perfect condition; bargain at £85, cost £120; reason for sale, owner giving up.—To be seen at Steel's Garage, Cheltenham. [X6049

T.D.C.

T.D.C., 3½-4h.p., 1913, F.E., 3-speed, lamp, horn, etc., good running order, splendid worker, with sidecar; £35, lowest, or would exchange for lightweight and cash.—P. A. Duckett, Sulham Lodge, Pangbourne, Berks. [5733

Torpedo.

TORPEDO Precision, 3½h.p., 1914, only ridden once; £25; also 1913, in good order, £20.—Percy Suckling, Linton, Cambs. [X6599

Triumph.

1911-12 Triumph, guaranteed, from £24.—Young, Newmarket. [5099

TRIUMPHS.—Premier Motor Co., Aston Rd., Birmingham. [0559

1914 2-stroke Triumph in stock; £42.—Guy-Reynolds, Weymouth. [X6665

1912 F.E. Triumph and Sidecar; 32 gns.—Julian, 84, Broad St., Reading. [X6389

1913 Free Engine Triumph; price 33 gns.—Julian, 84, Broad St., Reading. [X6384

1914 4h.p. Triumph, 3-speed gear; £60.—Parker and Son, St. Ives, Hunts. [0534

TRIUMPH, clutch, N.S.U., 2-speed, and sidecar; £35.—47, Drayton Park, Highbury. [5721

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND NINETY-THIRD CONSECUTIVE ISSUE.

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An index to advertisements will be found on the page facing the back cover.

The Fascination of Dynamo Lighting.

UNLESS we are very much mistaken, the motor cycle will next year follow in the steps of its bigger brother the motor car, in that the dynamo lighting set will be part of its equipment. Of course, we have had dynamo lighting sets with us for some time, but they have been confined to one or two makes of machines. In the near future, however, we opine that the use of electric lighting will be considerably extended. This movement has not suddenly come about; it has arrived very gradually, as we suggested might possibly take place at the time of reviewing the last Olympia Show. Acetylene lamp makers must look to their laurels or fall in line with popular demands. We do not suggest by this that the acetylene lamp will be displaced in the near future, because we realise that the low cost and other advantages possessed by the acetylene lamp must cause it to be some considerable time before it is ousted from public favour. The beauty of electric light, of course, is that there is an entire absence of flicker, and one has an illuminant which can be turned off and on at will without stopping or getting out of the saddle. It is, however, best to do this while travelling on a smooth piece of road at a moderate pace, because the filament is rather brittle at the moment of becoming hot, and a violent jerk might break it.

Again, one must pay fairly frequent attention to acetylene lamps in refilling the carbide and water chambers, and also in keeping the generator scrupulously clean to ensure the best results when it is desired to use the lamp; but no such objections attach to the electric lamp. The worst that can be said concerning the electrical set is that the lamp filaments are apt to break, and should any portion of the mechanism fail the whole of one's illuminant has gone as soon as the accumulators are exhausted. Motor cyclists and sidecarists will not return to accumulator sets without some misgivings, but the troubles which were associated with wet batteries in the olden days have practically disappeared, the dynamo automatically keeping the batteries up in their best condition and to the required voltage without the annoying trouble of removing the batteries for recharging purposes. Again with the electrical set, the lamps can be formed of a much better shape, and especially does this advantage count when cleaning time comes along.

The Practical Side of the Question.

AN article in last week's issue suggests the possibility of combining the magneto and the dynamo to one compact unit for ignition and lighting. This idea is not exactly new, but at the time the article was penned we were not aware that experiments were proceeding in connection with an instrument for motor cycles which would perform the dual functions. Since the article was written, however, a rumour has reached our ears to the effect that a well-known magneto company is busy perfecting a neat and compact instrument in which the dynamo is embedded within the magnets of an ordinary magneto machine, so that the dual work of ignition and lighting will be possible with the one instrument. It has been patent for some considerable time that electric lighting must come into its own for use on all motor vehicles, but such rapid developments have taken place in the production of car lighting installations that motor cycle accessory manufacturers have quickly followed suit, with the result that, as we have already foreshadowed, the Olympia Show of 1915 models promises to be chiefly notable for the progress of electric lighting on motor cycles, and particularly on sidecar outfits. Already there is more than one neat lighting set on the road, and we shall not be surprised to find a few firms turning out *modèles de luxe* with dynamo lighting as a standard part of the equipment.

THE 1914 OLYMPIA SHOW.

AN effort towards a scheme of uniform stand decoration with a view to such being adopted for 1915 will be one of the features of the 1914 Show. To this end certain stands on the ground floor will be set apart for the erection of specimen stands, and will be completely fitted with stand fittings, sign and name boards, floor covering, electric fittings, and a certain number of these will be available for firms desirous of availing themselves of such types of stand. Many readers will recollect that at the last Paris Salon a scheme of uniform stand decoration was adopted with excellent results, both from an artistic and utilitarian standpoint, and there is little doubt that it is only a question of time before the same principle is applied to Olympia.

Cycle Cars in the Annexe.

At the forthcoming motor cycle show this year the Annexe, other than stands backing on to the wall, will be exclusively reserved for light cars and cycle cars, and in this connection it is interesting to note that the Cycle and Motor Cycle Manufacturers and Traders Union, Ltd., define a light car as meaning any two-seated automobile, the retail price of which equipped for the road, including hood, wind screen, lamps, and spare wheel, does not exceed £200, while for cycle cars the cylinder capacity must not exceed 1,100 c.c., and the weight of the chassis must not exceed 6 cwt. The chassis shall include tanks, radiators, bonnet, and tyres. The Management Committee reserve the right to exclude from the Show light cars within the above definition, but having larger engines fitted.

Convenient for Visitors.

This grouping together in the Annexe of the four-wheeled exhibits is undoubtedly a move in the right direction, as visitors will not then have to dodge about from stand to stand all over the Show in search for cycle cars or light cars.

An excellent new feature of the management is the placing of the offices of the different firms over the stands on the ground floor backing on to the wall. Approaches to these offices will be by stairs arranged at convenient distances. This scheme will release a large amount of space on the ground floor for exhibits.

This year's Motor Cycle Show is the fifth of the series, and will be held from the 23rd to 28th November inclusive.

WHAT TO WEAR.

Some Hints to Novices.

THE first trip on the new machine suffices to inform the novice that motor cycling requires a special garb; but the first season by no means educates a rider as to the final ideals in respect of raiment.

The fair-weather potterer, who never rides in bad weather unless a sudden storm takes him by surprise, may rest content with a cheap set of waterproofs. The coat should be a buttoned type, not a neck-hole pullover; for the latter is inconvenient to put on, though it affords better protection from rain. The leggings should have good straps to pass under the sole of the boot—the ordinary thin straps fail to survive the first wet day. Seatless leggings are miserable if a tyre repair, or any other emergency demanding a sitting posture on a wet bank or road, comes along; but the seated patterns are seldom decently ventilated, and are often as uncomfortable as they are unhealthy. Personally, I wear the seatless type for the sake of comfort, and when I have to squat on wet mud, I am careful to use an improvised mat—perhaps my oilies, or a large stone from the roadside. The overalls should *not* be thick. They serve a double purpose in that most riders employ them as anti-dust clothing on hot summer days. If they are light and thin, they will serve both functions admirably; if they are heavy and close-woven, they will be intolerable in August. Footwear matters little in these days of kick-starters and free engines, though the owner of a T.T. single-geared machine should wear rubber-studded golf shoes. In any case, the boots should be of the best quality, for when the roads are awash with surface water, an ordinary walking boot will be spoilt, and will further cause its wearer acute misery. In cold weather, a thick sleeved vest or leather under-jacket may be worn to atone for the lightness of the overalls.

The serious tourist and the competition rider will obviously require some additions to the above wardrobe. Some men purchase extremely heavy proofed fabrics as a protection against storms. This is a gross blunder. They are so bulky that they cannot easily be packed away on the carrier; they are most uncomfortable on scorching summer days, and they are not truly efficient in prolonged heavy rain. The basis of the strenuous rider's kit should be similar to that of the potterer, but it should be supplemented by a suit of first-class oilskins. There is nothing to touch them for real bad-weather wear.

Headgear and Gloves.

Every motor cyclist should either wear or carry a more or less waterproof head gear. No matter how dry and warm the body may be, the rainy ride is intolerable if a sodden cap is dripping streamlets down one's neck and over one's face. The man who wants to wear a smart and rakish tweed cap in dry weather may do so; but he should store a storm cap in his pocket. The son'-wester is by no means ideal for the purpose, as the wind gets under its tail-flap, and makes it lift off the head at any speed, when the elastic chin strap makes its presence and narrow edge unduly felt. Failing a waterproof fabric cap, I recommend the oilskin storm helmets, with a hole for the face, and a curtain down the back of the head joining a piece which comes round in front under the chin. These little used helmets appeal to me as the best head-wear for bad weather.

Gloves are still an unsolved problem. Leather and fur are very nice in good weather, and if of good quality will keep out ordinary rain for an hour or two. In a soaker they are wretched things, and are generally unusable the next day, while cheap patterns never recover from a drenching. ROAD RIDER.

OCCASIONAL COMMENTS

BY IXION

Bravo, Rudge!

I must ask the Rudge Co.'s pardon for my ignorance of the fact that they had standardised a slip-on speedometer fitting which requires no tinkering to get the gears in perfectly accurate mesh. It is high time that other large firms followed such an excellent lead. Riders who have never tackled the job will understand its intricacy if I report that a leading speedometer firm charged me *ten shillings* for fitting a three guinea speedometer last week. I expected they would do it for nothing, and desired to avoid a fiddlesome hour on my garage floor, but as my time is scarcely worth 10s. per hour, I shall do it myself next time. We live and learn.

Repair Platforms.

I am glad to see that Messrs. Brown Bros. and one or two other firms are advertising light wooden repair platforms at modest prices. Any motor cyclist who is an amateur carpenter in a small way may prefer to construct such a platform for himself, but there is no question that the accessory is one of the most useful. The awful backaches usually sustained in the prolonged stooping inseparable from repairs and adjustments tackled with the machine on the floor are a thing of the past. If agents up and down the country will place machines on these platforms in their showrooms and windows, the sales will be large.

A Motor Cycle Rolls-Royce.

Of late years very little of my road work has been accomplished on high-powered machines, because a variably-geared 3½ h.p. does all one needs in solo work, and my passenger work is mostly done on an up-to-date cycle car or light car. However, I have lately been sampling two or three 750-1,000 c.c. mounts, and I have specially fallen in love with a 5-6 h.p. Ariel which I have had the temerity to ride solo. The makers say that it weighs 280 lb. only, but it seems as lumbersome to handle as the 7 h.p. Indian, which scales 3 cwt. with the lighting outfit. This is its sole drawback. I pant and perspire as I wheel it out of its shed, but when I get it on the road it is a perfect dream. It starts as easily as my wee Douglas, its gears snick home like a knife separating a butter-pat, its brakes combine the grip of Samson with the velvetiness of Delilah, its acceleration is terrific, and its top gear suffices for all main road hills. Still, these are not the features which have specially won my heart. It knocks the ordinary 3½ h.p. mount silly at moderate touring speeds. At 20 m.p.h., for instance, the machine is dead silent and literally vibrationless. You cannot hear the engine exhaust or valves; the big tyres, spring forks, sprung saddle holder, and great weight absolutely damp out all the inequalities of the road surface, and make it more comfortable and steady over indifferent roads than any £500 car, and there is not the most minute semblance of engine convulsion. The driver drifts along as if he were wafted on a cloud, travelling a few inches above the road surface. It is the last luxury in locomotion. If the throttle is opened up to 30 or 35 m.p.h. you just grow conscious that the road contains pot-holes and that you are sitting over an engine which is discharging burnt gases astern as unostentatiously as possible, but that is all. These merits are, of course, shared with other machines of equal class; the latest M.A.G.-engined Matchless is a worthy mate for an Ariel, for instance. But as I know the Ariel best I use it for a text.

Others, Please Copy!

This experience of mine suggests that there will always be room for the heavy high-powered outfit. No 3½ h.p. machine that I have ridden even distantly approaches the smooth mastery of this big twin, and it is folly to pretend that the 3½ h.p. is perfect until it at least faintly mirrors this supreme comfort. Descending to lighter machines, the inherent inferiorities of the type are manifest. 100 lb., and even 200 lb., have manifest merits in comparison with 300 lb.; they are easier to wheel about, cheaper to buy, cheaper to run; but they cannot combine this tremendous substantiality with perfect silkiness of

Miss McMally, one of the latest recruits to motor cycling, with her three-speed Triumph sidecar. In spite of having only ridden for a few weeks, this lady has quickly mastered the control and handling of her machine.

Occasional Comments.—

running and profound mastery of their work. The manufacturer of a successful 3½ h.p., 2¾ h.p., or 2 h.p. would be well advised to ride the best big twin he can buy, and try to transfer its special merits to his own lighter wares. If I were engaged in the design and manufacture of baby two-strokes I would drive a 7 h.p. 10,000 miles per annum, so that my ideals might not sink too low.

Delivery Tune.

I suppose I shall have to turn my attention to the delivery tune of cycle cars next. A friend of mine took over a chassis this week and found:

All the valve caps leaking freely.

The joint between crank case and cylinders spitting oil liberally.

The inner tubes minus even a speck of French chalk.

The wheel rims unpainted and rusted internally.

The detachable wheels stuck to their hubs with paint, through being bolted in place too soon.

The oil indicator float of the engine sump punctured.

The petrol consumption working out at 24 m.p.g. (instead of the normal 35 m.p.g.)

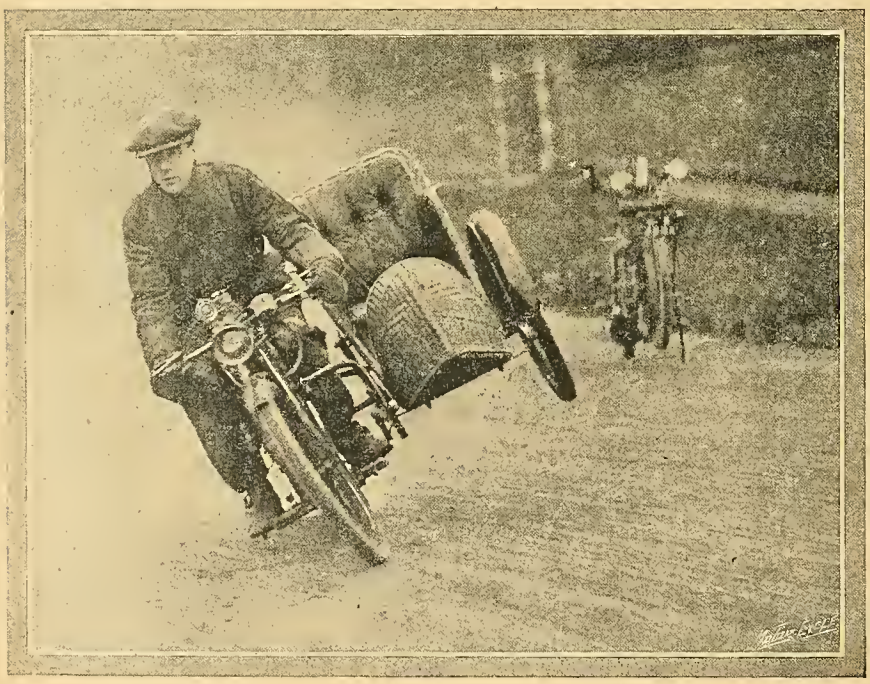
Vital Fractures.

Some of my recent correspondence indicates a very real danger in connection with the growing popularity of lighter machines and sidecars. Visiting a garage with my cycle car the other day, I saw a medium-weight motor cycle and sidecar, both a fortnight old, and of the high-priced variety, reduced to a tangled mass of twisted tubing by the snapping of a spring fork link. The next morning brought me a letter reporting the breakage of five medium-weight frames in a single small Irish town since last autumn. The next afternoon I saw a rider of a medium-weight take a header over his handle-bar owing to frame breakage. These incidents naturally set me thinking. Two factors emerge quite obviously:

1. Many makers of light machines are guessing at the nature of frame and fork stresses, and of the size of tubing required to provide a large safety margin.

2. Many rash riders are fitting sidecars to machines which are designed exclusively for solo work.

Two reforms are plainly essential. The first is that every frame and fork should be designed with a safety margin wide enough to include the strains of sidecar work, which implies that a frame should be at least 100% stronger than solo work demands. The second is that manufacturers who embark in the light and medium-weight departments of manufacturing should engage a technical expert to work out with scientific accuracy and certainty the sizes of tubing required for all the frame details, not excluding the side links of the spring forks. We have been through all this trouble more than once before. About the year 1903 several very promising men were killed by the collapse of utterly inadequate steering forks; and such a casualty list would reach very large dimensions now that the number of riders is so enormous. Then again, about 1906, when the lightweight movement received a fresh impetus, broken frames and forks were immensely common; in one six days trial the entire team of a first-class manufacturer were outed with trouble of this character. To-day, the medium-weight is being manufactured by the thousand, and many users are fitting quite luxurious sidecars, while the tiny two and four-stroke engines are rapidly breeding another new species of motor bicycle. There is every sign that haphazard makers and assemblers are glibly saying to their works managers, "We shan't want such heavy frames or forks as the 3½ h.p.—cut down all tube sizes by so and so!" Hence the casualty list is growing. As a matter of fact, a 180 lb. machine, fitted with a 350 c.c. engine, is capable of at least 45 m.p.h. solo, and as it sits lightly on the road, it is subject to more vibration and swifter crystallisation than the more stable 500 c.c. engine. The same reasoning applies *a fortiori* to the miniature machines. There are too many flimsy frames and forks about; and there are far too many sidecars fitted to machines which are quite incapable of withstanding any additional strains.



JUGGLING WITH A SIDECAR.

S. A. Buttearn, of the Cambridgeshire M.C.C., amusing himself on his 2¾ h.p. Douglas and sidecar by riding in complete circles in the road with his sidecar wheel in mid-air. The practice of trick riding with a sidecar seems to be spreading, but it is neither good for the machine nor the sidecar connections, and a slight miscalculation might cause disaster.

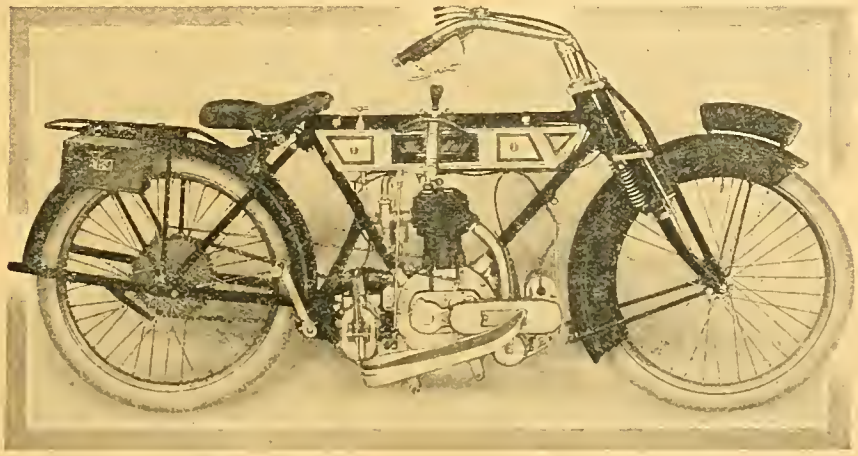
A 4 h.p. Three-speed Bradbury.

89×89 MM. ENGINE; COUNTER-SHAFT GEAR AND CHAIN DRIVE.

THE latest model Bradbury is a type eminently suitable for side-car work, and in general appearance is something like the 4 h.p. two-speed model. The engine is the standard 89 × 89 mm. 4 h.p. single-cylinder, having a cubic capacity of 554 c.c. As usual, it is mounted in the frame in the distinctive Bradbury fashion, but an auxiliary stay makes a triangle with the seat tube and the bottom bracket. This arrangement forms a sound bed for the three-speed counter-shaft gear, which is of the single sliding member type, with dog clutches to engage the high and low gears. Both gearshafts run on ball bearings, and the ratios provided are 5.1, 8.4, and 14.8 to 1.

The clutch is of the cork insert type, and is controlled from the handle-bar; a gear and quadrant kick-starter is fitted. The drive is by chain throughout, and the gear box is arranged to slide on the bottom bracket so as to provide a simple adjustment for chain stretch. An excellent internal expanding brake is carried on the rear hub, and is of such a diameter as to allow of smooth action and full power.

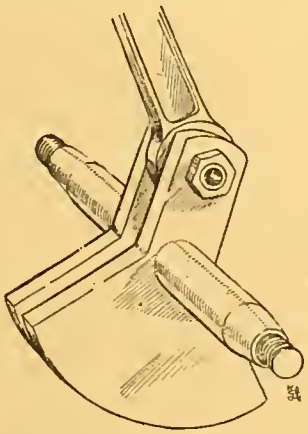
The machine is well fitted up, and the specification includes aluminium foot-boards, two stands, extra heavy tyres, pan seat, and sensible mudguards.



The new 4 h.p. Bradbury with three-speed counter-shaft gear box and chain drive.

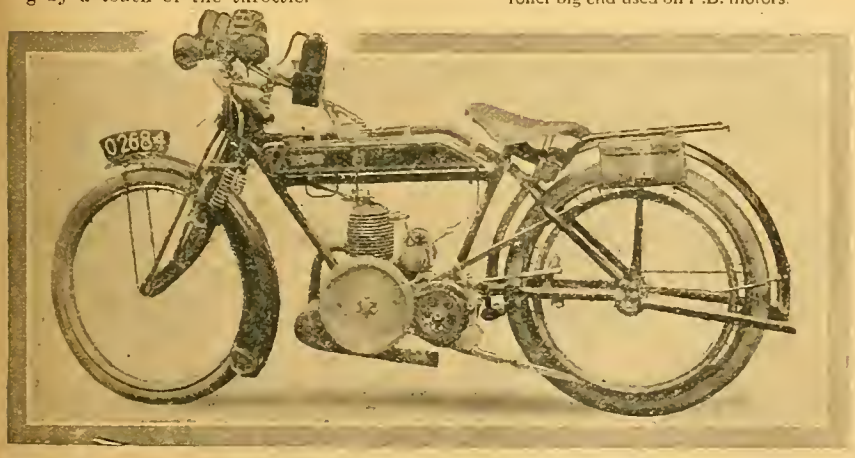
The Two-stroke Wizard.

A NEW two-stroke motor cycle has recently been prepared for the market by the F.B. Two-stroke Company, of Hay Mills, Birmingham. Two types of engine are made—a 3½ h.p. 78 × 86 mm. and a 2½ h.p. 70 × 70 mm. Either model may be obtained with single gear or Albion two-speed bottom bracket gear, and the 2½ may be obtained in the form of an ultra lightweight. On a recent visit to Birmingham we were able to test a 2½ two-speed model through the thick traffic and in the neighbourhood of the city. The machine was absolutely new, in fact we saw the engine started up for the first time, and yet it was full of life on the road and proved an excellent hill-climber. In spite of the absence of a clutch the machine is wonderfully easy to control in traffic, for it will fire at such a low road speed that one can crawl behind a dray and shoot through any convenient opening by a touch of the throttle.



Built up crank, hollow crank pin, and roller big end used on F.B. motors.

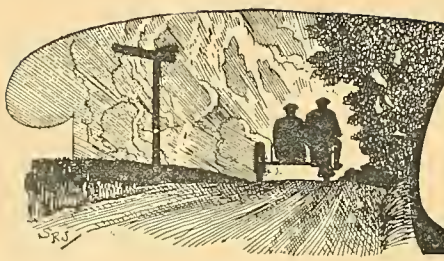
The 3½ and 2½ models are very similar in construction, so that a description of the smaller machine will cover both models. As is usual with two-stroke engines at the present time, a measured quantity of oil is mixed with the petrol, and this is carried out by means of a pump directly connected to the tank. The engine is of the three-port type and has the transfer pipe cast with the cylinder. The crankshaft is built up and a Hoffmann roller bearing big end is used. A domed piston with rings at the top and bottom is employed, the crankshaft bearings being of phosphor bronze and of great length. The large outside flywheel is keyed to the shaft and carries the driving sprocket which is bolted to it by six set pins. A chain transmits the power to an Albion two-speed gear, and thence a belt drive is employed. 26in. × 2in. tyres are fitted, and the equipment of spring forks, mudguards, carrier, etc., is excellent. A U.H. magneto is carried behind the cylinder and driven by chain direct from the crankshaft. The machine is finished in black and gold, and looks very smart, and this, with the very reasonable price, makes the Wizard a tempting proposition.



The latest two-stroke Wizard motor cycle.

The Edmund Spring Frame.

A few days ago we were able to test the Douglas-engined spring frame Edmund illustrated in *The Motor Cycle* of July 9th. The combination of the smooth running horizontally-opposed engine in conjunction with the clever frame design rendered the machine one of the most comfortable we have ever ridden. The machine was driven at a smart pace over a very bumpy stretch of road, but the leaf springs and coil shock absorbers reduced even the worst bumps to such a degree that no jar of any sort was felt, but only an easy undulating motion.



The Springing of Sidecars.

A Brief Description of the Most Generally Accepted Methods.

It will be generally admitted that, in spite of the simplicity, not to say crudity, of the sidecar form of passenger-carrying attachment, it has easily proved itself the most popular solution of the passenger problem in connection with motor cycles, and so far has it gained in popular use that, at the present time, it is scarcely too much to say that over one-third of the machines one sees on the road are fitted with sidecars, whilst the many models especially designed for this purpose exhibited at Olympia were very notable. One of the most singular points in connection with motor cycles and sidecars is the extremely unequal distribution of comfort between the two people concerned. Indeed, the writer cannot recollect any other form of vehicle in which the driver is so little provided for and the passenger so elaborately. This, of course, is a very excellent state of affairs from the sidecar passenger's point of view, and there are many who hold that a really well-sprung sidecar is far more comfortable than the best seat on the finest motor car. This is by no means an exaggeration of the case, and that it should be so must be put to the credit of the ladies who form the majority of sidecar passengers. It is rather singular, however, that, for all the years that have been devoted to its development, the properly sprung motor cycle, such as the Indian, P.V., Bat, Edmund, T.M.C., and N.S.U., is still as much an exception to the general rule as ever it was. Motor cyclists must, therefore, be regarded as a hardy race, who look upon nearly all the other qualities which their machines possess as being superior in importance to mere personal comfort.

The Simplicity of the Problem.

In view of the fact that in the case of the sidecar the passenger has simply to be suspended from a rigid chassis, and that there is no need for any mechanical connection such as steering or control gears between the sidecar and the chassis,

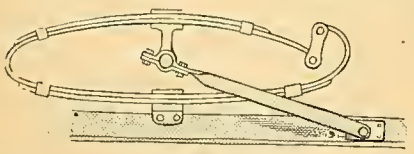


Fig. 1.—Bramble.

the problem presented by the springing of such an affair is an exceedingly simple one, and it is pretty obvious, as shown in the accompanying sketches, that almost any design will serve the purpose. This is why, from the sidecar passenger's point of view, this form of attachment is superior to almost any cycle car, as it is practically impossible to obtain in the latter the same, or anything like the same, degree of luxurious comfort as is obtained in the former, for the simple reason that, in the cycle car (as in the ordinary car), the passengers and the principal mechanisms, such as the engine, are carried on the same chassis, and the two are sprung in exactly the same manner, except that the passenger is furnished with an upholstered cushion and the engine is not. It is, however, hardly necessary to point out that if the motor car were sprung in the same beautiful manner as are most sidecars it would be quite impossible to hold it on the road at any speed.

A Usual Method.

The most common and generally most satisfactory form of spring adopted is that in which both the front and rear portion of the car are supported at each side on the ends of long, curved leaf springs, in which generally about three or four laminæ are used. The principal considerations of comfort are directed to the rear part of the suspension, as it is clear that if a very easy attachment is made in the front, or "toe," of the car, a forward and backward see-saw motion is bound to develop and would be decidedly uncomfortable. In some cases the rear ends of the leaf springs are coupled directly to pins attached to the sidecar body, but in others shackles of a simple type are employed. Many makers employ this form of suspension, which is, generally speaking, considered satisfactory. One of the objections to it is, however, that in long leaf springs of this kind, unless the very finest material is used, and they are tempered with great skill, it is extremely difficult to get them to stand up to their work for a very long time without slightly sagging and getting weaker. The sidecars used by the writer for two successive seasons showed this to a large extent, about six weeks' running being sufficient to drop the whole sidecar body about three inches or so, so that the shackles which were previously employed had to be taken out.

Bramble.

A highly individual form of suspension is that employed on the Bramble sidecar, which is shown in two of the adjoining sketches. The sidecar body is carried in the rear at each side on a peculiar shaped full elliptic spring, of which the leaves are carried on in a complete loop and shackled to one another at their ends. The strengthened frame of the sidecar seat forms practically the chassis of the vehicle, the wheel being carried on a plain axle, which passes through holes cut for it in the flank of the sidecar body. The form of these springs has recently been somewhat modified, though the principle remains the same. In front, two brackets extending from the side of the body enable the forward portion to be hung on a couple of ordinary helical springs.

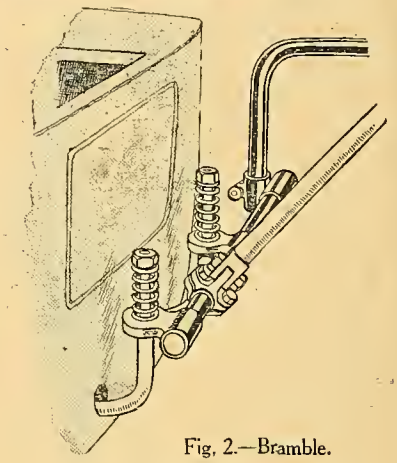


Fig. 2.—Bramble.

Calthorpe.

The Calthorpe system resembles the standard form already described, except that helical springs are employed under the toe of the body, whilst the rear is supported on long C springs attached to what may be described as an underslung chassis, in order to get the weight as low as possible. The way

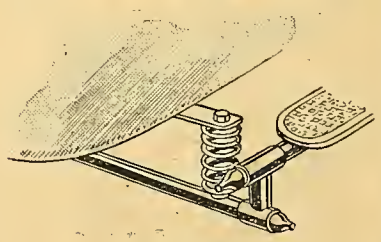


Fig. 3.—Calthorpe.

these front springs are arranged is shown in the sketch, in which will also be seen rather a neat point, namely, the fixing of an aluminium footstep on the chassis tube.

Gloria.

The Gloria sidecar differs from other designs inasmuch as it embodies a spring wheel arrangement; that is to say, the whole of the chassis is sprung in addition to the ordinary separate leaf springing of the body itself. In this case, the sidecar hub is supported on a crescent-shaped crank, which is pivoted on the chassis frame. This crank terminates at one end in a plunger, which works in a short

Springing of Sidecars.—

cylindrical casing against a nest of helical springs, a small rebound spring being fitted at the top. The principal function

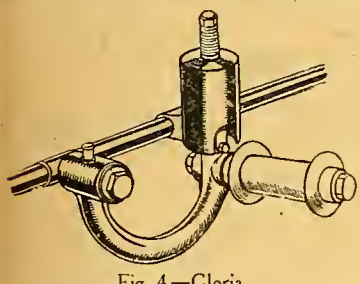


Fig. 4.—Gloria.

of this design is to reduce the amount of unsprung weight on the sidecar wheel, and so enable it to enjoy a considerably longer life.

V.A.L.

In the V.A.L. sidecar the front of the body is supported from the chassis on a couple of plain helical springs in much the same manner as the Calthorpe, but in the rear quite an individual form of suspension is adopted. Some details

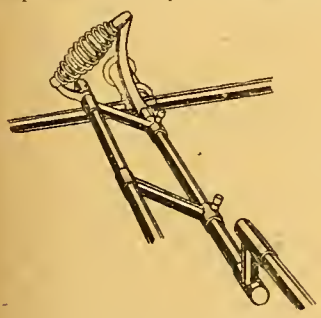


Fig. 5.—V.A.L. sidecar.

of this are shown in the sketch. The chassis is a perfectly rigid affair, and on the axle tube is mounted a tubular frame, which is free to swing up and down on bearings. This frame is connected to an arm supported by the chassis through a coiled spring at each side. This arrangement no doubt effects a considerable reduction in weight and certainly makes a very neat and satisfactory construction.

Rex Sidette.

In the Rex sidette C springs of the usual form are employed, and these are supplemented by the attachment of shock absorbers similar to those carried on many cars. As shown in the drawing, each shock absorber consists of two helical springs, which work in compression, and one is used at each side. The long shackles employed will be noticed.

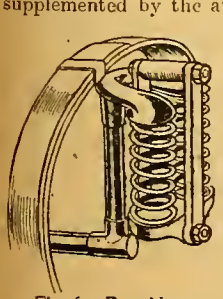


Fig. 6.—Rex sidette.

Williamson.

A form of suspension closely resembling that used on ordinary cars is adopted on the Williamson, in which the rear portion of the body is carried on an inverted half-elliptic spring, swivelled in front and shackled at its rear end, whilst

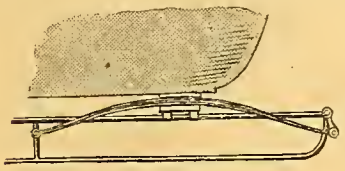


Fig. 7.—Williamson.

the forward portion of the car is attached to a short, transverse spring, which is shackled at both ends. No doubt this springing forms a very satisfactory arrangement.

Scott.

One of the first sidecars on which an attempt was made to provide a springing rather out of the ordinary, both in construction and comfort, was the Scott, upon which a simple and thoroughly practical arrangement is employed. This,

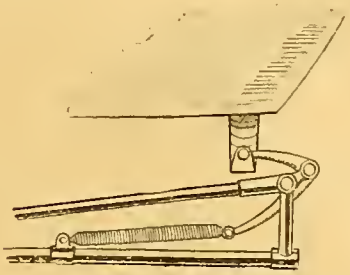


Fig. 8.—Scott.

as shown in the illustration, consists in the hanging of the sidecar body on two cranks, which are connected up to a long pivot bar, supported in trunnions carried by the sidecar axle tube. This bar carries a third lever or bell crank, which works against a pair of spiral springs. The arrangement is quite simple, and certainly yields a very high

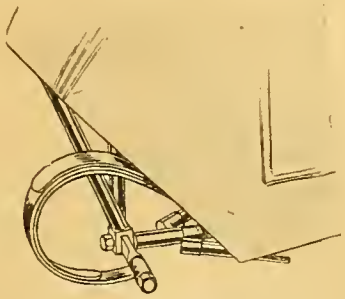


Fig. 9.—Scott front spring.

degree of comfort. In front, the spring employed is a single C type, with three laminations rigidly attached to the toe of the body and pivoted to a special extension piece on the chassis frame. This spring is clearly shewn in the second illustration.

Sydenham.

Quite an elaborate system is employed on the Sydenham sidecar. This, as shown in the sketch, takes the form of a telescopic shock absorber, rigidly sup

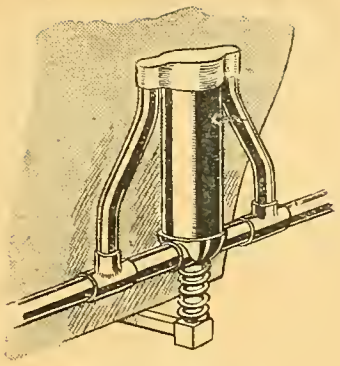


Fig. 10.—Sydenham.

ported from the chassis frame on each side. The tubular chamber contains a plunger, which works in grease and is fitted with coil springs, so that a rebound effect is largely neutralised. It will

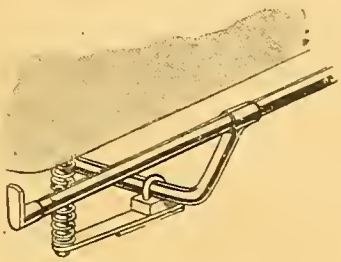


Fig. 11.—Sydenham.

also be noticed that a second rebound spring is fitted underneath the shock absorber chamber, which forms part and parcel of the chassis frame construction. The front portion of the Sydenham vehicle is supported at each side of a single helical spring working in com-

Fig. 12.—Canoelet.

pression. This is carried on a bracket, supported on a single lug, from one of the cross members of the chassis frame, and this, no doubt, allows the toe of the sidecar to be lifted or dropped, according to the desires of the passenger.

Canoelet.

Another original form of springing is that used on the Canoelet machine, in which the chassis is of a peculiar construction. Plain quarter-elliptic leaf springs are used in front, and curved springs of the same type in the rear. In order to prevent the back of the body damaging itself against the spring blades the latter are fitted with a rubber buffer, as shown in the small detail sketch.

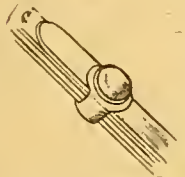


Fig. 13.—Rubber buffer on Canoelet spring.

Springing of Sidecars.—

P. and M.

In the P. and M. machine, although the sidecar body is supported in the standard way—that is to say, both the

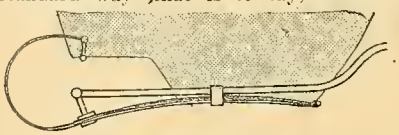


Fig. 13A.—P. and M.

front and the rear are carried on the ends of long springs—a slightly different arrangement is adopted, which is clearly shown in the illustration.

Montgomery.

To the ordinary C springs in the rear of Montgomery sidecars, a transverse leaf spring is arranged, as depicted, for the front portion. This notion is neat and exceedingly effective, though it has

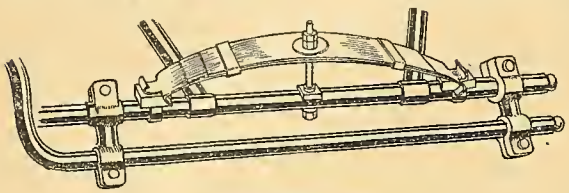


Fig. 14.—Montgomery.

the incidental objection that the slides at the end of the spring and also the

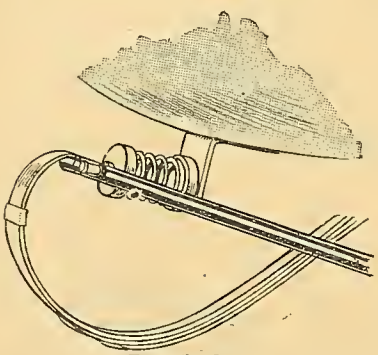


Fig. 15.—Ivy.

central guide pin require a good deal of lubrication.

Ivy.

In the Ivy sidecar the forward portion is carried on helical springs, as illustrated, whilst the rear part of the body

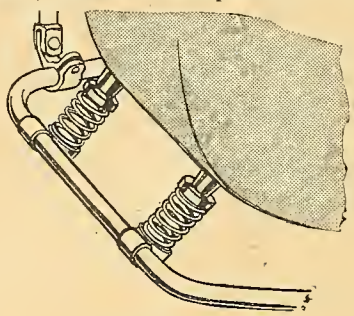


Fig. 16.—Ivy.

is indirectly suspended from large C springs by secondary coil springs, a bar being used to connect the two, and also for the purpose of preventing swaying from developing.

Watsonian.

A peculiar suspension is used on the Watsonian sidecar. Here one has a peculiar S-shaped form of spring, one end of which is attached to the sidecar body, whilst the other is pivoted on a bracket supported on one of the torque member tubes. Instead of being pivoted in its centre this is supported on a short coil spring maintained in tension.

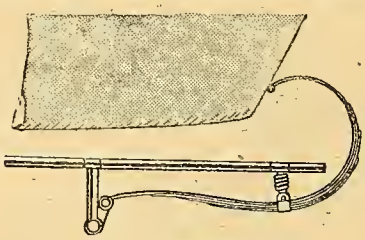


Fig. 17.—Watsonian.

The latter serves to take up small shocks, whilst the larger shocks are, of course, absorbed in the leaf spring.

In the specially light Watsonian model a compound form of spring of the type which is used on the Brooks saddle is employed, and it appears to be an excellent idea, as it serves the purpose well.

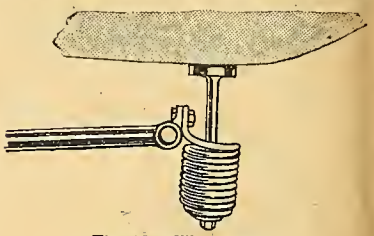


Fig. 18.—Watsonian.

Swan.

In the Swan sidecar a peculiar form of chassis construction is employed. The rear part of the body is supported from

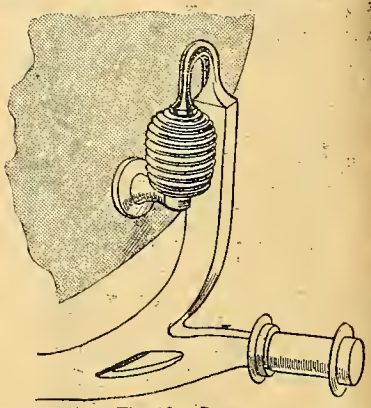


Fig. 19.—Swan.

an upwardly inclined extension of the frame by means of a simple tension

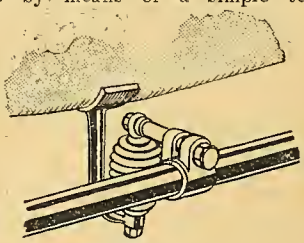
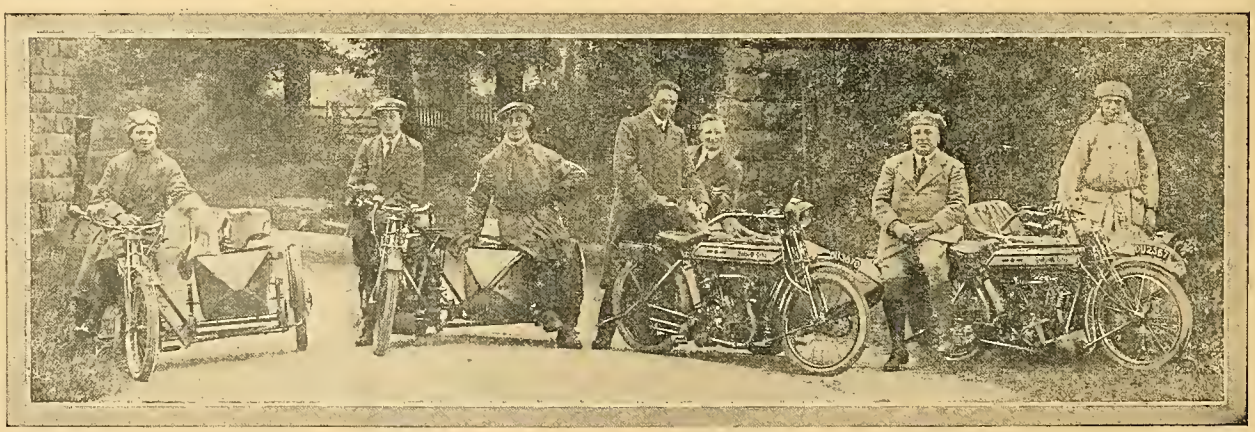


Fig. 20.—Swan.

helical spring, as shown in the illustration, whilst an equally simple device is employed at the toe of the body.

W. G ASTON.



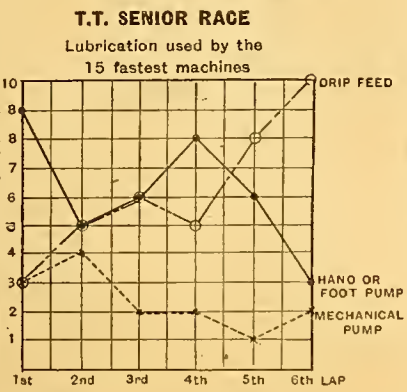
A quartette of 6 h.p. twin-cylinder Rudge sidecar outfits undergoing road tests

Lubrication of Racing Machines.

A Comparison of the Methods of Lubrication used in the Senior T.T. Race.

THE contemplation of the recent Tourist Trophy Race leads one to a comparison of the methods of lubrication of motor cycles, as owing to the long distance covered at great speed during the race by the machines, it follows that the engines with the best lubrication will, *ceteris paribus*, maintain their speed most satisfactorily to the end of the race.

Loss of speed is due to other causes besides lubrication, but it cannot be disputed that lubrication is a most important factor. As in the comparisons which will be made, the speed of a number of machines, and only the fastest in each class, are taken into account, the other causes for delay are eliminated, such as punctures, falls, etc., and these delays equally affect all classes.



The systems of lubrication employed may be divided into three classes:

(1.) Drip feed (foot or hand-operated spring loaded pump in combination with a regulating valve).

(2.) Pump (foot or hand-operated).

(3.) Mechanical pump.

Briefly, it may be stated that all machines except the Coventry and foreign makes used the "drip feed." The "pump" was used by the Coventry makers, while the "mechanical pump" was fitted by the foreign manufacturers. A simple comparison can be made by comparing the systems used by the fifteen speediest machines at each lap. The lap speeds are taken from *The Motor Cycle*.

	1st lap.	2nd* lap.	3rd* lap.	4th lap.	5th lap.	6th lap.
Drip feed	3	5	6	5	8	10
Pump	9	5	6	8	6	3
Mechanical pump	3	4	2	2	1	2

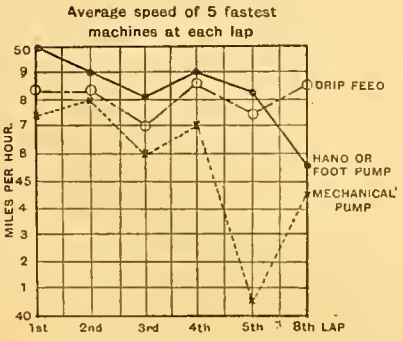
*A machine not fitted with any of the above systems but with a combined suction drip feed and hand pump was one of the fifteen.

A further comparison is made by taking the average speed of the five fastest machines of each class at each lap, the comparison being tabulated in miles per hour.

	1st lap.	2nd lap.	3rd lap.	4th lap.	5th lap.	6th lap.
Drip feed	48.3	48.3	46.3	48.5	47.5	48.5
Pump	49.8	49.2	48.1	49	48.2	45.6
Mechanical pump ..	47.6	48.1	46	47	40.5	44.5

The fall in speed for the third lap was due to the riders having to stop to fill up their tanks; and taking this into account it will be observed that there is no appreciable variation of speed during the entire race for the motor cycles fitted with "drip feed," while there is a decided fall for the other systems. Diagrams have been plotted for the convenience of readers.

The fastest lap (53.23 miles per hour) was made by a Scott fitted with a "drip feed," while of the first fifteen machines to complete the race ten were fitted with "drip feed," three with "pumps," and two with "mechanical pumps."



PUMP 48·8, 49·2, 48·1, 49, 48·2, 45·6 MILES PER HOUR.
DRIP FEED 48·3, 48·3, 46·8, 48·5, 47·5, 48·5.
MECH PUMP 47·6, 48·1, 46, 47, 40·5, 44·5.

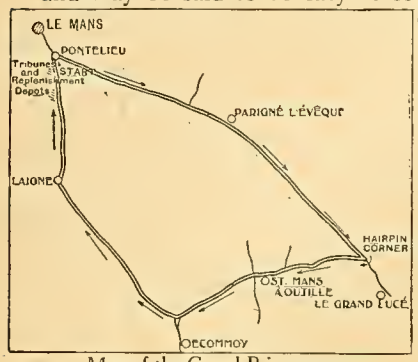
Finally, as regards lubrication for two-stroke engines, no other system except "drip feed" was used in the Senior or Junior races, which points to the conclusion that this system is also eminently suitable to an engine of this type.—R. H. CARPMAEL.

THE OLD AND THE NEW.
An "old ordinary" bicycle and a 1914 model 4 h.p. Triumph.

The Motor Cycle Grand Prix.

A Description of the Thirty-three Miles Course near Le Mans.

LAST year the Grand Prix race was held in conjunction with the car race at Amiens. This year the car race is already a thing of the past. A great many of the most noted riders in this country have already entered for the race, which will be contested on the Circuit de la Sarthe, which is near Le Mans, on August 15th. The course, an extremely fast one, is approximately thirty-three miles long, and with the exception of one or two points is in good condition, and may be said to be easy in comparison to the Isle of Man T.T. race course. Motor cycles with a cubical capacity not exceeding 350 c.c. will cover seven laps of the course; those with engines not exceeding 500 c.c. nine laps; and cycle cars eight laps.



Map of the Grand Prix course

The start of the circuit will be at a point to the south of Le Mans, in a village known as Pontelieu. Immediately after the start is made, the road takes a right-hand bend, which, being in a village and skirted with trees and a gutter, will have to be taken carefully. Having got round this corner, the course continues over a long level stretch of at least five miles, until we come to the village of Parigné-l'Evêque. There is a slight rise in this village, and afterwards the road drops slightly and there is for miles a beautiful stretch of good level road until the turning, a very sharp hair-pin, is reached, one kilometre from Le Grand-Lucé. Here we turn round the hairpin mentioned and proceed along a rather twisty road. However, all the corners on this road can be taken at a speed of about fifty miles an hour. Near the village of St. Mars d'Outille there are one or two very slight bends, and the surface is somewhat bumpy. The road again assumes a rather twisty course in the direction of Ecommoy, where we take a slightly uphill road and drop down again round a right-hand bend, just missing the town of Ecommoy, and turning in the direction of Le Mans.

Then follows a good stretch of about two or three miles, through a long avenue, where the sunlight shining through the trees is very dazzling. We take a fairly easy right-hand bend, then an easy left-hand turn, and come to the straight stretch of two or three miles, passing through the little village of Laigne, afterwards getting a clear view of the road for about five miles. This is the last stretch, and we are now nearing Le Mans again. On this stretch, about two kilometres from Le Mans, the tribunes will be fixed and the replenishment depot. There will also be a grand stand erected at Pontelieu, at which point there is a statue or memorial erected in the centre of the road to the soldiers who have fallen in French warfare in times gone by. The roads on the whole are well kept, and in several places repairs are being carried out preparatory to the race.

We should say that the course is much faster than last year's motor cycle Grand Prix course at Amiens. The circuit is practically the whole way lined with beautiful trees; the tall pine trees which one sees on several parts of the course are very impressive on the long straight stretches of road.

It will be interesting to see what speeds motor cycles and cycle cars accomplish on the course this year. To give some idea of the speed possible, we are assured that M. Bablot on a Delage car can do a lap of this circuit at ninety-seven miles an hour. Taking this into consideration, we should set the average speed of the 500 c.c. motor cycles at about 55 m.p.h. and that of the cycle cars at about ten miles an hour less.

The following are the entries already received:

350 c.c. Class.

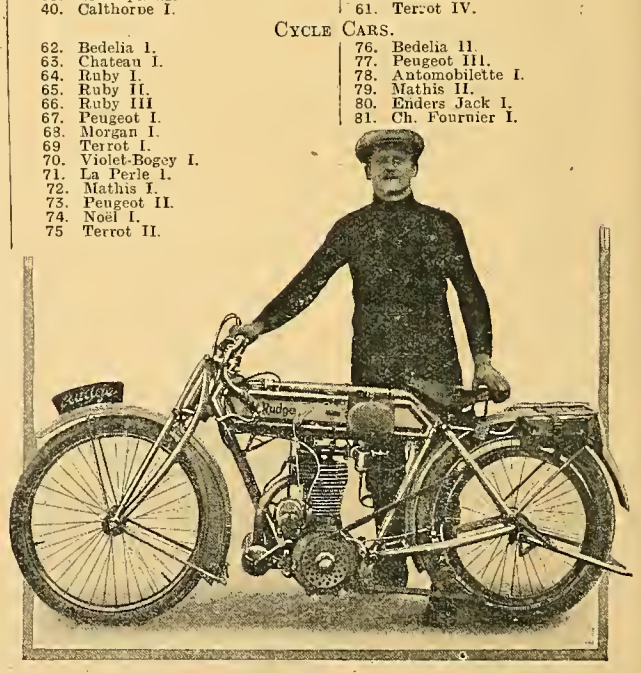
1. N.S.U. (Traill)
2. Terrot I.
3. Motosacoche I.
4. N.U.T. I.
5. Douglas I.
6. Gladiator I.
7. Motosacoche II.
8. Terrot II.
9. Alcyon I.
10. Douglas II.
11. Douglas III.
12. Alcyon II.
13. Motosacoche III.
14. Alcyon III.
15. Ivy-Precision (H. C. Newman)
16. Clément I.
17. N.S.U. (Stewart)
18. Peugeot I.
19. N.U.T. II.

500 c.c. Class.

20. Matchless I.
21. Rudge-Whitworth I.
22. Scott I.
23. Rudge-Whitworth II.
24. B.S.A. I. (Brown Bros., Ltd.)
25. Matchless II.
26. Griffon I.
27. Blackburne (P. C. D. Douglas)
28. Motosacoche IV.
29. A.B.C. I.
30. René Gillet I.
31. Magnat-Debon I.
32. Scott II.
33. Griffon II.
34. Triumph I.
35. Peugeot II.
36. Douglas IV.
37. Motosacoche V.
38. René Gillet II.
39. Triumph II.
40. Calthorpe I.
41. Triumph III.
42. Terrot III.
43. Magnat-Debon II.
44. Peugeot III.
45. Clément II.
46. Gladiator II.
47. René Gillet III.
48. B.S.A. II. (Brown Bros., Ltd.)
49. Magnat-Debon III.
50. Motosacoche VI.
51. Peugeot IV.
52. B.S.A. III. (Brown Bros., Ltd.)
53. Gladiator III.
54. Rudge-Whitworth III.
55. Rover I.
56. Clément III.
57. N.U.T. III.
58. A.B.C. II.
59. N.U.T. IV.
60. Griffon III
61. Terrot IV.

Cycle Cars.

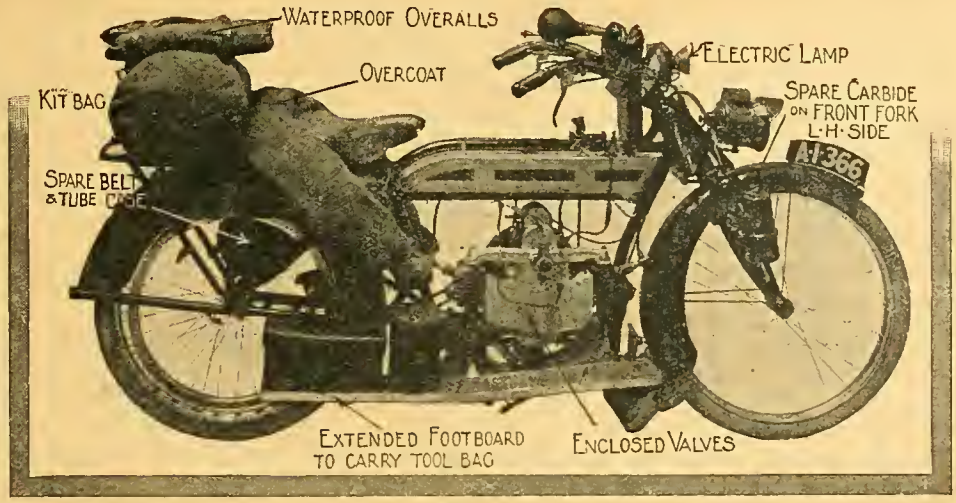
62. Bedelia I.
63. Chatean I.
64. Ruby I.
65. Ruby II.
66. Ruby III
67. Peugeot I.
68. Morgan I.
69 Terrot I.
70. Violet-Bogey I.
71. La Perle I.
72. Mathis I.
73. Peugeot II.
74. Noël I.
75 Terrot II.
76. Bedelia II.
77. Peugeot III.
78. Automobilette I.
79. Mathis II.
80. Enders Jack I.
81. Ch. Fournier I.



A NEW ZEALAND CHAMPION.

J. Boucher with the 3½ h.p. Rudge on which he recently won the 10 lap handicap, 15 lap open handicap, and the 10 mile championship of New Zealandfor 500 c.c. machines, at the Napier (New Zealand) race meeting.

THE DESIGN OF MILITARY MOTOR CYCLES.



A Douglas machine equipped for military work.

ALTHOUGH to the writer's mind the ideal machine for military despatch riding is not yet on the market, the most suitable type is that which one would ordinarily choose for winter riding or cycle camping.

In order to be passed by the military authorities, the machine must conform to various regulations. The engine must be a single-cylinder of about 500 c.c. capacity with dimensions of not less than 84 mm. bore and 84 mm. stroke. A certain number of horizontal twin-cylinder machines of less capacity will, however, be accepted.

Necessary Qualifications.

All types of machines are not, however, equally suitable. Let us first consider the conditions under which the machine will be used.

It has to be ridden under all sorts of weather conditions and stand unprotected from the elements at night. It has to be ridden over any kind of road, good, bad, indifferent, level, and hilly, over farm roads that consist principally of ruts and loose stones, and, when passing troops on the march, as often as not in the ditch. When delivering messages at night it has to be ridden over the fields where the troops may bivouac. On the open road high speed is essential, as there is no speed limit when carrying despatches; on the other hand, when marching with a column, slow speed is a *sine quâ non*, and the cycle should then be capable of being driven comfortably at not more than four or five miles an hour, otherwise one has to get off and push.

Light Weight and Variable Gear Desirable.

No doubt on the score of reliability, which is the very first essential, the Army regulations would appear to encourage a heavy, powerful machine, but, provided reliability can be ensured, the lightest machine that will do the work should be used.

When carrying messages short distances, the machine, loaded with all the rider's baggage, has to be pulled up time and again on to its stand. With a heavy machine, this requires a good deal of exertion at the end of a long tiring day. It must also be remembered that the greater part of the riding has to be done in lanes where, owing to twists and turns, the powerful machine cannot get along any faster than the lightweight. And when it comes to pushing, the lightweight scores heavily, and is the envy of the owner of the machine built for combination work.

With a lightweight a three-speed or multiple gear is a great advantage; it not only allows of a high speed on the level, but, when overtaking troops on a steep hill, when horse-drawn vehicles are apt to get out of line and take up most of the road, one can crawl up and thread one's way in and out without having to dismount. It is further a great help for slow riding in the column, and for this purpose a good clutch that can be continually slipped, but which will take up the drive again directly it is let in is required. A leather-faced clutch, if continually slipped, will sooner or later glaze or burn and will continue to slip when it is required to hold fast, and also has a habit of slipping if oil works out at the bearing and gets on the coned face. On the other hand, a plate clutch, which is ideal for slipping, is very difficult to keep entirely free, especially in cold weather.

Weatherproof Finish.

As the machine is continually exposed to the wet it should be of the "all black" type or else suitably enamelled all over, or as far as possible all the bright work covered. Most of the nickel finish on any cycle is worse than useless. Under war conditions it would have to be done away with, and during annual training there is very little time for polishing up, and the plate soon looks bad.

Mud guarding should be as effective as possible, not only to reduce unnecessary cleaning, but also to protect the rider. The engine and the transmission gear should be totally enclosed, and the magneto should be in a position where it is well protected. There is no reason why on the majority of engines the valve stems and springs should not be enclosed as they are on a motor car engine. Besides tending to quieten the engine, it considerably reduces the wear on the valve stems due to lack of lubrication and abrasion from mud and dust, and also makes cleaning the engine very much easier. From the point of view of protection the all-chain drive running in an oil bath, yet readily accessible, is no doubt the best, and I think that the disadvantages of this type of drive are largely imaginary.

The Design of Military Motor Cycles.—

In short, the ideal machine should be capable of being easily cleaned with a hose, or by throwing buckets of water over it, without any damage resulting.

The machine should be effectively silenced. The usual cocoa tin with holes punched in it ought to be replaced by a real silencer, even if it is more bulky. In actual warfare if you were in the enemy's country the noise made by the average silencer would very speedily call attention to your whereabouts. On the other hand, some sort of cut-out should be permitted to relieve back pressure.

As it is very necessary that a military machine should be extremely flexible, with a quick pick up, a really good carburetter is indispensable, so that the engine, even if cold, starts straight away whenever required.

Standardised Controls.

While on the subject of carburetters one is reminded of handle-bar controls. Why is it that the direction of movement of handle-bar levers is not standardised? Some carburetter controls are on the right handle-bar, some on the left, some throttles open towards you, some away from you, and I have known the air lever to open in one direction and the throttle in the other. The same thing applies to the spark advance lever and the decompressor lever.

In the case of subsidised motor vehicles the War Office lay down rules as to the different positions of the levers and gate changes, so that in case of mobilisation drivers would have no difficulty in changing from one vehicle to another. If the War Office or the manufacturers would only do the same thing in the case of motor bicycles and standardise the handle-bar controls, it would be a move in the right direction.

A kick starter is advantageous when riding in the column, but is not essential. Good brakes should be fitted and kept adjusted.

Nuts and bolts should be well secured. Military cycles get a good deal more jolting about and more vibration than the ordinary roadster machine, and some makes seem to contract a habit of shedding nuts and other loose impedimenta. There is not much opportunity of examining a machine thoroughly and seeing that everything is screwed up tight, and in bad weather cycles soon get caked up with mud, which makes examination and discovery of loose or missing nuts still more difficult.

Lamps and Generators.

There is a good deal of night riding to be done, and a good head lamp should be fitted, one which gives a good powerful beam and will not rattle itself to bits or blow out. The generator, too, should be one which goes on working without being coddled, gives a steady, even pressure of gas, and can be easily and quickly cleaned. It is also well to carry a spare tin of carbide. An electric lamp fitted with a dry battery of the flash lamp type, such as can be bought in any town, is a very handy thing to have fitted. It can be used as a head lamp in case of the acetylene lamp failing, and can readily be taken off the machine to find one's way on foot about a camp at night.

A large petrol tank should be fitted and replenished at every opportunity, as there are occasions when one finds oneself running short of petrol in a village where it cannot be procured and the road to the nearest supply is held by the enemy.

How to Carry the Kit.

As the motor cyclist has to carry the whole of his kit on his machine, it should be fitted with a good sized carrier. The best way of carrying one's kit is in a round-bottomed canvas bag, which can be used as a pillow at night. The telescopic box type of luggage container is not so good, as it is difficult to pack without the contents rattling and knocking themselves and the box to pieces, and, further, in many cases, the box cannot be removed from the carrier without unpacking it to get at the heads of the screws which hold the clips.

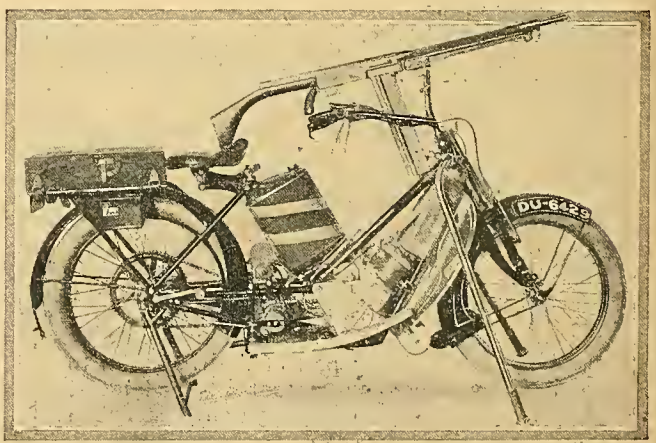
The tool bags should be constructed so that the contents can easily be got at without unpacking the whole bag. The strap and buckle fastening is better than some of the patent fasteners, which are apt to come adrift on the road. A wallet for gloves, goggles, and other oddments which have to be got at quickly is an accessory which is very useful.

Tyres and Detachable Wheels.

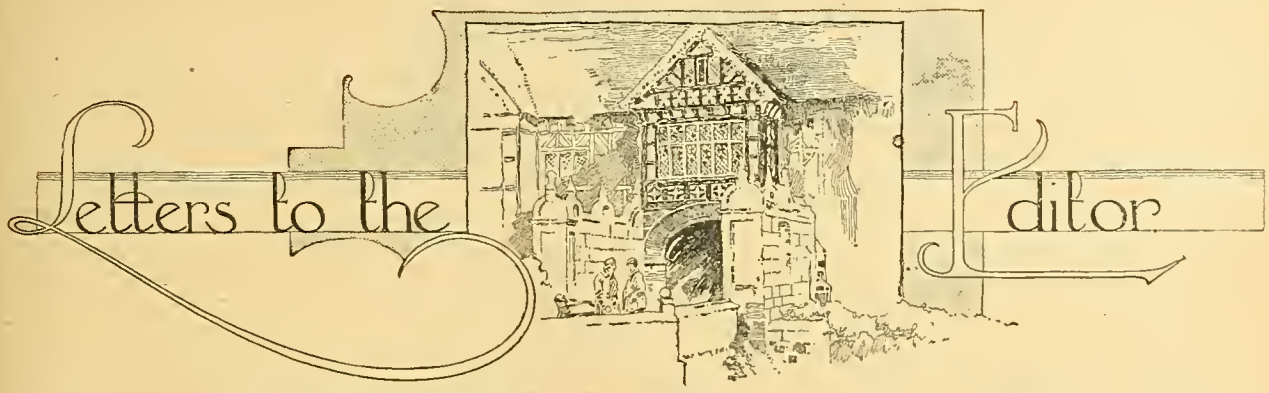
Good heavy non-skid covers should be used to prevent side slip and to minimise the risk of punctures. To deal rapidly with punctures detachable wheels would be a great assistance, and no doubt if the Military Authorities built or designed machines for their own use standardised detachable wheels, which could be used either as a front or back wheel, would be specified. A spare wheel complete would be carried in the transport, and would fit any of the machines.

To sum up, a military cycle should be as light as possible, consistent with reliability, speed, and flexibility, should be mud and weatherproof, silent, and with good petrol and baggage-carrying capacity. In the writer's mind there is no doubt that the most suitable machine is one fitted with a twin engine rather than a single; it is certainly more silent and flexible, and has the advantage that one can on occasion get home on one cylinder. Of the machines on the market at the present time the one which comes nearest to the ideal sketched above is a V twin, but this is not admissible under the War Office regulations. There may be disadvantages in the V type of engine, but in permitting only the horizontal type of twin engine the authorities are considerably restricting the choice of those who prefer a twin to a single-cylinder engine.

SPECIAL RESERVE.



A 3¾ h.p. Scott to which is fitted a quick firing gun made by the Coventry Ordnance Works and weighing 16 lb.



The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Marking System in the Scottish Trials.

Sir,—The comments of "Ixion" and the letter of Mr. Campbell McGregor certainly seem to me to bear out what I said in a letter to you some little time ago, viz., that too much prominence is given in trials to the ability of a rider to ride to a schedule and too little to hill-climbing ability, which, in itself, proves reliability of a most desirable kind. Mr. McGregor's explanation is very clear and lucid, but I, for one, am certainly of opinion that his silver medallist who has climbed all hills, scored a perfect sheet for condition, and lost only one mark for a time error, has made a more meritorious performance than the gold medallist with whom he is contrasted, who has climbed five hills only, lost fifteen marks for condition, and gained full marks for time. I certainly cannot see how the fact of a rider being a few minutes early proves that his machine is not reliable; if he is late the matter is, of course, different, though even this may be an error of judgment and no fault of the machine.

I quite see the point of the Edinburgh club, but I cannot help thinking that they lay undue stress upon riding to time, and I would suggest that, if one mark were deducted for every minute early or late when the allowed ten minutes has been exceeded, quite a sufficiently large penalty would have been incurred. JOHN BONYTHON.

Speedometer Drives.

Sir,—We notice a letter in your issue for July 23rd from Messrs. Rudge-Whitworth, Ltd., illustrating the method which they have adopted of drive for speedometer from their front wheel. We should just like to mention that we have for years recommended such a fitting, and we have at various times approached the leading motor manufacturers with a view to getting them to standardise their hubs for a fitting of this kind. The difference, however, between ours and that described by Messrs. Rudge-Whitworth is that we suggest the large driving gear of the speedometer being screwed (left-handed) to the hub flange direct instead of soldered, so that the tendency of the drive would be to keep this locked. The special features we claim for this are neatness, rapidity and ease of fitting, and the dispensing with clips and screws for fastening the spokes. The difficulty, of course, is that it would become necessary for the various manufacturers to standardise a design of this kind to justify us in stocking our instruments with suitable fittings. Needless to remark, it overcomes at once all difficulty in the correct centring of the gear wheel, which is a most important detail in the fitting of a speedometer. THE JONES SPEEDOMETER.

MARKT AND CO. (LONDON), LTD.
F. E. Dickinson.

[This plan has been recommended over and over again in our pages by "Ixion" and others, and we are glad to note that leading manufacturers are taking it up.—ED.]

Mrs. Wheyman, of Charlton, who has recently become the possessor of a 6 h.p. Enfield sidecar combination.

Sir,—Having regard to "Ixion's" article in a recent issue regarding speedometers, I give my experience of a motor cycle speedometer for the benefit of makers.

This season I fitted a new speedometer to my machine, and with regard to its recording capabilities have no complaint to make, but the method of attachment was so questionable that, before it had run 500 miles, the bracket which carries the dial snapped off for no apparent reason, since it was correctly fitted, and the machine has Druid spring forks; and dropping it broke the shaft. The makers supplied a new bracket free of charge.

Whilst I was on tour three weeks ago the speedometer drive "gave up the ghost," but as it was raining at the time, the shaft was disconnected, and the dial was left on the machine, clamped to the handle-bars as usual, without anything to drive it. For some reason not apparent, the bracket again broke, dropping the speedometer in the road, and, as I was not fortunate enough to see it go, I have lost the speedometer altogether, and all this trouble and expense happened inside 1,400 miles.

It is little items such as this that are unavoidable—at least by the users—that increase unduly the cost of motor cycling, and cause aspirants to the sport to hesitate on the score of such heavy incidental expenses. LK 1476.

Overseas Repuirements.

Sir,—Noticing in your Overseas Supplement that you were desirous of obtaining readers' ideas of ideal machines, I hereby wish to give you mine.

In the first place, I would divide the machines into two classes, viz., city and country. For the greasy tram blocks, etc., of the city a light, easy starting, even firing twin with shortest possible wheelbase is required.

The most important part of the country or touring motor bicycle is the frame. The engine is comparatively a minor detail; any decent engine will suffice. The frame must be very strong, as also the rims, spokes, saddle pillar, etc. The majority of English frames are not nearly strong enough. They are light, and break up very easily. On my machine the down tube has broken three times. I have used up two front and three back rims, and twenty-five spokes. The steering tube has broken, and also the saddle pillar.

My ideal machine would be: Strongest frame procurable, short wheelbase, dropped top tube, rear springing (this is absolutely necessary), 26in. or 28in. wheels, Roman rims, heaviest gauge spokes, wide mudguards with good clearance for mud, side extensions, semi T.T. bars, back adjustable footrests, pan saddle on sprung saddle pillar (apart from sprung wheel), three-gallon petrol tank, half-gallon oil tank, Brampton forks, 2½in. Kempshall tyres with security bolts, Dunlop 1in. belt, and Forward fastener. All-black finish—not a spot of nickel anywhere. Handle-bar control throughout. As to the engine, a 5 h.p. twin J.A.P., low compression, would be about the best for a solo mount, with adjustable pulley. Three-speed gears, etc., are not absolutely necessary, and it is doubtful if they are worth the extra weight and cost. Lubrication—semi-automatic. Minor details are rustless spokes, large screw-on filler caps, oil and petrol gauges dispensed with. If decompressor is fitted it should be operated by the lever that is fitted for the front wheel brake. (Front wheel brakes are unknown out here; they are a nuisance.) Pedalling gear not to be fitted. Kick starters or free engines are not essential. Regarding crank case clearance, I think the average clearance is sufficient, and as we have lots of muddy roads it is as well to keep the weight as low down as possible. Magneto could be set fairly high up. Carburetter of the two-lever type.

What we want is a good sturdy machine that possesses a long life, that will keep going through all weathers, and that will plug up long hills at medium speed. It must be fairly light on petrol, and not side-slip at every possible opportunity. When cleaned for the first time after twelve months it shall still be a self-respecting motor bicycle.

Melbourne, Victoria. R. JOHNSON.

Sir,—For some time past I have been thinking of writing and congratulating you on the enterprise shown in connection with the Overseas trade and helping us to get machines built for use in the Colonies and not ones that have been adapted, or, as often as not, not even adapted. My personal opinion is that the bugbear of rocks, etc., found lying on roads has rather been overdrawn, though a certain amount of clearance, more than that given to home machines, is required. The great danger to provide for is not so much bad roads as the meeting of them unexpectedly. Handle-bar control of gears is not universal, and this is one of the things absolutely essential for Colonial machines. One meets dust feet deep, wet sludge, and large ruts so unexpectedly that one has no time or inclination to take the feet off to find and put the low gear in. The result is that a great risk is run of having a bad sideslip in the dust or having the wheel or tyre simply sheared off in a rut while going at about 25 m.p.h.

One can hardly over-estimate the blessing a handle-bar control gear would be in a case of this sort. To cut out and change the gear, and tick along at 4 m.p.h. would be the certain work of about ten seconds, and the bad part could be crossed with safety. Two gears and a free engine meet all requirements out here, as sidecars are kept for station use, where one can get pacca (metalled) roads.

I am now going to make a suggestion which, to my way of thinking, is more important to us than any specially designed machine. If one of the dealers would make out a catalogue of prices of all the machines, showing the price he wants for the machine landed free on rail at Karachee, Bombay, Madras, and Calcutta, he would make his fortune. As we stand at present, I am willing to stake anything that there is not one in a hundred persons who knows what charges a motor bicycle is subjected to on its way out. The result is that he is haunted by the fear that he does not know to what extent he will be involved by the time the machine reaches him. If a catalogue of inclusive prices were issued, all one would have to do would be to add the railway freight to the catalogue price. But let there be no extras after the machine has arrived. Spare parts should also be priced in the catalogue.

Sargodha, Punjab, India. P 591.

The Motor Cycle in Mauritius.

Sir,—There are a great many motor cars and motor cycles out here and the numbers are increasing, the total being about 500 (cars and motor cycles, I do not know the separate figures), which is large for so small a colony, but is accounted for to a great exent by the "Surra," a disease which attacks horses. This became so serious a few years ago that the sugar planters raised a loan from the Government to enable them to replace horse traction on the estates by light railways; these are now installed all over the island. At social functions, such as the races, dances, etc., quite a common sight is a stream of motor vehicles with perhaps one or two horse-drawn carriages, the proportion of the latter being far smaller than at home.

With regard to motor cycles, F.N. 2½ h.p. machines long held the field, but are being ousted by English machines, of which the Phelon and Moore 3½ h.p. is by far the most popular. My machine is an F.N. four-cylinder, of which kind there is one other in the island. At present the French-Mauritians swear by P. and M., but probably any good English maker, who could supply a no-trouble machine, could become equally popular. The roads here are poor and play havoc with tyres. They are not gritty, nor so stony as one experiences in other Colonies, but the road metal, of volcanic rock, wears away the treads of the tyres in an unexpected way. Perhaps also the moist and hot climate affects tyres generally. P. E. MARR.

Port Louis, Mauritius.

A Lady's Choice.

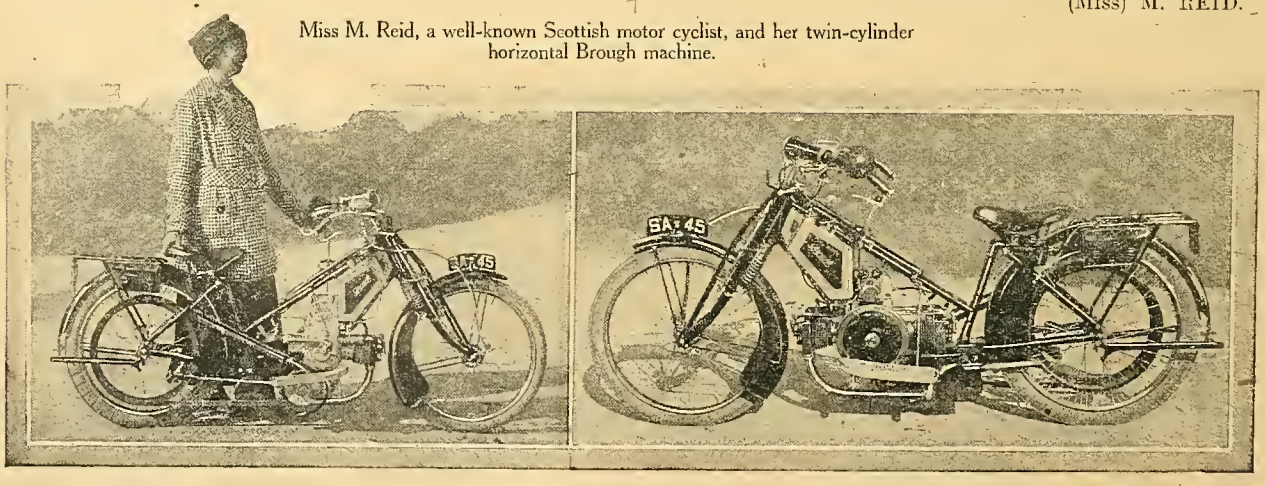
Sir,—I have read the article dealing with ladies and lightweights in a recent issue of *The Motor Cycle*. While some prefer a lightweight, I prefer a machine of medium weight and plenty of power. This year my choice fell on a 3½ h.p. horizontally opposed twin Brough, with two-speed engine box.

From the enclosed photographs you will see that it is a perfect lady's model. It is a beautiful machine, and runs very sweetly. The engine is capable of 60 m.p.h., and hills never trouble it.

The smooth drive of this twin is far ahead of any machine I have ever ridden. I advocate a horizontal twin in preference to any engine made, and those who have had experience of this machine will endorse my remarks.

(Miss) M. REID.

Miss M. Reid, a well-known Scottish motor cyclist, and her twin-cylinder horizontal Brough machine.



British Motor Cycles in Germany.

Sir,—Referring to your issue of the 9th July *re* "British Motor Cycles in Germany," I may say that I fully endorse in every respect Mr. Cap's views upon this subject. I have quite recently taken over the sole agency for Germany for Williamson, N.U.T. motor cycles, and the Derwent sidecars, and judging from the number of enquiries received it seems as if the business is going to be a success. The Germans seem to realise that English machines have no superiors in the world as far as construction, reliability, and appearance are concerned, and I must say that German makes are nowhere near "good old" English lines.

There is also an increasing demand for a good lightweight.

Frankfurt am Main. ALBERT A. CRESSELL.

Age Limits for Accident Insurance.

Sir,—In your last week's issue I notice a letter signed "Medicus" complaining of the fact that, owing to his age, which is apparently between that of sixty and sixty-five, he was unable to obtain a personal accident insurance for himself whilst riding a motor cycle, mentioning in particular the Motor Union Insurance Co. as being the office where it was absolutely declined to take this risk on.

I notice your correspondent adopts the *nom de plume* of "Medicus," but I should be rather inclined to think that he has ill-chosen this *nom de plume*, as if he had any medical knowledge at all he would, of course, know that there must be a greater risk in the case of an accident of the injuries resulting fatally to a man of sixty-five years of age than to a youth of sixteen or seventeen.

I believe all insurance companies issue their policies on the assumption that their assureds are perfectly capable of driving their particular machines, and it is not on the score that the man of sixty-five is not able to drive that they refuse to accept his personal accident risk, but it is simply that, should he break any bones, it is certainly more serious than it is for a younger man. It seems to be a foregone conclusion by men of the same character as "Medicus" that insurance companies are purely philanthropic institutions, but, so far as my dealings with them are concerned, I have always found them purely straightforward business concerns, provided that one deals with them on the same lines. U 1315.

Some Criticisms on Sidecar Design

Sir,—I see that you are now making your annual reference in reporting the Scottish and English Six Days Trials to the usual crop of broken sidecar frames and couplings. It is a most surprising thing that, with motor cycle engineering at its present high level, the design of the modern sidecar should be such a haphazard business.

Of course, there are notable exceptions; but really the majority of luxurious and heavy sidecars on the road to-day are irretrievably bad in design. There are two great lines of error on which designers work—one is to undersling (as they call it: it is not true underslinging) the chassis. The other is the piling up of weight forward of the axle.

On motor car, the ground clearance being limited and stability being all essential, any attempt at cutting down wind resistance must result in a low design. But this does not hold good with the sidecar. The wind resistance depends on the surface presented to the wind, not upon the height of the body from the ground, and the stability is quite sufficiently obtained by widening the track to counteract the lifting tendency on left-hand corners. Moreover, on these ultra-low seated sidecars the passenger, unless very fully screened, sits in a perpetual shower-bath of mud, grit, and tar, while conversation is out of the question owing to the great distance between the heads of driver and passenger.

When the sidecar first appeared it was greeted with a storm of hostility, and broken frames were freely prophesied. But the strange part was that frames did not break then so much as they do now. The reason is easy to see. Increased weight has something to do with it certainly; but the best proof is this: Take off the near side front wheel of a motor car and try to make a good three-wheeled vehicle of what is left. It is impossible until you shift the centre of gravity backwards and enable the unsupported corner to maintain its normal level. The modern sidecar is little better than the impossible vehicle described above. So long as the passenger sat with all, or almost all, his weight over the sidecar axle the vehicle was a sound one, but as soon as elaborate, modern requirements and long, heavy bodies made this inconvenient, we got a lop-sided and top-heavy affair which is bound to put an unfair strain on its connections and the front of the machine.

There is no need for these incorrect designs. It is possible to fit a really comfortable semi-recumbent coach-built body on a plain chassis (witness the Rover) and carry the passenger's weight almost entirely on the axle without spoiling the appearance or the stability of the construction. It is to be hoped that makers will not bring about the demise of the sidecar by over-elaboration at the expense of sound design and thus repeat the history of the tandem-seated tricars. B. C. DE W. SIFFKEN, B.A., CANTAB.

Unnecessary Horn Blowing.

Sir,—The reasonable letter in your issue of July 30th by "Daimler" prompts me to write you on a kindred subject.

One of the Christadelphian ecclesias here in Birmingham is unfortunately situated next to Gough Street, well known as Birmingham's test hill. It is quite a usual occurrence for thoughtless motor cyclists to disturb the worshippers in the hall by continually endeavouring to ascend Gough Street. On a recent Sunday a rider of a big twin made several attempts in succession, failing in about six instances to get up. These abortive efforts were accompanied by frequent roaring of the engine when the gears were changed or the engine freed. Perhaps a word in your valuable journal would put a stop to the nuisance.

H. W. WARRE.

Colonial Requirements.

Sir,—As a two years' reader of *The Motor Cycle*, I have been much interested in the opinions of your Overseas readers as to the desirable qualities of a Colonial machine. I have just read the letter of Mr. L. E. Stuart William in your edition of May 28th, and am surprised to see that, like many others, he prefers a plated finish to the more workmanlike all-black. It is a curious argument, too, to say that "the rains in India last only a couple of months, and then only for a couple of days at a time in the plains." This is wildly inaccurate. India, of course, comprises many climates, and in Sylhet, where I have lived for the past eight years, we have few dry days between March and November. On one tea garden where I was stationed I have seen two months without a dry day, and with a rainfall for that time of over 100 inches, while there is at least one Sylhet tea garden with an average of over 250 inches per annum, while Chessapunji, not far from here, holds the world's record for rain. One day in June last the gauge there gave 31 inches in a day, but the record is 41. So much for rain in some parts of India.

If I were designing a machine for use here without a sidecar—few of our roads are fit for these, though in Assam it is another matter—the specification would be about as follows:

Engine.—350 c.c., air-cooled, two-stroke if petrol economy is not essential; this for simplicity, as the nearest garages or repair shops are in Calcutta, and we count ourselves lucky to get a repair job done inside a couple of months.

Tank.—Two gallons.

Tyres.—2½in. at least.

Gears.—Two-speed gear box. Three-speed hubs give trouble, and are not easy to repair.

Wheels.—Roman rims. My rims, of ordinary make, are badly dented. Spokes extra heavy.

Clearance.—Not less than 6in.: more if possible.

Finish.—All black. We planters can get a coolie to clean off mud and dust, but people in towns are not so fortunate.

Mudguards.—Big clearance. When you run into a bit of "ponk" it is usually necessary to scrape chunks of mud out of guards, front brake, etc., which is not a nice job when the temperature is over 100°. PLANTER.

Sylhet, Assam, India.

SUMMARY OF CORRESPONDENCE.

Messrs. Phelon and Moore write: "In our announcements in connection with the Scottish Trial we stated that the P. and M. was the only make of which there were more than four entries and every entrant received an award. We find, however, that there were seven Clynos entered which gained seven awards, and we shall therefore be glad if you will, in fairness to the Clyno Company, publish this letter."

RACING AT ST. ANDREWS.

Leven and East of Fife M.C.C. hold a Successful Meeting on the Sands.

ON Thursday last this club held their annual races on the sands at St. Andrews. A representative entry had been received by the secretary, Mr. A. J. Carlow, and although none of the English cracks were present, the only notable Scottish absentee was A. H. Alexander, who was unable to compete owing to pressure of business.

The programme contained sixteen classes, and although one or two of these were sparsely filled, the racing was keen and exciting. In Class 1 (open), for machines up to 350 c.c., A. B. Watson (2¾ N.U.T.) and D. S. Alexander (2¾ Enfield) were the only starters. The distance was ten miles, and the former, early taking the lead, won in 13m. 27s.

Class 2 (open), for machines having engines up to 560 c.c., was much better supported, and consequently resulted in a keen struggle. J. W. Adamson (3½ Triumph) took the lead at the start, and maintained it for a few laps, but O. G. Braid (3½ Norton), who was at the leader's back wheel, finding an extra ounce of speed, went to the front and won by several yards, his time for the ten miles being 12m. 34s. J. W. Adamson (3½ Triumph) was second, and J. Christie (3½ Triumph) third.

Big American Twin's Struggle.

Class 3, open for machines having engines up to 1,000 c.c., the distance being approximately ten miles, was productive of a great surprise. At the start the 7-9 Harley-Davidson, ridden by C. Armstrong, showed splendid acceleration, and before a quarter of a mile had been covered was leading the field. Gradually drawing away from the other competitors, it was leading by threequarters of a mile at the end of the eight miles. A faulty plug, however, gave trouble at this point, and it finished on one cylinder. Even then it managed to secure second place, first position going to G. L. Sawer (7-9 Indian), while A. J. Carlow (7 Zenith) was third. The winner's time was 11m. 59s. W. Lawrence (7-9 Indian) was unfortunate enough to break the driving chain during the afternoon no fewer than four times.

Class 4 (expert barred), for machines having engines up to 350 c.c., provided A. B. Watson (2¾ N.U.T.) with his second win, J. R. Duncan (2¾ Douglas) being second, the time for six miles being 9m. 4s. Particularly hot machines were the Nortons ridden by the brothers Braid, three of whom were present, and in Class 5 (expert barred), for machines up to 560 c.c., H. W. Braid easily secured first place, with A. B. Watson (2¾ N.U.T.) second, the time being 7m. 32s.

Class 6 (expert barred), for machines up to 1,000 c.c., gave Armstrong (7-9 Harley-Davidson) a winning ride, and Class 7 (open), a one mile race for machines up to 350 c.c., was won by A. B. Watson (2¾ N.U.T.).

Class 8 (open), one mile, for machines up to 560 c.c., went to O. G. Braid (3½ Norton), with A. J. C. Lindsay (3½ Rover) second, and J. R. Alexander (7-9 Indian) secured Class 9, one mile, for machines up to 1,000 c.c.

Class 10 (expert barred), for machines up to 350 c.c., one mile, was won by Watson on a N.U.T., with J. R. Duncan (2¾ Douglas) second.

H. W. Braid (3½ Norton) won the expert barred mile event for machines up to 560 c.c., A. B. Watson (2¾ N.U.T.) being second, and P. Grosset (3½ Ivy) third.

Class 12 (expert barred), for machines up to 1,000 c.c.—P. Grosset (7 Zenith) won, and G. L. Sawer (7-9 Indian) was second.

Class 13, for machines up to 1,000 c.c., ridden and owned by amateur non-experts permanently resident in the county of Fife.—H. W. Braid (3½ Norton) first, W. Turnbull (7 Indian) second, and P. Grosset (3½ Ivy) third.

The Sidecar Events.

Class 14, for motor cycles and sidecars with engines up to 600 c.c., provided interesting racing. The distance was approximately four miles, and at the start R. D. Somerville (3½ Rover sc.) took the lead. This he maintained until within half a mile of the finish, when a shorting plug pulled him up and let up J. Christie (3½ Triumph sc.), with H. G. Lawson (3½ Premier sc.) close up.

A. J Carlow (7 Zenith sc.) won the 1,000 c.c. sidecar class, the other competitor, W. Lawrence (7-9 Indian sc.) breaking a chain.

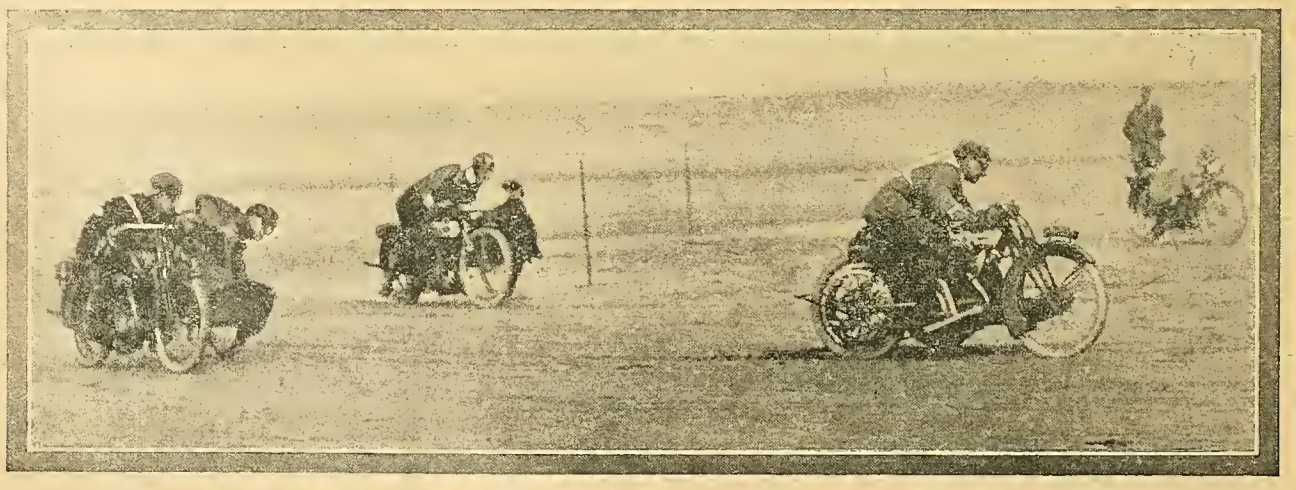
Class 16 (expert barred), for sidecars up to 600 c.c., distance two miles, was won by J. Christie (3½ Triumph), with R. D. Somerville (3½ Rover) second, and H. G. Lawson (3½ Premier) third. This finish was one of the best of the day, a few yards covering the three riders.

As a wind-up, an open invitation race was held, the distance being approximately four miles. Right from the start Armstrong (7-9 Harley-Davidson) took the lead, and finished well ahead of the second man, A. J. Carlow (7 Zenith).

COMPETITIONS IN THE COLONIES.

A reliability trial has recently been decided in New Zealand, in the shape of an open trial for sidecar combinations over an extremely difficult course of 140 miles. Strange as it may sound, heavy snow was encountered, which naturally added greatly to the difficulties. G. B Brown and J. H. Michael, both riding Triumphs, registered non-stop runs, and the team prize was also won by Triumph riders, with a total of 783 marks, which won them this prize by over fifty points.

Great interest was displayed at a race meeting lately decided at Bloemfontein by the Orange Free State A.C. The chief event was the fifty miles race for the Continental Trophy. The actual distance was said to have been just over fifty-two miles, and the winner was W. Campbell, riding a T.T. 3½ Triumph, his time being 56m. 56s., which beats the South African record for the distance, L. A. Howie (3½ Triumph) second, and E. Hoehne on a similar make of machine being third.



R. D. Somerville (3½ h.p. Rover sidecar) leading Premier and Triumph machines at the turning point in the four mile sidecar event

A DASH ACROSS FRANCE.

Exciting Adventures which befell "The Motor Cycle" Representatives on the way home from Grenoble.

THE representatives of *The Motor Cycle* who went over to France last week in connection with the International Six Days Trial had a most interesting if not exciting trip. A start was made from Havre last Thursday morning in company with Mr. and Mrs. Loughborough and Rev. E. P. Greenhill. Three competitors, in W. B. Little (Premier), Frank May (A.J.S.), and J. Greenwood (Connaught), followed the pilot car, which contained five persons. At that time the situation had not assumed the seriousness it now has, and none imagined that the trial would be postponed.

It so happens, however, that the event was cried off the same day the party started across France by road, but the stopping places not having been fixed beforehand, wires failed to intercept the party. A fast pace was set up, and May had engine trouble at Romancourt and elected to train to Paris for repairs.

Near Gien on the second day, H. F. S. Morgan, who had started the day previously, was met returning, he having been troubled with a main bearing bush on his engine.

The Trial Abandoned.

The car and the two motor cyclists managed to lose one another, but all arrived at Grenoble safely last Saturday evening and learned with the greatest concern that a general mobilisation of the French Army had been ordered an hour previously, that the trial was abandoned, that petrol had been commandeered by the French Government, and that foreigners must quit within twenty-four hours. Here was a serious state of affairs!

The car party at once decided to return at the earliest possible moment. There were no trains available, and on Sunday morning the British Consulate was visited. Here we found a number of other competitors and their passengers making enquiries as to the best course. All were advised to leave as quickly as possible, and the British Consul gave it as his opinion that *essence* would be obtainable in the villages. This news led Pressland (Crouch Carette) and W. Chater Lea (Chater-Lea) and their passengers to discuss a return *via* the Galibier Pass in order to enjoy some of the gorgeous scenery of the French Alps. What became of them we do not know.

Finn and his passenger with the Enfield sidecar had managed to lay in a store of petrol and intended returning by road. R. A. Bishop with the 8 h.p. Enfield sidecar which Greaves drove in the English Six Days Trial seemed undecided what to do, though he had journeyed down by train. Little and Greenwood elected to return by the route they had traversed.

Petrol Obtainable at Last!

By dint of diligent enquiries a source of petrol supply was privately forthcoming, and our party therefore took on board some fourteen bidons. There was naturally great excitement in Grenoble, and a military air on all sides. Only a few trains were running to certain restricted spots, and weeping women and children bidding good-bye to their menfolk made matters look ominously black.

A start was made on Sunday morning on the 500 mile trip to Havre, the party having decided not to lose a moment. Railway crossings, of which there are a large number in France, as well as the bridges, were guarded by gendarmes, and the car was pulled up on many occasions and the occupants interrogated as to their nationality and as to the nature of the baggage, the presence of explosives being feared. We had taken the precaution to display the emblems of the *Entente Cordiale* on the car and many times they were recognised and enthusiastically cheered.

The increased vigilance of the authorities, however, impressed upon the party the extremely serious nature of their position, and the probability of being cut off in France should the Channel service be stopped, which it was anticipated would be the case.

A Dash through the Night.

At Decize, where the party dined, it was resolved to continue throughout the night by changing drivers and relying upon the Michelin Guide and Baedeker for the route. Splendid progress was made, and, curious to relate, during the night only once was the party challenged by a sentry. As dawn broke cart loads of reservists from the country were encountered on their way to the mobilising centres, and twenty-four hours after the start the distance recorded was 415 miles. But our petrol supply was now becoming exhausted, and many times our requests for replenishments were met with a shake of the head. At Dreux, however, our luck was in, and once again we laid in a good store. How thankful we were that the French roads were so straight! Speed was quickened as daylight improved, but now another trouble threatened the party, which, of course, was absolutely reliant upon the car to see them safely through. It was feared that the ferry across the Loire at Quillebeuf would be suspended, which fear was later discovered to be a well timed one, and the route consequently changed to the longer stage *via* Evreux and Rouen.

Occasionally we were able to pick up scraps of war news, but the alarmist reports were in the main proved later to be unfounded, but they served to increase our determination to go through to Havre to avoid risk. The sentries were not so much in evidence as the frontier was left behind, but the military preparations were by no means relaxed. Havre came in sight at last after twenty-seven hours' continuous running.

It was generally believed that Wednesday night's boat would be the last across for some time, and, consequently, we fear that the remainder of the British party may be subjected to great inconvenience, as nothing had been heard of them when we left Havre.

The boat on which the writer sailed was stopped in the Channel on Wednesday morning while a torpedo boat encircled her; a pilot was taken aboard off Southsea to navigate the boat by a roundabout route (it was said and believed to avoid the mines), and after many delays in the Customs at Southampton, the train due at Waterloo at 9 a.m. got there at 3 p.m., and there was not a single traveller who was not heartily glad to set foot on English soil again.

THE AUTO CYCLE UNION.

Six Days Trials, July 6th to 11th, 1914. The Judges' Report.

Machines.

The judges would particularly like to comment upon the performances of the different types of machines. Taken all round, most solo mounts were capable of doing practically everything required of them, and varied only in their comfort and reliability. The performance of the 4 h.p. Triumph ridden by Mr. W. Westwood may be noted as particularly fine, while the Blackburne machines are also worthy of very favourable notice on account of their good engine design. The Douglas team accomplished an excellent performance. The sidecar machines failed to put up as good a performance as usual, largely on account of the fact that, with the exception of the Clyno in particular, no machine appeared to have been designed as a unit. In nearly every other make the frame was designed so that either too great a proportion of the load was taken on the front connection or else the sidecar axle was bent to every possible shape without any attempt whatsoever at staying except of a very crude nature, which staying appears to have been added as an afterthought, and which, owing to the frictionless nature of the fastening, provided small additional strength. A frame should be triangulated as far as possible, and designed with as little shear as possible on the joints. The Matchless sidecar frame is an example of correct staying of axle, though even this machine does not fully carry out the principle of triangulation, and the very rigidity of the frame as built was probably a source of weakness, as was exemplified in the case of competitor No. 69 (G. Hardee, 8 h.p. Matchless sc.). The vertical moment of inertia taken on some of the frames is ridiculously small, with the result that the stresses thrown on the frame are out of all proportion to the load, but here again the Clyno was an exception. The practice of carrying a can of petrol entirely unsprung and near the driving wheel is bad, as it leads to severe shock where it is entirely unsprung.

Cycle Cars.

The cycle cars showed great improvement, as they are admittedly less suitable for the routes traversed than motor bicycles. At the same time, however, sufficient attention has not been given to the design of the axles, which, in some cases, either bent or else wore badly. The underslinging of frames would improve the steadiness of many machines, as would proper axle staying; the Gordon cycle car was bad in this respect, and had only about two inches bearing surface on the steering heads to take the whole side load. The performance of the Calthorpe was excellent, and the judges would also like to draw attention to the J.B.S., which finished in excellent order. It would appear to be a good example of the cheaper form of machine. As far as transmission is concerned, the Gordon cycle car is comparable in efficiency to many of the sidecars, and probably scores heavily in this respect. More steering lock should be provided on cycle cars.

Frames.

There is still far too much guesswork in the design of this vital part; the frames of sidecars have already received comment, and are bad almost without exception. Frames of motor cycles are also poor in many cases, and are only able to stand up to the work on account of their size and weight. The judges are surprised that more use is not made of steel and aluminium compounds and steel pressings in frames. They would particularly draw attention to the steering head. At this point many machines have bends and curves so designed as to practically double the forces tending to shear the tubes, and, incidentally, causing vibration which has a bad effect on the wear of the head bearings. Many of these bearings were very slack after the trial; they should be provided with greasers and larger bearing surfaces, so arranged as to each take an equal share of the thrust. The Lea-Francis was an example of sound design in the latter particular.

It is interesting to note what an excellent effect on the comfort and running of a machine is obtainable by a properly balanced open frame such as is fitted to the Scott. The Scott machine performed excellently and gave one a greater impression of unit efficiency than any other machine. The frame was well designed, and the judges would draw attention to the possibilities of the open frame considered from the girder point of view, such as might be obtained by the use of a one-piece pressing. In such a case, the bottom of the frame would shield the whole of the power unit. They would also draw the attention of designers to the value of straight tubes and longer and, in the case of sidecar machines, heavier tube sockets. It was noticed that it was the exception to find the tube sockets tapered off in cross section towards their ends, which ends also should be serrated or wavy in plan to avoid local intensity of stress. The method of dipping the whole frame of a machine is greatly preferable to end brazing, which not unfrequently weakens frames so that after a few months' running they take up a permanent set to the detriment of almost every part. In several instances frames might easily be strengthened by such fittings as large silencers, which might also act as mud shields, as in the Lea-Francis, and yet clear the ground sufficiently to avoid any ordinary road surface.

Power Units.

In constructing the power unit of a motor cycle, it is not sufficient merely to obtain power, it is extremely important that the engine should be silent in itself as distinguished from the noise of the exhaust, and as conducing to this result, it should be clean and free from vibration; such silence is the best evidence of good design and workmanship. Most engines were not in any way flexible, and consequently to allow for this defect they were more powerful than was really necessary, with the result that they were capable of turning at high speeds, which under most conditions causes not only discomfort to the rider, but also unnecessary wear and shock on the various portions of the frame and transmission. It is desirable to construct the power unit to give not only a smooth torque, but in such a manner that it can be conveniently enclosed and made free from rattle, whilst maintaining a reasonable amount of power at low speeds. The Scott engine was a good example of care in this direction, but its silencing apparatus was not so good as might be wished for.

The two-stroke machines generally were altogether creditable.

Proper means for lubricating every part (under slight pressure if necessary) should find a place in almost every machine.

Brakes.

Practically every machine which got through the trial was fitted with fairly good brakes, although they were in many cases weakly attached and fitted with too small a surface and too little leverage or means for adjustment. It is very important that brake rods should not be unduly bent out of the straight, and in the case of front wheel brakes, they should be more heavily anchored at the forks, for otherwise they are almost useless and better omitted or applied to the rear wheel. The Lea-Francis was the best example of front brake design. It is desirable that compensating sidecar brakes should be used on heavy outfits, and these are preferably operated by rods in place of wires. The internal expanding type of brake is equally effective forwards or backwards, and gives no trouble. Some method of holding a machine from running backwards or forwards on a hill without the driver leaving the gear in engagement is also desirable, and a small ratchet is not difficult to fit to a hand brake. Few brakes were effective in holding machines backwards, as was shown in the restarting test, neither are the springs fitted to pull off the brakes up to their work, with the exception of the P. and M., Blackburne, and one or two other makes.

Forks and Springing.

Although the bad roads may account for a good deal of the trouble, that fact was insufficient excuse for the number of front fork springs found broken at the end of the trial. There is no need for there to be excessive side play in any of these designs, and the use of spring washers allowing side play of the links is distinctly bad. The link pins should be fitted with greasers as in the Matchless machines, and the use of leaf springs or other shock-absorbing device in place of coil springs might well receive attention. In the opinion

of the judges it is a matter of comment that there were not any machines sprung both front and rear. Especially in the case of the large sidecar outfits, it appears somewhat extraordinary to spring the seat of the sidecar only and to leave the whole outfit at the mercy of every road shock. The whole chassis should be constructed as a unit and sprung as independently as is possible. A one-inch spring motion would be sufficient to prevent frame damage on the worst roads.

Rims and Wheels.

On the rough roads encountered in the trial it is natural that there should be some damage done, but most rims were too weak. It is not entirely desirable to fit absolutely rigid wheels on a light motor cycle or sidecar, but it is desirable that the rims should be stiff. The Clyno, P. and M., and Premier suffered no damage in this respect, but many others were injured.

Detachable wheels are desirable, especially on passenger machines, and although introduced by one or two makers some time ago, are being but slowly adopted by other firms.

As usual, tyres were the cause of many marks being lost. Large section tyres were generally fitted, especially on the passenger machines, and their adoption undoubtedly tends to personal comfort, and to the saving of the machine itself. The very loose stony surfaces on the many steep gradients were a severe test of tyres, and they appeared to have stood it well in general. The element of luck cannot be entirely eliminated, but the use of as large section tyres as reasonably possible will go far towards neutralising it. There was a tendency to undertyre some "lightweight" machines.

Mudguarding.

Taken all round, the mudguarding on the machines showed a much needed improvement, but a combination of oil and dust was found covering many parts at the conclusion of the trial. It is important that the mudguards should project widely beyond the wheels, and also should be arranged so that they can be swung out of position. It is an advantage slightly to lip the edges to avoid mud-throwing. Practically no machine, except the Scott, the Lea-Francis, and one A.J.S. had anything in the nature of an undershield. Both engine and gear box should be properly protected by means of a long undershield, and this undershield might well form part of the main cradle.

Gear Boxes.

The judges were pleased to notice that on one Ariel a proper gate change was fitted, giving four forward speeds; this is a very desirable feature and might be copied with advantage. It should at the same time be remembered that a gear box is merely an excuse for an unsuitable engine, and for ordinary touring work the value of a flexible power unit must not be forgotten. It is doubtful whether any infinitely variable gear would have been so successful on some of the worst hills, but it would probably have provided greater comfort, and there is room for improvement in this direction and for novelties in design, such as variable tooth or worm drives all totally enclosed.

Sidecars.

The bodies of most sidecars were comfortable and suitable for touring, although the upholstering of most was very poor in quality. The use of real leather instead of the many imitations generally employed is most desirable, and the additional cost should be trifling. Nearly every chassis except the Chater-Lea, Matchless, and Clyno was greatly lacking in vertical girder strengths, so that, as already announced, if machines did not break they usually distorted badly. A sidecar attachment should not be looked upon as being capable of taking lead in more than one direction, and more attention to this point is very desirable. There were a number of cases of sidecar body suspension springs fracturing, and this is largely due to the frames being unsprung. If a machine is designed for easy suspension on ordinary roads the damping effect of a keyed leaf spring or shock absorber is desirable.

Controls.

In most cases carburetter controls were in a satisfactory condition, as were gears and their operating rods, but more attention should be given to the provision of hand-controlled clutches, two good examples being those on the Ariel and small Clyno machines. The same remarks apply to shock absorbers, which are very desirable fitments as apart from the ordinary slipping clutch. The Enfield shock absorber is good and thoroughly well protected. A few Bowden magneto controls were totally inoperative, and others were stiff. These fitments should be better protected or the contact breaker operated directly as on the Matchless machines.

Stands and Kick-starters.

A small number of machines were fitted with front wheel stands, but they should be standard on every machine. The stands on the lightweights were far too flimsy, and bent when the rider's weight was put on them. Many were not fitted with a suitable nut screw and spring catch, or other device, to positively retain them in position when out of action.

With a few exceptions, the machines fitted with kick-starters appeared to finish with this fitment in good condition, which is a very marked improvement over former years; some kick-starters were placed too far to the rear of the machine.

Brake Tests.

The brake test was instituted for the purpose of obtaining a comparative result, and as a measure of the deceleration of the machines. Competitors did not appear to realise that it is desirable to travel at a good speed when testing brakes, for when a wheel becomes locked the braking value falls off, and in most cases a bad performance was due to non-observance of the regulations rather than to inefficiency of brakes.

Accessories.

Accessories fitted in this trial were on the whole very satisfactory, and makers seem to have realised the nature of the stresses imposed, although there is still a good deal to be learnt as regards attachments, which, though strong, are often so situated that the load comes otherwise than in a straight line through the holding-on bolts. This can only result in crystallisation and fracture of the lugs.

The free use of insulating tape to secure fittings on many machines clearly shows that much is still lacking in their design. This should be unnecessary

General Remarks.

With very few exceptions indeed, machines could be started quickly and easily, a great advance on previous years. Practically no marks were lost by reason of machines not being ready to start to time each morning.

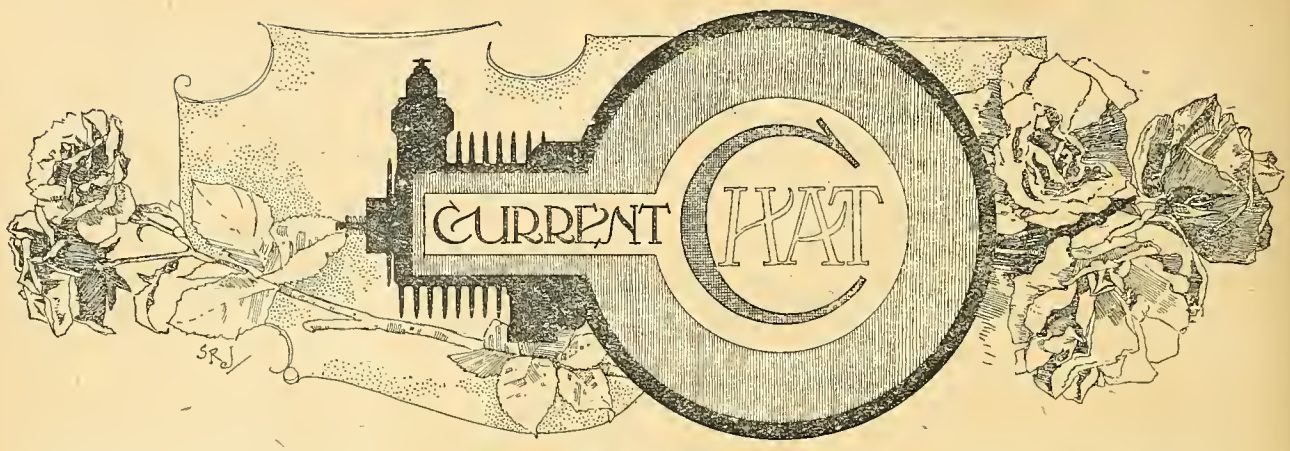
The judges are of the opinion that the showing made by every machine to finish was distinctly good, the cycle cars put up a fine performance, and particular credit is due to the Calthorpe and J.B.S. machines. In the motor cycles, the P. and M., Sunbeam, Scott, Bat, Douglas, and Blackburne were extremely good, whilst the performance of the O.K. and Baby Clyno motor cycles is deserving of very special mention. Of the sidecar machines the Chater-Lea, Matchless, and Clyno were almost equally deserving of credit. The latter make was perhaps the neatest in lay-out and strongest weight for weight, but its mechanism was less accessible.

The driving throughout the trial was good, and the competitors endeavoured to keep up with the spirit of the regulations in almost every instance, although they did not appear to grasp the principle of the marking, which was that a 100% performance should have been, and was the exception, and that different types of machines were expected to lose marks proportionately, the minima of marks to gain awards having been graded accordingly for each type.

The judges are of opinion that the concessions made to the competitors were extremely free, and as regards the conditions of the machines at finish, they had advised the stewards very strongly that all machines completing the course with severely injured parts or frames should have had practically the whole of their reliability marks for condition deducted. This is a point which they would strongly uphold in future trials, as it is absurd to have machines constructed with such refinements as lighting dynamos (which, by the way, should not be placed so as to weaken the frame), and then to find that the whole chassis is wrongly designed and incapable of withstanding shock.

The performances of the 3½ h.p. Premier with sidecar that completed the trial, and of the small Dayton machines, are both worthy of favourable mention as indicating the possibilities of the comparatively small powered machine.

A. M. Low, A.C.G.I., D.Sc., etc.
D. F. Nicholl, Major R.A., D.S.O.



TIMES TO LIGHT LAMPS

Aug.	6	... ...	8.39 p.m.
,,	8	... ...	8.35 p.m.
,,	10	... ...	8.32 p.m.
,,	12	... ...	8.28 p.m.

In Wireless Touch all Day.

Not long ago *The Motor Cycle* published first-hand particulars of a wireless installation that one of its readers had fitted to a motor cycle. Now we learn that a motor delivery company in town, the "State Express," have fitted one of their delivery vans with a transmitting set, by means of which they can send urgent messages to their head office in Finsbury from a radius of twenty-five miles.

A.A. and M.U. Notes.

TWYFORD HILL BRIDGE : ROAD OPEN.—The A.A. has been informed by the district surveyor that the road leading to Twyford Hill Bridge (Herts) is reopened to traffic, the old bridge having been taken out and a strong temporary structure put in its place.

SPECIAL WARNING TO MOTOR CYCLISTS.—The Automobile Association is informed that the Chief Constable of Lancashire has directed the county police to bring up all cases of motor cycles not having two independent brakes.

International Trials Postponed.

Owing to the regrettable commencement of hostilities on the Continent, which threaten to involve a great part of Europe in war, the F.I.C.M. trials, which were to have taken place with Grenoble as centre, have been postponed.

How to Grind in Valves!

In an Australian paper the advice is given to grind in valves with a mixture of graphite and oil. The correspondent who sends us the paper would be glad to know how long this would take.

Racing at Brooklands.

The B.M.C.R.C. will hold their fifth monthly meeting at Brooklands on Saturday, August 22nd. The following is the programme of events :

Event 1.—2 p.m. The one hour cycle car race. For cycle cars and light cars eligible for the coming international race in the Isle of Man for the Dangerfield Trophy.

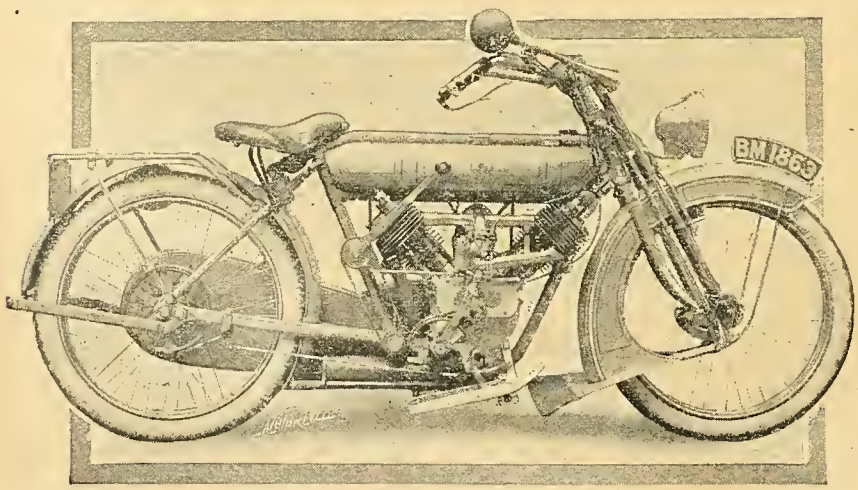
Event 2.—The 350 c.c. three-lap scratch race.

Event 3.—The 500 c.c. three-lap scratch race.

Event 4.—The 1,000 c.c. three-lap scratch race.

Event 5.—The 500 c.c. (with sidecar) three-lap scratch race.

Event 6.—The 1,000 c.c. (with sidecar) three-lap scratch race.



Valve side of the twin P. & M., showing kick-starter gear operating mechanism, footboards, and carburetter with hot-air intake. (See description, issue of July 23rd.)

SPECIAL FEATURES.

DESIGN OF MILITARY MOTOR CYCLES.
SIDECAR CHASSIS DESIGN.
JUDGES' REPORT OF A.C.U. SIX DAYS TRIALS.

Events 2 to 6 are open only to members who have not won a first prize at a B.M.C.R.C. meeting during the years 1913 and 1914.

Entries close first post Saturday, August 15th.

Continental Tours during War Time.

Motorists intending to tour on the Continent with their cars are strongly advised to obtain the latest information from the head office of the A.A. and M.U., Fanum House, Whitcomb Street, London, W.C., before arranging for shipment. It should not be forgotten that in the unhappy event of a state of war obtaining in the country visited, there is a grave risk of automobiles and motor cycles being commandeered for military purposes.

The Levis and the "Breakdown."

Riders of the two-stroke Levis commonly start by the somewhat unusual procedure of throwing both throttle and air wide open, and this peculiarity—evidently unknown to those responsible for detuning machines for the Breakdown trial—resulted in an amusing episode at the recent gymkhana of the Preston M.C.C. The Levis exponent, rushing up to his machine, immediately "spotted" that his h.t. wire was disconnected at the "mag," and after remedying this, opened wide his controls and ran.

To the surprise of the officials, the little two-stroke swept forward with marvellous acceleration, and racing to the finishing line, returned to the start as the second man pushed off. The puzzled rider was then accused of having received inside information, but protested warmly that no motor cyclist worthy of the name could fail to detect the disconnected wire. That, however, clamoured the disturbed officials, was not the "fault" referred to, and they proceeded to demonstrate that the carburetter slides were reversed, and to demand an explanation. Amid roars of laughter the winner complied with the request by throwing both levers wide open and starting his machine, explaining at the same time that it did not matter a "Continental" which opened which, so long as the slides gaped together.

War!

At the moment of writing it appears that motor cyclists may soon find opportunities to show that their favourite sport is more than a healthy and instructive hobby. They may be called upon in large numbers to put their knowledge, machines, and even lives at the disposal of the country. The equipment which has provided many a day's sport and many an evening's discussion will be at the free disposal of fellow countrymen. Let us trust that we shall be found useful if our services are required. The lives which many of us have often risked for sport and commerce in the past will be more readily offered in a sterner cause.

How to Act.

The Motor Cycle has entered into communication with the War Office with a view to furnishing the names and addresses of motor cyclists willing to serve as required. The War Office have gladly accepted such assistance, and if any readers are prepared to place themselves and their machines, or only the latter, at the disposal of the military authorities we shall be only too glad to forward any names sent in to us to the War Office. Readers desirous of helping should write us, on one side of the paper only, clearly stating their full names, addresses, and ages, also the horse-power, make, and date of manufacture of their machines, and whether they are prepared to give their services, or only those of the machines.

The Auto Cycle Union also call the attention of motor cyclists to the fact that any riders desirous of joining either for home defence or with an expeditionary force may obtain particulars of service from the nearest recruiting station.

On going to press we learn that the War Office are prepared to take twenty motor cyclists for special service. Preference will be given to those who know French and other foreign languages. Motor cycles will be taken over on valuation, or provided. The pay to commence with will be five shillings per day, all found. Service will be for one year or less, as the War Office may decide. Application should be made to Captain Trapmann, London Cyclists' Battalion, Fulham House, Putney Bridge.

FUTURE EVENTS.

—o—

Aug.	14-15.	Liverpool A C C Open Trial to London and Back.
"	15.	French Grand Prix Motor Cycle Race near Le Mans.
"	15.	Essex M C. Race Meeting at Brooklands.
"	19.	Cambridge and District M.C.C Open Trial.
"	22	M C.R.C. Race Meeting.
"	22.	A C.U East Midland Centre Open Trial.
Sept.	6-9.	ANGLO-DUTCH TRIAL IN HOLLAND.
Nov	23-28.	Motor Cycle and Cycle Car Show at Olympia

International Cycle Car Race.

The following entries have been received by the Auto Cycle Union for the International Cycle Car Race, to be held in the Isle of Man on Wednesday, 24th September next.

H. Alexander (10 Calthorpe Minor).
A. Alexander (10 Calthorpe Minor).
F. Burgess (10 Calthorpe Minor).
T. V. West (10 Calthorpe Minor).
Trevor Ruscoe (10 Morris-Oxford).
Wm. Harris (8-10 Marlborough).
Gerald T. Mayne (10 Calthorpe Minor).
Vernon Busby (8 Morgan).
Marcel Violet (6 Violet-Bogey).
W. Douglas Hawkes (two 10 Victors).
J. M. Barrat (9 Tweenie).
Woodrow and Co. (two 10 Woodrows).
B. Haywood (10 Singer).
A. Lee Guinness (10 Singer).
E. L. Roberts (10 Singer).
G.N., Ltd. (10 G.N.).
E. B. McManus (12 Buckingham).
N. F. Holder (10 Merlin Blumfield).
E. C. Gordon England (10 Marlborough).
Henry Jones (8 Tweenie).
Morgan Motor Co. (two 8 Morgans).
F. H. B. Samuelson (10 Marlborough).
Maurice Leveque (8 Tweenie).
J. F. Buckingham (12 Buckingham).
Auto-Carriers (1914), Ltd. (three 10 A.C. s).
Lionel Martin (———).
P. J. Evans (10 Calthorpe Minor).

Entries at double fees, manufacturers and agents £30, others £20, will be received up to Tuesday, 11th August next.

British Machines Abroad.

About the middle of July the Allgemeiner Deutscher Automobile Club (A.D.A.C.) held a protest meeting in Eisenach, which proved to be the largest gathering of power-driven vehicles ever held in Germany. Over 2,200 cars and motor cycles registered at the various controls in the town. Among the English motor cycles present were four Douglas machines, two Rexes, two Royal Enfields, one Rudge Multi, and one Scott. Eight Indian machines were also counted. N.S.U.'s and Wanderers comprised the bulk of the German machines.

G. J. Eastburn, riding a 2¾ Douglas, was successful in gaining an award.

The A.C.U. Handbook.

We are informed that the A.C.U. for next year intends to augment the information contained in the official handbook, and over seventy additional pages (making over three hundred in all) of matter of use to motor cyclists on tour will be embodied in the new edition.

The Union is also preparing a separate handbook, which will contain matter relative to the control of the sport of motor cycling, and useful information as to how to run motor cycling competitions on the road, etc. This handbook will consist of about eighty pages of literature of the most useful nature to club secretaries and others interested in the promotion of competitions.

The Judges' Report of the A.C.U. Trials.

The judges' report of the recent Six Days Trials, which will be found on pages 194 and 195, is very interesting reading. Praise and blame are fairly apportioned, and in addition the report contains many useful hints which makers would do well to take to heart. Frames, including sidecar chassis, come in for a fair amount of criticism. Undoubtedly there is room for improvement here. A strong case is made out for the springing of the whole machine and excessive side play in spring forks condemned. The use of real leather for sidecar fittings is recommended.

The report concludes with a word or so of praise to those machines deserving of special mention

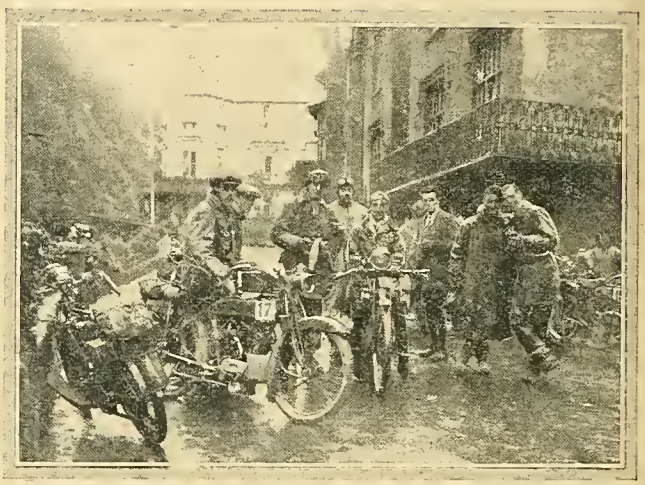
Lined up for the start of the invitation event at St. Andrews which was eventually won by C. Armstrong (7 h.p. Harley-Davidson).

HILL-CLIMBING TRIAL IN THE WEST.

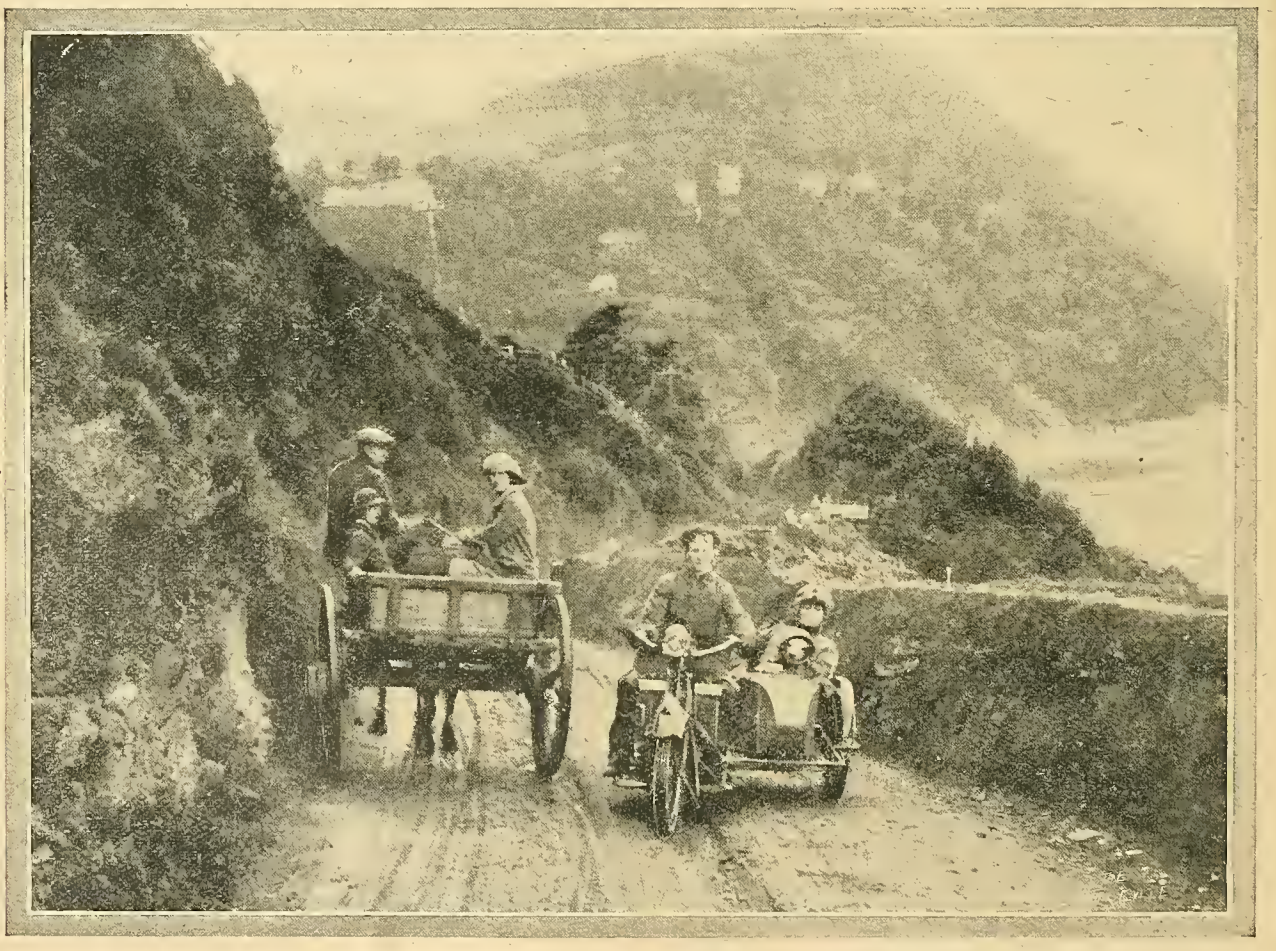
SUCCESSFUL BANK HOLIDAY TOUR ORGANISED BY THE M.C.C.

STARTING from Hungerford, on the Bath Road, on Saturday last, this event was run off over the same course as last year, being through Devizes, Radstock, Wells, Bridgwater (lunch), Minehead, Porlock (hill-climb), Lynmouth (hill-climb), Barbrook Mill (hill-climb), Watersmeet, and back to Lynmouth. For this run the record entry of fifty-nine was received, being double the number of last year's entry. There were eleven non-starters, of whom four were cycle car entrants, and a notable absentee was G. T. Gray and his new 7 Rudge and sidecar. The weather was very rough and wet for the time of year, and this made the task of climbing the test hills an exceedingly arduous one, especially for the solo riders.

Quite a number were early in trouble, Cole being particularly unfortunate in suffering a nipped tube four times before lunch. Coates broke the sprocket off his gear box near Bridgwater and retired. Batty-Smith had ignition troubles and retired at the same place. As Porlock Hill was approached the rain came down in torrents, and this made the surface exceedingly treacherous. Of the forty-seven who reached the hill twenty-three failed to make a clean climb. Many riders found it exceedingly difficult to maintain the standard speeds set for the various classes, and in endeavouring to do so many skidded and fell. Some notable failures were Colliver (Indian), Roberts (Blackburne), Wells (Indian sc.), and Meredith (Bradbury sc.). Gardiner (Williamson sc.) retired here, as did Douglass (Rex. sc.). We observed very good performances on the second corner by Selby, Beal, Colliver, Kerr, Winter, Howe, Tharp, Holroyd, F. W. Applebee (who made fastest time), Roberts, Longton, Clark, Egginton (splendid), Slingo, and Boxer.



Competitors outside the Lyn Valley Hotel, Lynmouth, during the tea halt.



A driver of a Williamson sidecar in the M.C.C. Devonshire Tour, on the greasy surface of Countisbury Hill.

Hill-climbing Trial in the West.—

One of the solo competitors ascending Countisbury Hill. The continuous downpour of rain made the surface very treacherous.

A car failed on Lynmouth Hill, and competitors rode up and down the hill whilst waiting for the car to be got away. Some competitors had gone up before the car failed, with the result that they were returning from the *détour* before the other competitors had started. There were nineteen failures of the forty-one who tackled the climb, but some were baulked by those who failed and stayed on the narrow hard portion of the road. It was particularly hard on Willey (3½ Premier sc.), who was going splendidly and was forced into the loose rough portion, and just failed to make a clean climb. The romance of Barbrook Mill Hill is gone, in consequence of the new and easier road which is now open. Competitors were, of course, sent up the old hill, and taken on the whole the surface was in very good condition.

A good deal of amusement was caused by the obvious displeasure of several of the lady passengers, who were annoyed at having to walk up the hills. Roberts ran the whole way up. Frasetti had hard luck in failing near the top, as he was the last of the Indian riders with a clean score. Cooper just got up by foot-slogging violently. Other failures were by O. P. C. Collier, Boxer, Meredith, Garland, D. S. Baddeley, Egginton, and Tippett, who was running and his radiator steaming. Winter's back wheel collapsed three miles from Lynmouth, and he came in on a car. Of the forty-eight who left Hungerford, forty completed the outward journey.

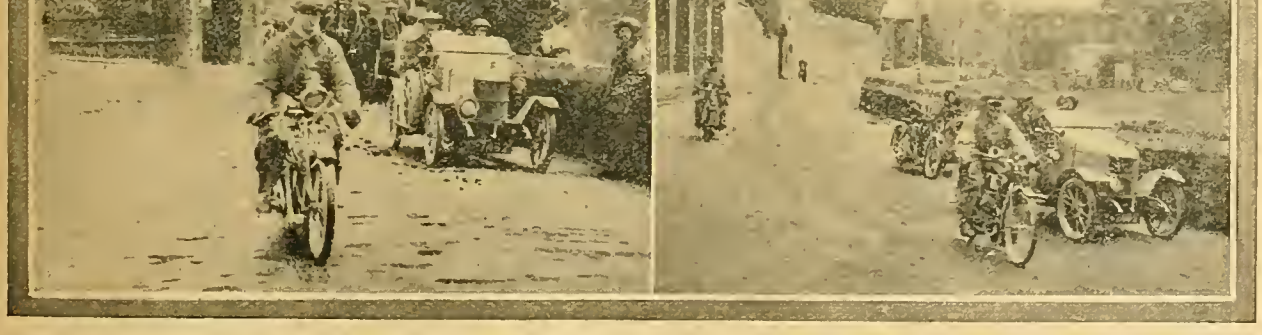
A Quiet Sunday in the West.

Sunday was spent pleasantly by those who were not attending to their machines. There were several walking parties to the Valley of Rocks and Watersmeet, and a party rode over to Malmsmead to inspect some of the local hills. Several washed their machines in the Lynn, much to the amusement of lookers-on.

The return journey, starting on Monday from Lynmouth, was over the same course as the outward journey, with the exception of the detour round Barbrook Mill. Of those who arrived on Saturday quite a number failed to present themselves for the return journey, amongst these being the Indian riders, with the exception of D. S. Baddeley (7-9 Indian sc.), who had only qualified for silver medals up to this point. Countisbury Hill was in a very greasy condition, but as the steepest gradient is only 1 in 5½ there were no failures. The run back as far as Bridgwater was uneventful, excepting for heavy rainstorms at intervals. After lunch Mr. Baddeley, the trials hon. sec., announced that, in consequence of the war causing anxiety to some of the competitors, who wished to get back to town quickly, no checks would be taken up to the finish at Hungerford, and that they could finish as early as they liked. This led to the more sporting members indulging in what was called the Devon T.T., and in hurrying quite a number lost their way and put in many extra miles. It also brought about the downfall of Fielder, who broke the frame of his New Hudson, and dropped the power unit on to the road when going at speed.

As no results will be available until they are passed by the committee, it is only possible to give the list of those who completed the trial.

L. A. Baddeley (3½ P. and M.)
J. D. Drysdale (2½ Connaught)
W. E. Cook (4 Triumph)
G. H. S. Letchworth (2¼ Clyno)
R. Charlesworth (5 Zenith)
S. Tharp (4 Bradbury)
R. M. Mirians (3½ P. and M.
J. H. Kerr (3½ N.S.U.)
J. F. Selous-Jeuks (2¾ A.J.S.)
H. J. Beal (4 L.M.C.)
S. J. Hine (3½ Burford)
G. P. Howe (3 B.S.A.)
J. S. Holroyd (3½ Blackburne)
L. Mogridge (3½ Rudge Multi.
C. Percival (2¾ Douglas)
C. Q. Roberts (3½ Blackburne)
H. Kershake (5-6 Ariel)
K. V. Cindley (3½ Brough)
D. S. Baddeley (7-9 Indian sc.)
H. A. Cooper (3½ Kerry-Abingdon)
F. W. Applebee (3½ Motosacoche)
O. P. C. Collier (4 Grandex-Precision)
R. B. Clark (3½ Rudge Multi)
W. H. Longton (3½ Allday)
H. G. R. Slingo (5-6 Clyno sc.)
Victor Cook (7 Matchless sc.)
W. H. Egginton (7 Matchless sc.)
C. W. Meredith (6 Bradbury sc.)
F. W. White (7-9 Premier sc.)
T. H. Willey (3½ Premier sc.)
H. E. Parker (6 Bradbury sc.)
W. P. Tippett (3½ Humber sc.)
Victor Garland (8 Williamson sc.)
Cecil C. Hann (G.W.K.)
L. Gilson (6 Zenith)



Passing Wells Cathedral during the M.C.C Bank Holiday Tour

Irish Two Days Reliability Trial.

THE Dublin and District M.C.C. successfully carried out their usual Bank Holiday fixture in the form of a two days' open reliability trial from Dublin to Glengariffe and back. The first day's route was by the old main road to Cork as far as Clogheen, where a deviation was made to take in the ascent of the Knockmealdown Mountains. The old road was joined at Cork, and thence the riders proceeded to Glengariffe by the Pass of Keinmaneigh. On the return journey on Monday a deviation was made into Co. Kerry, so as to include most of the new ground which was covered in the recent End-to-end of Ireland Reliability Trial. Fortunately, the weather conditions throughout were of a more favourable character than was experienced in the former competition, and consequently the hills did not present any great difficulties. On Monday the return was made to Dublin.

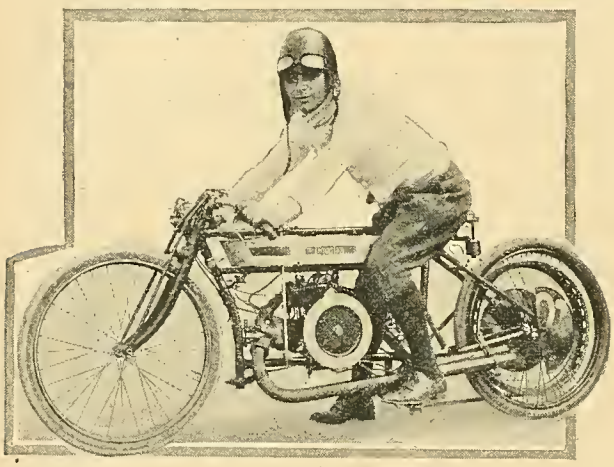
Although the conditions were not less strict than usual, the committee made an effort to prevent the awards being won by variation in seconds, and to this end a new regulation was introduced requiring the competitors to furnish a report of all repairs, replacements, or adjustments made during the trial. In the event of two or more competitors tying for any prize with an equal number of marks, the reports so furnished will be taken into account, and one point deducted for each repair, replacement, or adjustment. Only in the event of a tie still resulting will the variations from scheduled time at the secret controls be taken into account. The following completed the two days' run:

G. Roche (3½ Rover), P. Grimes (3½ Rover), J. Doleman (3½ Rover), A. W. Mooney (6 Bradbury sc.), H. Macrae (2½ New Imperial), J. F. A. Day (2½ Sun-Villiers), J. A. H. Waters (2¾ Douglas), J. Browne (3½ Rover), T. Toole (3½ Rover), F. M. Summerfield (6 New Hudson sc.), T. J. Woods (3½ B.S.A. sc.), J. O'Dwyer (2¾ Douglas), J. Clarke (4 Hobart), R. Armstrong (6 Enfield sc.), H. W. Gibson (3½ Rudge), W. H. Freeman (7 Indian sc.), S. Allen (3½ N.S.U.), R. Walshe (3½ Rover), and D. Morrogh (Calthorpe cycle car).

Of the four teams of three each which entered for the team prize, two finished, viz., Waters, Mooney, and Freeman, and Roche, Doleman, and Browne. Clean ascents of the observed hill between Kenmare and Killarney were made by Walshe, Toole, Browne, Waters, Day, Doleman, Grimes, and Roche.

B.A.R.C. Bank Holiday Races.

A LARGE number of entries were obtained in both the races provided for motor cycles at the well attended meeting organised by the B.A.R.C. on Bank Holiday. Unfortunately, a great deal of trouble was experienced with carburation, owing to the peculiar climatic conditions prevailing at the time. No inconvenience, however, resulted from inclement weather, although it looked very threatening at times, and the wind was also rather strong, but despite these disadvantages fast times were accomplished.



S. L. Bailey, who won the long handicap at Brooklands on Monday last on his 350 c.c. overhead valve Douglas, at a speed of 61½ m.p.h.

Douglas machines obtained the premier award in both races, and were lapping at over 60 m.p.h. In the first race there were thirty-seven entrants down on the programme, most of whom were at the starting point. G. Williamson and L. W. Forinton put up excellent performances on Indian machines, but could not manage to catch up the first two or three speedy lightweights with long starts, and the order of finishing was as follows:

1. S. L. Bailey (2¾ Douglas).
2. E. J. Webster (3½ N.U.T.).
3. E. Kickham (2¾ Douglas).

The winner's speed was 61½ m.p.h.

During the interval between the races A. L. Pullin (3½ Rudge), who had evidently experienced carburetter troubles, was seen changing the float. A 2¾ Singer belonging to J. P. Le Grand was also experiencing trouble as its owner informed us that the piston was cracked in two places. A still larger number of entries comprised the second event, for the field consisted of no fewer than forty-four. The race, which was run over a distance of 5¾ miles, against 8½ miles of the first race, again proved a triumph for the Douglas, the result being as follows:

1. E. Kickham (2¾ Douglas).
2. E. J. Webster (3½ N.U.T.).
3. L. W. Forinton (7 Indian).

The winner's speed was 62 m.p.h.

Edinburgh M.C.C. Gymkhana.

ALTHOUGH the weather conditions which favoured the Edinburgh Club's sports were far from alluring, there was nevertheless quite a crowd present to witness the competitions. As usual during an event of this nature, one or two performances were outstanding. In the exhibition trick riding and driving event, A. U. R. Downie (2¾ A.J.S.) performed some really excellent balancing feats, such as standing on the saddle and driving with two strings attached to the handle-bar, riding backwards, etc. J. W. Moffat (2¾ Sunbeam) was also good.

The sidecar and car football matches provided many thrills, and the manner in which the combatants manipulated their machines excited loud applause.

Several unrehearsed incidents did much to assist in the enjoyment of the afternoon, the star turn being J. A. W. Beaton, who in his effort to cover the hundred yards in the trailing race at evens carried away the erection holding up the buns for the bun event. In this same event, J. Steel, who was trailed behind A. H. Alexander, finished on his back, thereby being disqualified. Results:

Forty yards fast race.—J. A. Porter (2¾ Douglas).
Twenty-five yards slow race.—J. W. Moffat (2¾ Sunbeam).
Plug changing.—H. Alexander (2¾ Douglas).
Water race.—A. H. Alexander (2¾ Douglas).
Trailing race.—J. R. Alexander.
Obstacle race.—A. H. Alexander (2¾ Douglas).
Bun race.—A. H. Alexander (2¾ Douglas).
Zigzag race.—H. Alexander (2¾ Douglas).
Run and cycle race.—J. Steel (2¾ Douglas).
Sidecar football match.—J. A. W. Beaton (8 Matchless).
Potato race.—H. Alexander (2¾ Douglas).
Trick riding.—A. U. R. Downie (2¾ A.J.S.)
Turn-out competition.—J. A. W. Beaton (8 Matchless).

OPEN SPEED TRIALS AT PENRITH.

THE Penrith and District M.C.C. held their first open speed trials on Bank Holiday. The events were run off in the beautiful Lowther Park, by kind permission of the president of the club, the Earl of Lonsdale). The course was a half-mile in length, almost straight and very fast. The substantial entry of ninety-five was received, being divided into thirteen classes catering for every type of machine. The honours of the day were shared by F. Dixon (7 Indian) and A. Brewin (8 Zenith), both of whom covered the course in 24⅘s., the former, by making this time on three successive occasions, put up by far the most consistent performance of the day, the masterly way in which he handled his big machine creating admiration among the spectators. This being the club's first attempt at organising an open competition the officials are to be congratulated on the success of the meeting. Results:

CLASS I.—Two-stroke Singles not exceeding 350 c.c. On Time. Open.
1. S. C. Cook (2¼ Ixion) ..... 42⅘ secs.
2. E. F. Gilbanks (2¼ Connaught) ..... 43⅕ secs.
The two competitors tied, and the above times are the result of the run-off.

CLASS II.—Two-stroke Singles not exceeding 350 c.c. On Time. Expert barred.
S. C. Cook (2¼ Ixion) ..... 42⅘ secs.

CLASS III.—Single-cylinders not exceeding 350 c.c. On Time. Open.
1. W. Heaton (2¾ A.J.S.) ..... 31⅘ secs.
2. H. Rhodes (2¾ A.J.S.) ..... 32⅕ secs.

CLASS IV.—Single-cylinders not exceeding 350 c.c. On Time. Expert barred.
R. Hodgson (2¾ Diamond) ..... 44⅕ secs. (w.o.)

CLASS V.—Single-cylinders not exceeding 560 c.c. On Time. Open
1. G. Kendall (3½ Norton) ..... 28⅕ secs.
2. E. Gilbanks (3½ Rover) ..... 29⅕ secs.
3. J. Laycock (3½ Rover) ..... 30 secs.

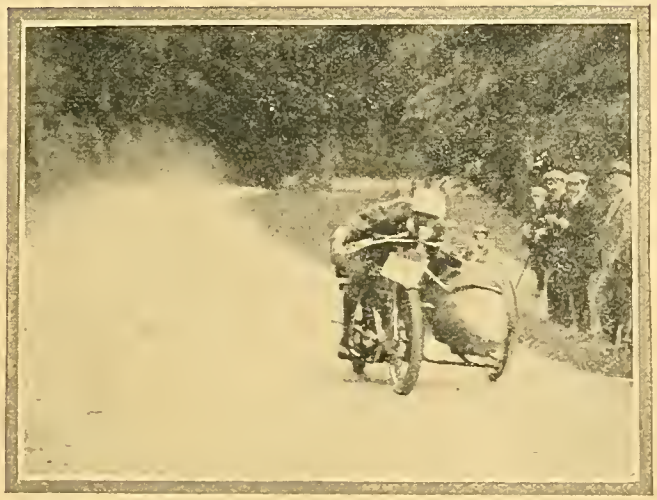
CLASS VI.—Single-cylinders not exceeding 560 c.c. On Time. Expert barred.
1. G. Kendall (3½ Norton) ..... 27⅘ secs.
2. J. Laycock (3½ Rover) ..... 29⅘ secs.
3. E. Gilbanks (3½ Rover) ..... 30⅕ secs.

CLASS VIA.—Any capacity. Members. On Formula.
1. H. A. Rhodes (2¾ A.J.S.) ..... 30⅕ secs.
2. S. Barron (3½ N.U.T.) ..... 30⅘ secs.
3. W. Armstrong (3½ Bradbury) ..... 34⅕ secs.

CLASS VII.—Twin-cylinders not exceeding 350 c.c. On Time. Open.
J. Robinson (2¾ N.U.T.) ..... 34⅘ secs.

CLASS VIII.—Twin-cylinders not exceeding 350 c.c. On Time. Expert barred.
J. Robinson (2¾ N.U.T.) ..... 33 secs.

CLASS IX.—Twin-cylinders not exceeding 500 c.c. On Time. Open.
1. R. Bownass (3½ N.U.T.) ..... 29⅕ secs.
2. L. S. Parker (3½ Scott) ..... 30⅘ secs.



E. Burras (3½ h.p. Zenith) on the starting line in one of the sidecar events.

CLASS X.—Twin-cylinders not exceeding 500 c.c. On Time. Expert barred.
1. J. Rigg (3½ Scott) ..... 29⅘ secs.
2. S. Barron (3½ N.U.T.) ..... 32⅘ secs.

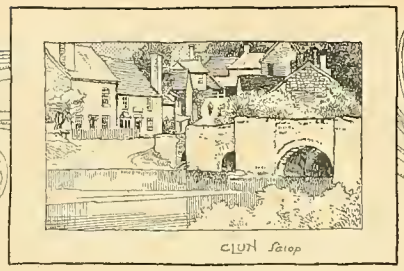
CLASS XI.—Twin-cylinders 351 c.c. and upwards. On Time. Open.
1. F. Dixon (7 Indian) ..... } 24⅕ secs.*
   A. Brewin (8 Zenith) ..... }
3. B. Jeffreys (8 Zenith) ..... 26⅕ secs.
The run-off resulted in Dixon making the same time, Brewin being 3 secs slower.
*Fastest time of the day

CLASS XII.—Twin-cylinders 351 c.c. and upwards. On Time. Expert barred.
1. F. W. Dixon (7 Indian) ..... 24⅕ secs.
2. B. Jeffreys (8 Zenith) ..... 25 secs.
3. S. Seal (7 Indian) ..... 26⅕ secs.

CLASS XIII.—Any Machine. On Time. Open.
1. F. W. Dixon (7 Indian) ..... 25 secs.
2. B. Jeffreys (8 Zenith) ..... 25⅕ secs.
3. A. Brewin (8 Zenith) ..... 26 secs.

CLASS XIV.—Sidecars, any capacity. On Formula. Open
1. F. W. Dixon (7 Indian sc.) ..... 31 secs.
2. H. A. Rhodes (2¾ A.J.S. sc.) ..... 38 secs.
3. W. Armstrong (3½ Bradbury scr.)..... 43⅘ secs.

A. I. Moffat (5 h.p. Zenith) crossing the finishing line All competitors were given a flying start



CLUB NEWS

"THE MOTOR CYCLE" LIST OF CLUB EVENTS.

Aug. 8th.—Coatbridge and District M.C.C. 80 miles non-stop run, starting at 2 p.m.
" 8th.—Middlesbrough and District M.C.C. Hill-climb at Danby.
" 8th.—Middlesex M.C.C. Social run to Chipperfield.
" 8th.—Brighton and Hove M.C.C. Gymkhana at Shoreham.
Aug. 12th.—Coatbridge and District M.C.C. Flexibility hill-climb, at 5.45 p.m.
" 12th.—Plymouth and District M.C.C. Gymkhana near the Rock, at 5.30 p.m.
" 12th.—Midland L.C.C. Evening run to Leamington.

Bolton and District M.C.

A reliability trial was held last week, the course being as follows: Rivington Lakes, Preston, Brock, St. Michaels, and Blackpool. A great many failures were recorded on the observed test hill. Results—First Awards: A. C. Naylor (2¾ Douglas), Stanley Parker (6 Enfield), and E. Knowles (3½ B.S.A.) Prize for the best ascent of the hill: J. Fishwick (3½ Rudge).

Surrey M.C.C.

The annual speed trial was held on July 29th. The results, subject to confirmation by the committee, are as follow:

Class I.—Passenger Machines.

		Time.	Formula.
1.	T. G. Meeten (3½ Rudge sc.)	41.4s.	355
2.	T. H. Willey (3½ Premier sc.)	42.7s.	389
3.	A. Boorer, jun. (3½ Rover sc.)	44.1s.	429

Class II.—Touring Motor Cycles up to 350 c.c.

1.	F. J. Pigot-Disney (2¾ Douglas)	39.1s.	210
2.	T. G. Meeten (2 O.K. Junior)	48.8s.	221
3.	H. Mitchell (2½ Premier)	45.7s.	234

Class III.—Touring Motor Cycles of 351-560 c.c.

1.	S. Holbrook Crow (3½ Zenith)	34.6s.	207
2.	T. G. Meeten (3½ Rudge)	35.6s.	226
3.	P. Mitchell (3½ Premier) / A. Boorer, jun. (3½ Rover)	36.4s.	241

Class IV.—Touring Motor Cycles over 560 c.c.

1.	F. J. Pigot-Disney (6 Zenith)	35.1s.	332
2.	E. J. Vardon (5 Bat)	36.0s.	349

Class V.—Open Class (on Time).

1.	E. J. Vardon (5 Bat)	32.0s.
2.	T. G. Meeten (3½ Rudge)	32.9s.
3.	S. Holbrook Crow (3½ Zenith)	35.0s.

The silver medal for best figure of merit by a non-trade member was won by F. J. Pigot-Disney (2¾ Douglas); and the bronze medal for the sealed handicap by T. G. Meeten (3½ Rudge), S. H. Crow (3½ Zenith) being second.

The times and figures given in Classes I. to IV. are inclusive of penalties if any) for T.T. models, etc.

Ballymena and District M.C.C.

A social run combined with a petrol consumption test took place on the 22nd ult. to Portrush and back. In some cases the solo machines averaged as much as 160 m.p.g., and some of the sidecars 100 m.p.g.

Middlesex M.C.C.

The winners in the club's annual gymkhana held at Little Berkhampsted were as follow:

Balloon Bursting.—T. A. S. Brown (Triumph).
Potato Race.—G. Fletcher (Douglas)
Musical Chairs.—R Clark (Rudge).
Hockey Race.—J. A. Hilger (Rover). Ditto Sidecars, G. Fletcher (Douglas).
Cigarette Race.—T. A. S. Brown (Triumph). Ditto Sidecars, G. Fletcher.
Circling Flags.—G. Fletcher (Douglas). Ditto Sidecars, Pittock (James).

Dublin and District M.C.C.

The flying half-mile competition was held by the above club in the early hours of Wednesday morning of last week on a deserted piece of road outside Dublin. Some very fast times were accomplished. Results:

1, T. E. Greene (3½ Rudge), 25.4s.; 2, F. Holmes (3½ Rudge), 27.5s.; 3, W. Curtis (3½ Indian), 29.7s.; 4, J. Shield (3½ Rover), 31.1s.; 5, F. Wallen, jun. (3½ Triumph), 36.2s.

Derbyshire and North Stafford A.C. (Motor Cycle Section).

In spite of a pouring wet day twenty-one competitors turned out to compete in the inter-club hill-climb for the Bolton Challenge Cup and other prizes at Oakamoor on July 25th. The hill was too wet to be greasy. The entry included several T.T. riders from the Wolverhampton Club. The fastest time of the day was made by W. Stevens on his 2¾ A.J.S. Fast ascents were also made by A. F. W. Greeves (3½ Triumph), G. Stocking (3½ Sunbeam), and G. Brough (3½ opposed twin Brough). T. Heath (6 Clyno sc.) won the Bolton silver challenge cup and silver medal for the knock-out on handicap event, W. Stevens (2¾ A.J.S.) being the runner up. The silver cup presented by Mr. D. C. Bolton for the best performance on A.C.U. formula was won by J. R. Sylvester, of Nottingham, on his 2½ New Hudson.

In the cycle car class D. C. Bolton (Bolton-Precision) made fastest time, and P. E. Joule (8 Humberette) won the silver cup presented by Mr. F. A. Bolton in the knockout event.

The ubiquitous A.A. scout performs a useful service at a dangerous cross road

Club News.—

Eastern Counties M.C.

For the recent run to the Surrey hills twenty-five members turned out, and an enjoyable picnic was held, after which those members who cared tried various hills of repute, and some good performances were made.

Mid-Bucks M.C.C.

The above club held speed trials over a half-mile course in Aston Clinton Park, near Aylesbury, on Thursday, July 23rd. There were about sixty entries, and the winners in the various classes are as follow:

CLASS I.—Motor Cycles up to 350 c.c.

	Time.	Formula.
J. Simpson (2¼ Hobart)	37⅘ secs	1330

CLASS II.—Motor Cycles over 350 c.c. and up to 500 c.c.

On Time.

E. W. Ruscoll (3½ Rover)	*30⅘ secs.

On Formula.

H. Logan Turner (3½ Rudge)	32⅘ secs.	1235

CLASS III.—Motor Cycles over 500 c.c. and up to 1,000 c.c.

J. Kennedy (3½ Zenith)	31 secs	1166

CLASS IV.—Passenger Machines of any capacity.

J. W. Tollady (3½ Singer sc.)	39⅘ secs.	1424

CLASS V.—Motor Cycles of any capacity (Handicap), for "Douglas" Challenge Cup and Club Gold Medal.

	Actual time.	Handicap.	Net time.
J. W. Tollady (2¾ Ivy-Green)	34⅘ secs.	6 secs.	28⅘ secs.

Fastest time—J. Kennedy (3½ Zenith) .. 31⅘ secs.

CLASS VI.—"Old Crocks" (open to machines over four years old), for Gold Medal presented by J. W. Tollady.

	Actua. time.	Handicap.	Net time.
A. Wilson (3 Triumph)	49⅘ secs.	3 secs.	46⅘ secs.

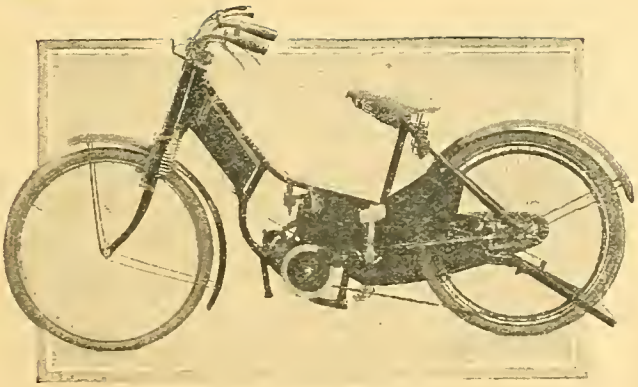
CLASS VII.—"Needle Threading," for Sidecar Machines with Lady Passenger.

E. G. Eborn (3½ Eborn-Green) ..... 1m. 18s.

*Fastest time o the day.

RETURNING FROM A PICNIC.

Mrs. Hunter, of Hull, on her 6 h.p. Rex sidette with two lady passengers, photographed on the Withernsea Road near Hedon. A few minutes after the photograph was taken Mrs. Hunter was stopped and asked for her licence, which, however, she was able to produce.



The latest model Millard lightweight for ladies, which is propelled by a 1 h.p. J.E.S. engine. It will be observed that the power unit is provided with neat shields

Carlyle (Chelsea) C. and M.C.C.

The non-stop run and speed-judging contest held recently resulted as follows: 1, C. Moore (4½ James sc.), non-stop; 2, W. Langley (3½ Rudge-Multi), 3min. error; J. Laffeaty (3½ Premier sc.), 8min. error.

Westmorland M.C.C.

A fixed gear reliability run was held at the month over a fairly stiff course of 125 miles. On petitors successfully got through non-stop. Resu M. Somerville (6 Zenith), correct time; 2, W. Hu (6 Bat) and B. Jefferys (8 Zenith), 5 sec. out; 4, Braithwaite (3½ Rudge), 10 sec. out; 5, R. M. Chaplow Humber), 55 secs. out.

Ashford and District M.C.C.

The results in Oxford trial are given below:

OPEN CLASS.—1, F. G. Barratt (4-5 N.S.U. and sidecar), error 240, gold medal; 2 J. G. Bowyer (2¾ Douglas), 290, silver and gold medal; 3 W. Kennedy (2¾ Douglas), 515, silver medal.

MEMBERS' CLASS.—1, R. B. Whiffen (2¾ Douglas); 2, W. V. Westlake (5-6 Clyno and sidecar).

VISITORS' CLASS.—1. C. Reeves (10 Singer light car); 2, J. G. Haggard (5-6 Clyno).

The TEAM PRIZE was won by Ashford and District M.C. North Whiffen, and Westlake).

FORTHCOMING OPEN EVENT.

South-Eastern Inter-club Team Trial.

The third south-eastern counties inter-club team trial for the Woolwich Challenge Cup will be held under the auspices of the Woolwich, Plumstead, and District Motor Club on the 15th inst., starting at 10 a.m.

Each team must consist of six riders, and any type of machine under A.C.U. rules is permissible. The joint weight of passenger and driver shall not be less than twenty stones. To qualify for starting, each team shall provide an additional rider (and machine) to act as an observer, who shall be at the disposal of the promoting club during the progress of the competition. Lady drivers will be permitted.

The competition shall consist of a non-stop run of about 100 miles, over a circular course, to be covered twice.

Sufficient fuel and oil must be carried for each circuit of the trial. Competitors may replenish from a metal receptacle carried by them, provided such replenishment is effected by the driver while the machine is in motion. Such fuel or oil must be carried from the start, and not be taken up after starting.

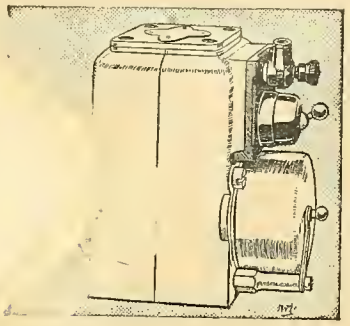
The number of miles accomplished by each rider of each team without stoppage other than stoppages due to the exigencies of traffic will be added together, and the team scoring the highest mileage thus arrived at shall be the winner, except that in the event of more than one team making a full score in mileage, in which case the times taken at the checks shall be the determining factor, and the team that has ridden nearest to scheduled speed the winner.

Entries, to Mr. F. J. Ellis, 23, Woolwich Common, S.E., close on the 8th inst.

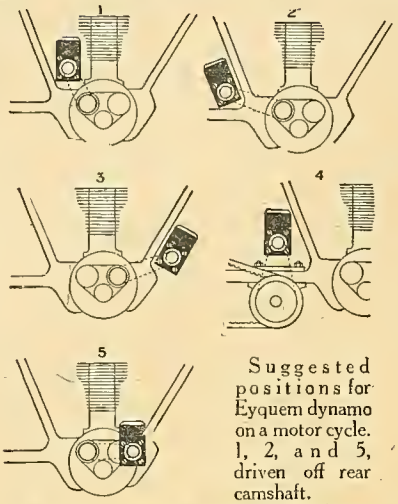
The Eyquem Dynamo Lighting Outfit.

OWING greatly to the enormous popularity of the sidecar combination the desire for luxury and refinement goes on in leaps and bounds, for we now seem to be nearing the day when electric illumination will oust all other forms, because of its cleanliness and general utility. There is no doubt that a well-designed electric outfit is a very great asset, and the one we are about to describe is an excellent device, and can be readily fitted to any existing machine with a comparatively small amount of alteration.

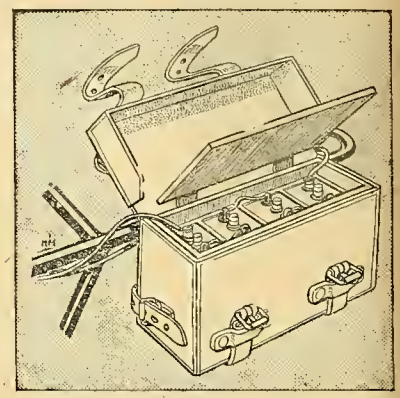
Fig. 1 shows a series of positions in which the machine can be housed, and, as can be seen, there are a large variety of places for such a purpose. Current is generated at 1,600 r.p.m., and with the aid of an electric control very rapid acceleration up to a high number of revolutions can be performed without risk of burning out the lamps, should it so happen that current is being taken directly from the dynamo instead of from the battery. A neat case is provided for the accumulators, which are of the non-spillable type, and is designed to be strapped to the carrier as illustrated. Two very nice external features are the switch and terminal, the former being made on very solid lines. Another point well worthy of mention is its effective locking device, which consists of a split and hollow plug, which is held tightly in position by being expanded with a screw, the end of which is extended and tapered. Further information and details can be obtained by applying to E. Jozót, Ltd., 59-61, New Oxford Street, London, W.C.



The Eyquem dynamo.

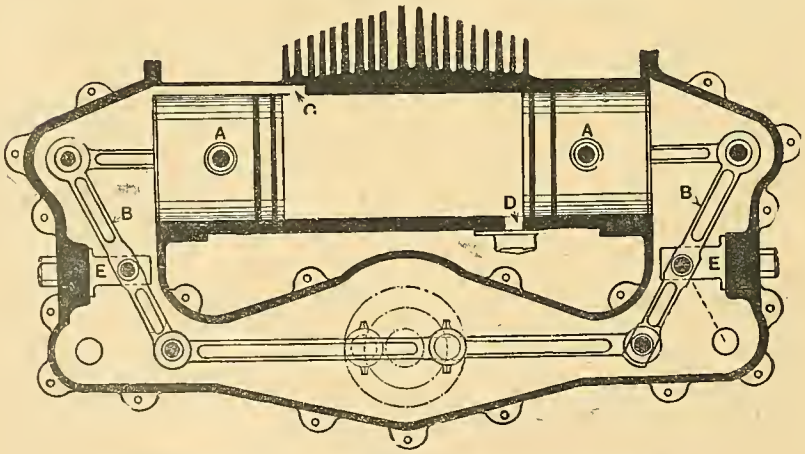


Suggested positions for Eyquem dynamo on a motor cycle. 1, 2, and 5, driven off rear camshaft. 3, driven off front camshaft. 4, driven off counter-shaft pulley.



Storage battery supplied in a leather case lined with wood and made to attach on side of carrier.

A Horizontally Opposed Two-stroke Engine.

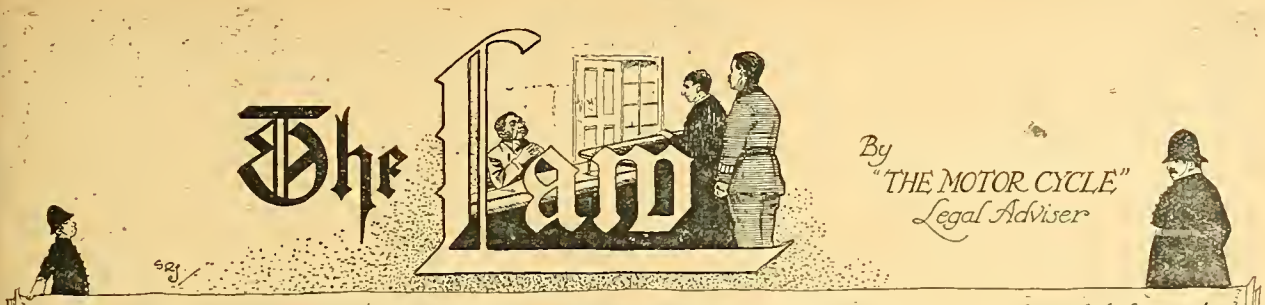


Diagrammatic sketch of the Simpson double acting two-stroke engine.

A. Pistons.
B. Connecting arms, giving ratio between crank stroke and piston travel.
C. Inlet port.
D. Exhaust port.
E. Fulcrums for connecting arms.

A two-stroke engine of neat design is now being experimented with at the Eagle Works, Cable Street, Blackburn. This particular power unit is known as Simpson's balanced two-stroke, and, by a careful perusal of the accompanying illustration, the description of the various working parts will be readily grasped. The connecting rods are attached at their big ends to rocking levers, which are pivoted to lugs cast on the outer casing. The other ends of these levers are connected through the connecting rods to a couple of crank pins, which correspond to those of the crankshaft. Induction takes place at the port C, which is uncovered by one piston, and the exhaust through the port D, uncovered by the opposing piston. Also, it will be noticed that the cylinder is air-cooled, as the designer does not think it necessary to have water-cooling. The advantages claimed are that a long piston travel can be obtained with a short crank, which allows the maximum amount of expansion to take place in the exploded charge. By having two pistons opposed in this manner good balance is obtained and the strain on the cranks is halved. The ratio of the piston travel to the length of crank is such that with a crank stroke of one and three-eighths of an inch, a piston travel of three and three-quarter inches is obtainable.

A South African rider of a Triumph, W. Campbell, who recently won the fifty-three miles road race, held by the Free State Automobile Club at Bloemfontein, for the Continental Trophy. His time for the entire distance was 56m. 56s.



Simple yet important facts which every Motor Cyclist should know.

MY intention is to treat, as far as is possible in an article of this length, of the obligations of motor cyclists as users of the King's highway; of the duties of persons with whom they will probably enter into business relations; and briefly to detail the steps which should be taken by those unfortunate enough to meet with accidents on the road.

"Reasonable Care" on the Road.

Besides duties imposed upon him by regulations and byelaws, every road user is under certain other obligations. "All persons," says a learned judge, "paralytic as well as others, have a right to walk on the road, and are entitled to the exercise of reasonable care on the part of persons driving carriages on it." What, then, is reasonable care? No definition can be given; it must always depend on the circumstances of the case. The rule of the road should be observed, but non-observance of this rule is not conclusive evidence of negligence on the part of the offender, nor does it justify anyone travelling in the opposite direction in running into him; if he does so, the latter may, under certain circumstances, find himself liable in damages to the person who has broken the rule. The only rule which can be laid down is that drivers should generally keep their correct side, but, if they see that by keeping to the correct side they are more likely to meet with an accident than if they go over to the wrong side, they must go over.

Passing Tramcars.

Another problem which confronts motorists in towns is whether they are bound to pass a tram which they are overtaking on the far side. There is no obligation on them to do this; they may pass on either side so long as they exercise a proper discretion as to the side on which they pass. If an accident occurs through their neglect to exercise a proper discretion they will be held liable to the person injured through their negligence.

What to do in Case of Accident.

As negligence or lack of use of reasonable care is a question of fact, it will be perceived how necessary it is that a rider who has had the misfortune to meet with an accident should either take or have taken by someone on his behalf immediate steps to obtain, and as far as possible place on record, all facts connected with the occurrence. The first thing to be done is to ascertain the other party's name and address, as also those of all witnesses to the accident, and of all persons who have seen the spot before the *débris* has been removed. The roadway should be measured from the precise place of impact (as nearly as the same can be ascertained) to either kerb, and the measurements verified, if possible, by some impartial observer. Also the spot where the damaged machine or machines lay after the accident should be noted, as should, if possible, the wheel marks of the other vehicle (if one is involved in the accident), and these facts similarly verified. Signed proofs should be obtained from the witnesses, the points particularly to be borne in mind being on what side of the road was the other party? did either or both parties sound their horns? were either party's lamps lighted? at what speed were the machines travelling? were any admissions made? But, of course, the evidence requisite depends upon all the circumstances of the case, and perhaps it is better taken by a solicitor. Under no circumstances should any admission be made, as what may appear evidence of liability to the lay mind may show absolutely no negligence. It is, also, unwise to make any payment at all to the other party, as that may seriously prejudice the case if subsequent legal proceedings are taken; if any payment is made it should be done in the presence of at least one witness, and the recipient should be clearly informed that it is made *e gratia* and without admitting any liability on the payer's part. I would impress upon all readers who are insured the necessity of giving all details, together, if possible, with a plan, to their insurers. Non-insured riders should, in all cases of accident, consult their solicitor. If no proceedings are subsequently taken a small fee is sacrificed, but if anything does come of the matter the advantages of an early consultation may be inestimable.

Stop upon Request.

If an accident occurs owing to the presence of a motor vehicle on the road the driver is bound to stop at once, and, if required, must give his name and address, as also the name and address of the owner and the registration mark or number of the vehicle. Motorists must also stop on the request of a constable in uniform, or of any person in charge of a horse (whether an accident has occurred or not), if any such constable or person raise his hand as a sign for that purpose.

The Ways of Some Repairers.

There comes a tide in the affairs of most motor cyclists when the services of a more or less experienced repairer are necessary, and in such cases a preliminary estimate should always be obtained. If this is not done the repairer is entitled to charge a reasonable price for the work done, and on this subject the views of the owner and repairer

The Law.

often differ. I find from letters received by *The Motor Cycle* the only way to obtain a correct view of the matter is by having recourse to litigation, which, having regard to the comparatively small sum usually in dispute, proves to be an expensive and generally unsatisfactory course to pursue. The repairer is entitled to retain possession of the motor cycle until the price agreed upon for the work (or, in default of such preliminary agreement as we have indicated, a reasonable price) is paid, but he has no power to dispose of the machine.

The Liabilities of Innkeepers

A word or two with reference to innkeepers may not come amiss. An innkeeper is bound to supply rest and refreshment to travellers who require them provided he has accommodation and the traveller is not suffering from any infectious disease, and his conduct is not disorderly and calculated to annoy other guests at the inn. He has a right to retain the property of his guests as security for the payment of his bill, and, unlike the repairer, he has power, after the goods have been in his custody for six weeks, to sell such property in order to reimburse himself out of the proceeds after complying with certain provisions as to the advertising of the sale. The innkeeper is liable for the loss of the goods of his guests unless such loss is caused by the flagrant negligence of the guest or his servant, but before the innkeeper becomes responsible it must be shown that the motor cyclist has become his guest, *e.g.*, by having a meal at the inn. If he complies with the provisions of the Innkeepers' Act (and in practice the landlord inevitably does so) such liability in respect of most property does not exceed £30 unless the loss be caused by the wrongful act, neglect, or default of the innkeeper or any servant in his employ, or the goods have been deposited expressly with him for safe custody. If the guest has goods in his possession worth more than £30 he should, therefore, always deposit them with the landlord, who loses all his right to exemption from liability exceeding £30 if he refuses to receive them if they are placed in a fastened box or other receptacle by his guest. The Act does not apply to carriages (which term includes motor cars and presumably motor cycles), regarding which the innkeeper's liability is still unlimited.

—and Garage Proprietors.

The liability of a garage proprietor is of a very different nature, he being only liable for damage to cars and cycles on his premises for storage or repairs, which occurs through his own negligence or that of his servants. Thus he would not be liable for damage caused by an accidental fire, but would be liable if the fire were started through his own or his servants' negligence.

A Legal Recommendation to Insure.

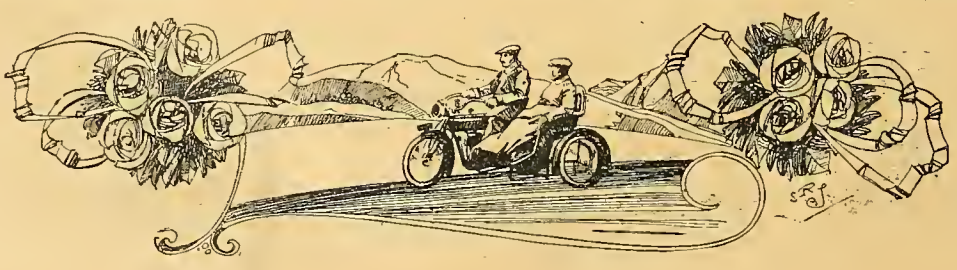
It has only been possible for me to show some few of the risks which even the most careful and experienced rider must of necessity run; as may be seen from the perusal of this article, his machine may in certain circumstances be damaged or utterly destroyed, and he may have no right of redress against anyone; it may be found in a Court of Law that his riding lacked that due care which every user of the highway is obliged to exercise; he may be condemned to pay to injured parties sums of money running into hundreds and even thousands of pounds; and considerable as we know the premiums charged by insurance companies appear to be, we cannot too strongly advise our readers to insure, both against damage to themselves and their machines and also against losses which they may sustain and liabilities which they may incur through accidents in which third parties are involved.

Number Plates and Rear Lights.

It is impossible, and I think unnecessary more than to mention the existence of regulations as to licensing of motor cycles and prohibiting excessive speed and dangerous riding, but, as many misconceptions apparently exist concerning the regulations dealing with lighting and number plates, it may be well to mention these subjects. Although there is now no necessity for motor bicycles to carry a rear light, motor bicycles having a sidecar attached and all two-track motor cycles must display a red light visible in the direction contrary to that in which the motor cycle is proceeding. The regulations on this point are set out *in extenso* in the issue of December 25th, 1913. With reference to number plates, motor cyclists should bear in mind that the background must be black, the letters and figures white. This regulation is broken by a considerable number of riders, and, from observations I have made, activity is being manifested by the police in certain parts of the country with regard to identification plates not complying with the regulations.

Silencer Cut-outs.

Riders will also remember the recent regulation prohibiting the use of any cut-out, fitting, or other apparatus or device which will allow the exhaust gases from the engine to escape into the atmosphere without first passing through a silencer, expansion chamber, or other contrivance, suitable and sufficient for reducing, as far as may reasonably be practicable, the noise which would otherwise be caused by the escape of the gases. Besides these regulations, there are also many bye-laws dealing with motor cycles in force in various parts of the country, but these are too numerous to be dealt with in this article, in which I have indicated only the main legal points to be considered.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Carbon behind Rings.

I have a 2½ h.p. two-stroke motor cycle which has run perfectly up till a week ago, when it lost much of its power and seemed to dry up if driven at all fast for a time. Can you help me with the trouble?—J.R.C.

The symptoms you mention are probably caused by the top piston ring becoming sticky in its groove. This is not an uncommon occurrence, but is easily cured by removing the ring and cleaning it thoroughly. The drying up might be caused by pre-ignition. You should be very careful what plug you use. Preferably keep to the type supplied by the makers.

A Leaky Inlet Pipe.

I have recently purchased a new motor cycle, 4 h.p. J.A.P. engine and three-speed gear. I find I cannot get the machine to run slowly. Will you kindly inform me how I can obtain slower running? I have heard something about choke tubes. Will you inform me if they have any bearing on the matter, what they are, and how fitted?—J.O.B.

The trouble is almost undoubtedly due to an air leak in the inlet pipe union, a very common cause of failure to run slowly. You might also correspond with the makers of your carburetter, giving the size of jet, and they will probably be able to help you. The choke tube is the tube surrounding the jet which regulates the fixed air supply to the engine. In some carburetters this can be changed or altered.

Curious Symptoms.

I have just had my 1912 3½ overhauled, a new gudgeon pin fitted, and the big end re-bushed, by an experienced man, but now it overheats. The crank case gets almost as hot as the cylinder; the piston and rings are a good fit, the valve timing and ignition are set just the same as before it was taken down, and the man who repaired it is quite puzzled with it, and does not know what to do to make it right. I shall be pleased if you can help me in any way.—A.B.

If it is only the crank case which gets hot we do not think you need worry, as this is simply through conduction. You do not say if the machine is running badly or if you suffer from loss of power. Unless this is the case we do not think you have any cause for complaint.

Magneto Troubles.

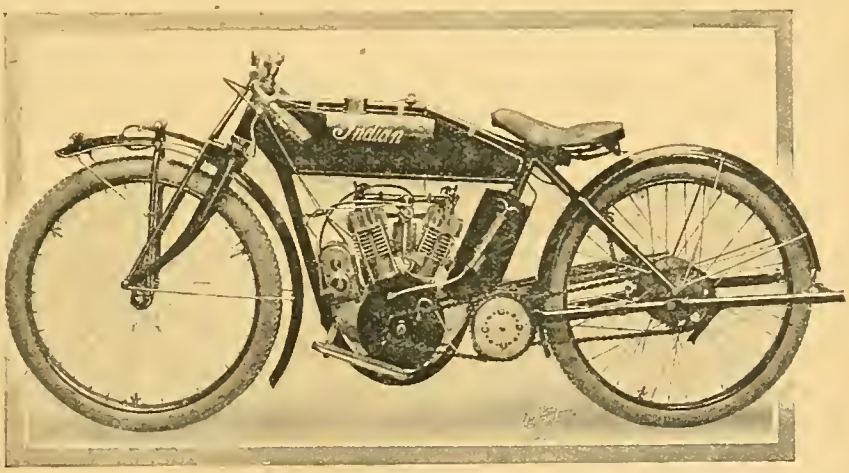
I have a 1912 2¾ h.p. twin motor cycle, and have had trouble with it recently. I had to take the engine down to fit two new bolts on magneto platform. I assembled the engine again and timed it correctly, but I could not get engine to start until about a week afterwards. The engine then started nicely on the stand, but would only fire on the road whilst I ran alongside machine; the moment I jumped on, the engine stopped. I now tried the engine on the stand again, but with no avail. I tried the wires and they would not spark. I examined the carbon brushes, and they appeared to be in good condition. I then came to the conclusion that the magneto wanted re-magnetising. I should add that the second time I tried the engine on the stand there was no sign of even one explosion.—E.McA.

In the first place, we should advise you to look to the inlet pipe joints. If you get air leaks at this point you are sure to have trouble in starting, and this is one of the commonest failures happening to an engine after it has been taken down. Touching the magneto, we should say that the trouble is more likely to be due to a fault in the insulation of the high tension winding than to the magnets requiring to be re-magnetised, and the symptoms described in your letter seem to indicate this. After the machine has been standing the magneto will start. After it has been running a few seconds it will stop, and there is no sign of a spark. This is due to the wax melting at the point where the insulation has given out. It sets after standing and breaks down after a few minutes' running. On the other hand, if the magnets have sustained a sharp blow, they may have become de-magnetised.

A Scotch Tour.

I purpose spending a fortnight's holiday on my 2¾ Model R Douglas. I intend going as far as Thurso, staying overnight at Oban, Inverness, Thurso, returning to Inverness later on; thence to Aberdeen, thence by Ballater to Dunkeld, and back to Glasgow. I shall be greatly obliged if you will kindly let me know the condition of the roads as sketched out above. Is the road by Pitlochry and Kingussie to be preferred to the one by Oban? Should each of the sections indicated above be easily ridden in one day by a second year motor cyclist?—W.McG.

You will get roads of all sorts and kinds. In the extreme north they are likely to be very loose, and in places like Ballater and Dunkeld and so forth they are quite as good as they are in the south of England. The road by Pitlochry and Kingussie is in fair condition. Most of the sections referred to could be ridden in one day, regulating, of course, your starting time for the distance to be covered.



Chain side of the two-speed 500 c.c. Indian used in the Senior T.T. race. Last week "The Motor Cycle" made the announcement that a machine of this pattern and design would form one of the Indian range in 1915.

A Curious Trouble.

I shall be glad to hear if you are able to assist me in the following matter: My machine is a 3½ h.p. single-cylinder three-speed, new June, 1913, and sidecar. It has done about 2,500 miles. The engine runs well, takes hills on top with passenger, but overheats, crank case and all fittings in the vicinity of same getting almost too hot to hold. The cylinder has been cleaned and new valve springs fitted. The heel of left foot generally gets oil on it from air release in the engine pulley. The local man tells me it is all right, but as it has only overheated for the last two or three weeks I do not quite agree with him.—S.W.

You are probably using too large a jet, or, for some reason or other, the cam has become worn. As you say the machine takes a passenger comfortably, and climbs all hills on top, we should imagine that the overheating is of such a nature as to cause you no anxiety. The crank case may get hot merely through conduction or through defective piston rings. The oil comes from the crank-shaft centre, and it is quite a simple matter to arrange a small shield from the footrest.

To Alter Belt Line.

I have an old 2½ engine in good order which I recently bought with a frame. When fitting it up I found that the belt line is out by three-eighths of an inch. How can I get a suitable gear, as, with a 20in. belt rim, it would be too high?—T.W.

There are two ways out of your difficulty, one of which is to pack the engine over in the frame until you can get the pulley centres correct, or else to look round some second-hand shops and find a pulley for the rear wheel which protrudes rather more than yours does at the present moment, or less, as the case may be. If you wish to get a lower gear it would be best for you to make use of an adjustable pulley, and then you can get practically any gear ratio to suit your purpose.

Overheating.

I am not satisfied with the hill-climbing powers of my single-geared twin, as it often fails on bad hills, owing, apparently, to overheating. I keep the silencer clean, and have enlarged the holes. I use plenty of oil of good quality. Can you tell me how I can keep my engine cooler? Would long exhaust pipes have any effect? I shall be glad, too, if you can suggest how I can lower my gear for a trip to Devon and Cornwall. I want a method whereby I can effect the change by the roadside when I get amongst the hills.—J.M.

Carefully examine the adjustment of your tappets and see that there is no greater clearance than the thickness of a piece of notepaper when the engine is warm. The best plan is to have an adjustable pulley and use two belts. There are a number of adjustable pulleys sold suitable for your machine, or you might try a Philipson pulley (Holland Street, Bolton) or a Brampton variable pulley.

A Magneto Query.

Will you kindly answer the following question? How can one tell whether a magneto requires re-magnetisng or not, and would there be misfiring at low speeds, and rather difficult starting if the magneto were run down?—J.B.

If you find difficulty in starting and the machine misfires at slow speeds, provided that the plug and platinum points are adjusted properly, and that the magneto is otherwise in good order, you may take it that the magnets require re-magnetising.

Engine Fails to Start.

Being a reader of *The Motor Cycle* I am asking if you would be kind enough to let me know the reason why I cannot get my engine to start. It has been standing still for about two months as the result of having a mishap to the front forks. I have now got them replaced, and I cannot get the engine to work; it is an 8 h.p. twin. Before I had a mishap it ran beautifully. I had the forks put temporarily right so as to get home, then I took them off and had them repaired properly. The engine works freely, and I have put some petrol in the cylinder, and it fires through the silencer and sometimes comes through the carburetter. I find I have a leakage where the jet screws up. Would that stop the petrol from going to the cylinders?—W.J.T.

The leakage where the jet is screwed in should be stopped, of course, but this should not cause the engine to misfire. Possibly the float needle is stuck up and causes flooding, the very strong mixture resulting might cause the trouble, but we suspect wrong magneto timing.

READER'S REPLY.

Paraffin as Fuel.

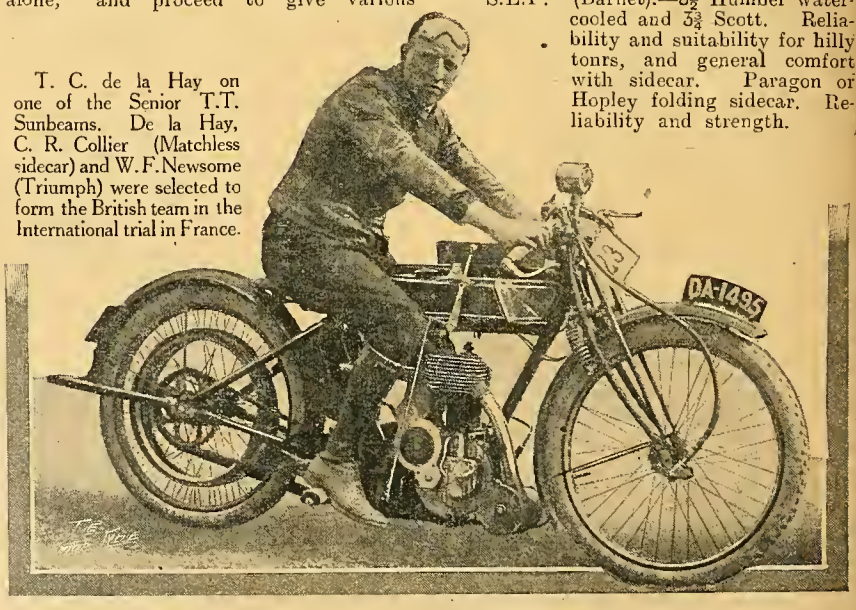
In your issue of July 16th, under "Questions and Replies," in answer to a question by "F.W.J.," you say "a machine could be run on petroleum alone," and proceed to give various objections to its use. About eighteen months ago I thought I would try paraffin as a fuel for my 1908 3½ h.p. P. and M., which was then fitted with a B. and B. carburetter with adjustable jet. I had a small extra tank fitted, for petrol, and always started and stopped on petrol; the latter so as to have a clean carburetter for starting. As a test for consumption, I may say that in 1912 I travelled on a trip, 750 miles with sidecar passenger (10 stone) and luggage, and averaged 70 m.p.g. on petrol alone, same carburetter; in 1913, with same passenger, equivalent luggage but heavier sidecar body, I did 350 miles on paraffin, with very little petrol for starting and stopping, and I averaged 100 m.p.g. Provided one finds the right amount of extra air to give, the "violent sooting" you mention is "*non est.*" I found the cylinder as clean after paraffin as after petrol. The engine is as lively on paraffin and not sluggish, as you suggest, and I have not had it "knock." As for violent smoking, you can make it do that easily by closing the extra air inlet, but not otherwise; and the smell from the exhaust is no worse than from petrol, as I found out by riding slowly in front of a cyclist (stranger), and asking him if he could tell me what I was burning. He could tell no difference, and proved on acquaintance to be a motor cyclist. The whole secret lies in getting total combustion. The only drawback you mention with which I can agree is with regard to its powers of "creeping." I have not tried your suggested mixture of one of petroleum to five of petrol, as I have been quite satisfied with plain paraffin at about 8½d. per gallon.—F.S.D.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"J.N." (London). — 8 h.p. W. C. Williamson sc., wear of tyres, m.p.g.

"S.L.P." (Barnet).—3½ Humber water-cooled and 3¾ Scott. Reliability and suitability for hilly tours, and general comfort with sidecar. Paragon or Hopley folding sidecar. Reliability and strength.



T. C. de la Hay on one of the Senior T.T. Sunbeams. De la Hay, C. R. Collier (Matchless sidecar) and W. F. Newsome (Triumph) were selected to form the British team in the International trial in France.

SUN MOTOR CYCLES.

Models from 6 h.p. twin J.A.P. to 2½ h.p. Sun-Villiers two-stroke.

Two convincing Testimonials (entirely unsolicited) to the great efficiency of "Suns."

Bexhill-on-Sea, July 2nd, 1914.

Dear Sirs,

As I shall sooo have had my Sun-Villiers a year, I beg to inform you that it is going strongly, and that the only fault ever found with it was on June 17th last when a Brighton Policeman said it was going too fast ! !

Yours truly,

HENRY BOURNE, J.P.

Mayhole, May 21st, 1914.

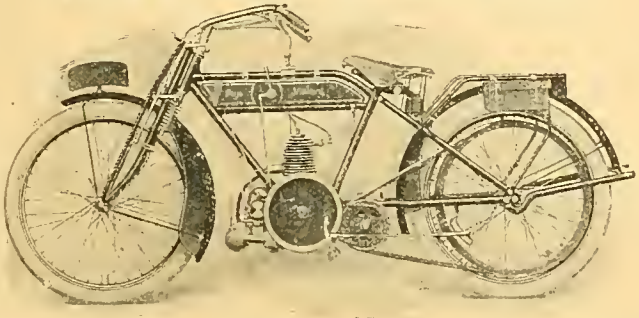
Dear Sirs,

I have now had an opportunity of giving the Sun 2-stroke motor a good run of over 80 miles, and am pleased to say as far as running is concerned it quite comes up to expectations, it has a great turn of speed, and simply romped up difficult hills.

Yours truly,

HUGH B. McFADYEAN.

We are the largest makers in the world of two-stroke Motor Cycles.



Sun-Villiers 2½ h.p. two-stroke single speed, 25 guineas.
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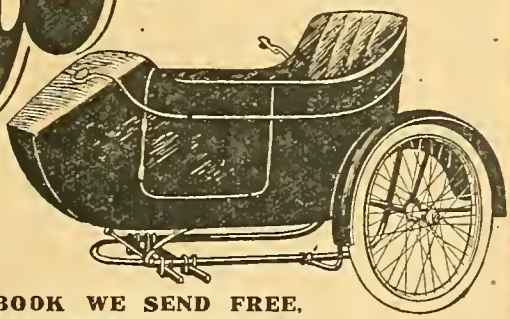

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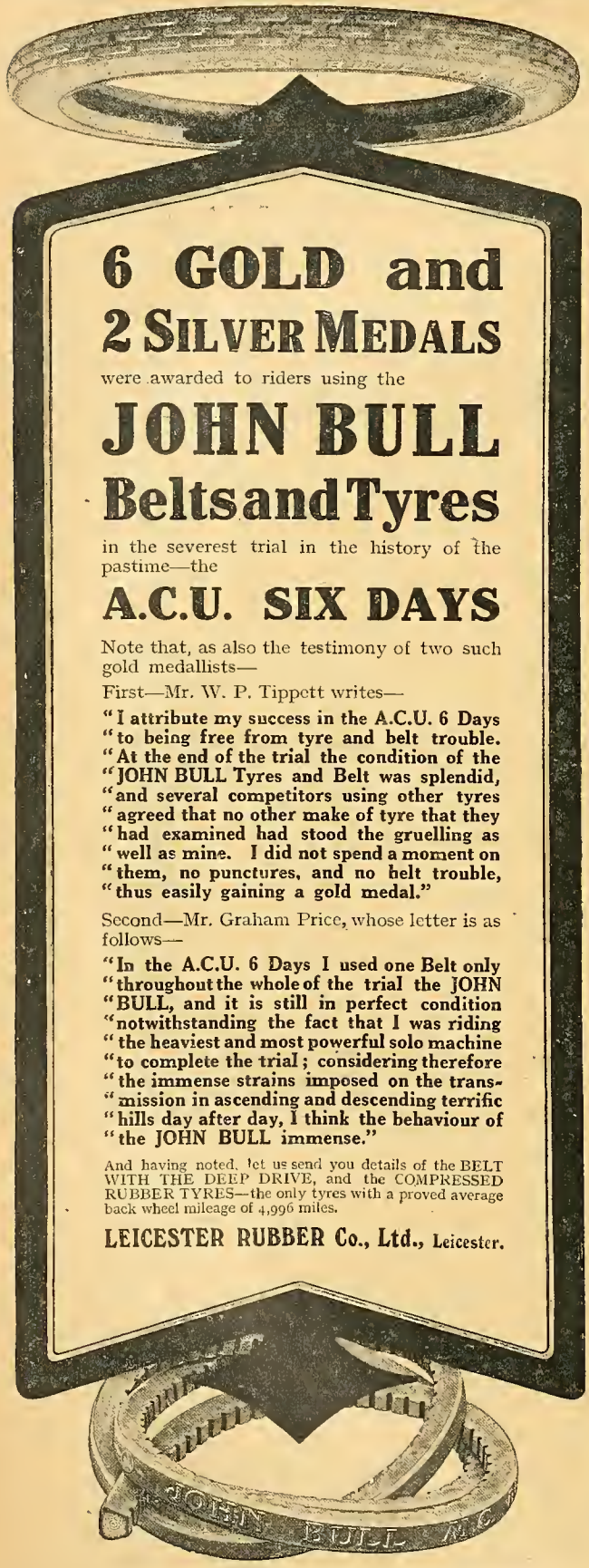

6 GOLD and 2 SILVER MEDALS

were awarded to riders using the

JOHN BULL Belts and Tyres

in the severest trial in the history of the pastime—the

A.C.U. SIX DAYS

Note that, as also the testimony of two such gold medallists—

First—Mr. W. P. Tippett writes—

"I attribute my success in the A.C.U. 6 Days "to being free from tyre and belt trouble. "At the end of the trial the condition of the "JOHN BULL Tyres and Belt was splendid, "and several competitors using other tyres "agreed that no other make of tyre that they "had examined had stood the gruelling as "well as mine. I did not spend a moment on "them, no punctures, and no belt trouble, "thus easily gaining a gold medal."

Second—Mr. Graham Price, whose letter is as follows—

"In the A.C.U. 6 Days I used one Belt only "throughout the whole of the trial the JOHN "BULL, and it is still in perfect condition "notwithstanding the fact that I was riding "the heaviest and most powerful solo machine "to complete the trial; considering therefore "the immense strains imposed on the trans-"mission in ascending and descending terrific "hills day after day, I think the behaviour of "the JOHN BULL immense."

And having noted, let us send you details of the BELT WITH THE DEEP DRIVE, and the COMPRESSED RUBBER TYRES—the only tyres with a proved average back wheel mileage of 4,996 miles.

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65 GNS.	**IN TWO MODELS** 4¼ h.p. (S.C.) 6 h.p. (Twin)	**75 GNS.**
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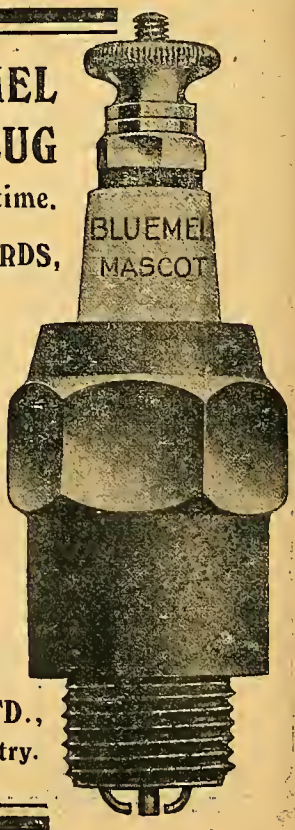

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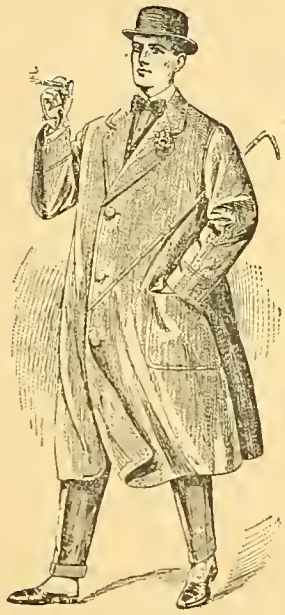
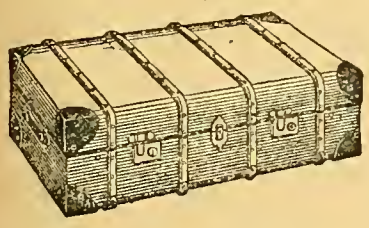


These coats being ready to wear, no patterns of cloths can be submitted, but if the colour preferred is stated, a careful selection will be made to ensure satisfaction.

Measure of chest over waistcoat, length of inside seam of coat sleeve, and height should also be given when ordering.



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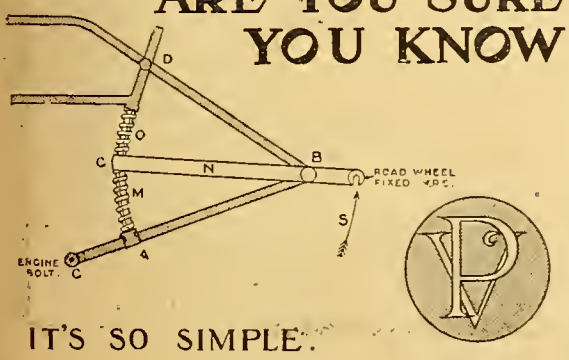

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the working of the **P.V. SPRING FRAME?**

If not, read this.

It does not hinge at **A**, this point being absolutely rigid, as are the points **C** to **A**, **A** to **B**, **D** to **B**, and **D** to **A**—in fact, the whole of the shaded part is in one piece. **B** is the point where the road wheel is fitted on rigid machines. This shows that the P.V. has all the advantages of the rigid type frame as regards stability.

At the point **B** the only working bearing is situated. On this bearing point oscillates the springing arm **N**, which extends from **F** to **G**, at which point it encircles the radius tube of frame, back again to **F** on the opposite side. A shock spring **M** and a recoil spring **O** also encircle this tube as shown. It can now be clearly seen that all shock (road unevenness) as directed at ⟶ **S** is absorbed by spring **M**, counteracted by **O**, and damped at **G**.

This explains the principle of the P.V. Spring Frame, which four years' road test and its constant successes in Trials proves far ahead of all others.

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LEVIS **FIRST** on TIME and FORMULA.

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2½ h.p. LEVIS **FIRST** on TIME.

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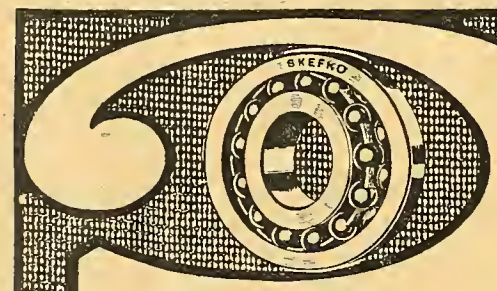
The PIONEERS of the AIR-COOLED TWO-STROKE.



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Then specify SKEFKO SKF. ball bearings. It will pay you to do so, for their automatic self-alignment and resultant absence of friction effect an enormous saving in power. In the strenuous Junior Tourist Trophy Race all the Enfield machines—one of which finished third—were fitted with SKEFKO SKF. Ball Bearings which gave every satisfaction. Why not write to-day for our latest book on bearings?

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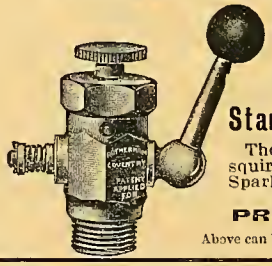

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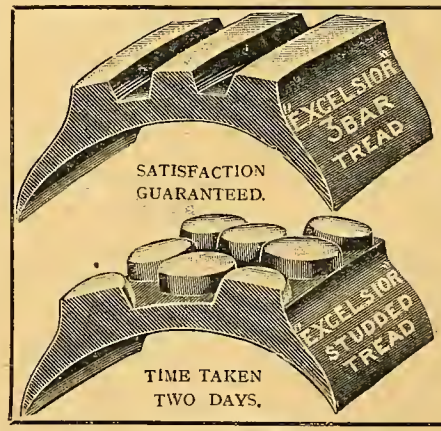

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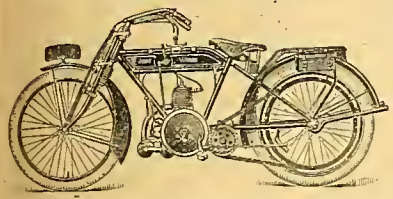

One of the many testimonials from riders of Juno Motor Cycles.

SILVER MEDAL AWARDED.

W. S. Capstick, Esq., 620, Manchester Road, Bradford, writes: 22nd July, 1914.

"I have been awarded a Silver Medal in the Bradford M.C.C. Speed Trial, on Blubberhouse Moor, Harrogate (Handicap) with JUNO 2-STROKE, with a speed of just over 38 miles per hour. The machine will really do more, I have got 49 out it several times."

THE "JUNO" 2¼ H.P. TWO-STROKE.

WRITE FOR LIST, POST FREE.

Over 150 pages, 900 illustrations.

2¼ h.p., £26 5 or 46/3 monthly. Carr. Paid.

The sweetest running Two-stroke on the market. "Silent as the Night." See our List, page 8.

3½ h.p., 2-speed, F.E. **£46 10** 80/10 monthly, Carr. Paid.

5-6 h.p., 3-speed, F.E. **£61 15** 106/8 monthly, Carr. Paid.

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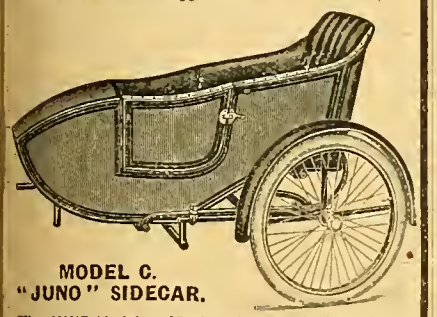
In good order. Cash or 12 monthly payments.

MEAD-PRECISION, 3¾ h.p., £25.



MODEL C. "JUNO" SIDECAR.

The **JUNO** Model A. **£5 10** 10/3 monthly Carr. Paid.
The **JUNO** Model B. **£7 16** 14/4 monthly Carr. Paid.
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The **MILLFORD** Model D. **£6 6** 11/8 monthly Carr. Paid.
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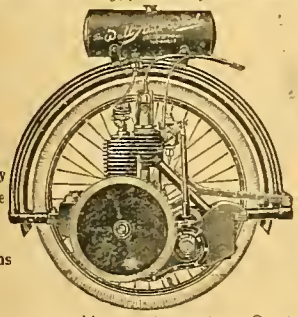

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Converts any Pedal Cycle to a Motor.

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£16 16 or 30/10 monthly, 12 payments. Or 18 payments 21/- monthly. Carriage Paid U.K.

The **JUNO** Model F. with Auto attachment **£21 16** Cash or 12 payments 39/2 each.

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C. Y. Dept.

248, BISHOPSGATE, LONDON, E.C.

'Phone: 12857 Central. Telegrams: "Quills, London."

Accessories on gradual payments. See our advertisement in "Miscellaneous" column.

MOTOR CYCLES FOR SALE.

Kerry.

KERRY Combination, twin-cyl., 5-7h.p., good condition; price £18.—Hurlin and Co., Ltd., 295, Mare St., Hackney. Tel.: Dalston 2989. [0524

KERRY, 3h.p., modern machine, engine just re-bushed, low, footboards, h.b.c. throughout, lamp, horn, etc.; bargain, £9; photo.—59, Longbridge Rd., Barking. [6077

Kynoch.

2¾h.p. Kynoch, 3 speeds, fit complete, a grand machine; £30.—Cordingley, Haslingden. Tel.: 102. [5694

Lea-Francis.

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

Levis.

2¼h.p. Levis Baby, just arrived; £33/10.—Cordingley, Haslingden. Tel.: 102. [5691

LEVIS, 1914 models, from £33/10; exchanges quoted by return.—Collier's, Westgate, Halifax. [0388

2¾h.p. Levis, 2-speed, counter-shaft gear, just arrived; £47/10.—Cordingley, Haslingden Tel.: 102. [X5101

LEVIS, 2¾h.p. (May), 2-speed, all accessories, many extras, better than new.—Wilkinson, Kirkside, Bilton, Harrogate. [X7267

1913 2¼h.p. Levis, with all accessories, good as new, only run a few hundred miles; £24.—Gibson, 199, High Rd., Ilford. [6056

LATE 1913 Levis, has run less than 1,000 miles, perfect condition, lamp and horn; £24.—6,508, *The Motor Cycle* Offices, Coventry. [X6833

LEVIS, 2¼h.p., 1914, done 540 miles, speedometer, lamp, horn, splendid condition, unscratched; £35, or near.—Box 6,507, *The Motor Cycle* Offices, Coventry. [X6811

LEVIS 1914 Models in stock, ready to ride away.—Cash, exchange, or easy payment terms from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0536

Lincoln Elk.

1912 Lincoln, 3½h.p., free engine, Bosch, guaranteed perfect, real bargain, Whittle, Palmers; nearest £20.—739, Old Kent Rd. [6122

LINCOLN-ELK, 3½h.p., 1913, 2-speed, free engine, kick starter, fitted with Brauble coachbuilt sidecar, good condition; £35, bargain; owner buying car.—37, Treadgold St., Notting Hill. [X7235

LINCOLN-ELKS, the value for money motor cycles; best specification; 4½h.p., 2-speed, £46; 6h.p. twin, counter-shaft, £55; immediate delivery; easy payments —Northern agents, Cooke's, Longsight, Manchester. [X6558

Martin.

MARTIN-J.A.P., 1913½, Brooklands T.T. model, unused since February, enamel unscratched; take £30 for quick sale.—J. S. Worters, Grove Park, S.E. [X7285

Matchless.

1912 6h.p. Matchless, with 1914 coachbuilt sidecar, perfect condition; £60.—Manford, Welshpool. [6137

MATCHLESS, 1912, racing, overhead valves, 5-6h.p. twin; bargain, £27.—Midland Motor Co., Oxford. (D) [X7246

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378, Euston Rd., and 173, Gt. Portland St. [7287

MATCHLESS-J.A.P., 2-speed, and free engine, sidecar, excellent condition; £42.—Edward Phipps, Garage, Llanfyllin. [X7306

MATCHLESS, 1912, 8h.p. twin, single gear, with sporting Swan sidecar, accessories; £48.—Midland Motor Co., Oxford. [X7247

1912 Matchless, 8h.p., and sidecar, 2 speeds, twin belt, speedometer, lamps, spares; £45.—Stanford, 33, Bigwood Av., Hove. [5777

1913 8h.p. 2-speed Chain Drive Matchless and Matchless coachbuilt sidecar, perfect condition, with accessories; £62.—Harold Petty, 32, King St., Leicester. [6061

7h.p. Matchless, chain drive, 3 speeds, and free engine, also coachbuilt Matchless sidecar, the most silent motor cycle made; £92/17; ready to drive away.—Cordingley, Haslingden. Tel.: 102. [X5092

MATCHLESS, 1914, 4-5h.p., 3-speed, free engine, electric light, horn, speedometer, toolbag, good as new, done 600 miles; splendid bargain, £55.—Stored H. H. Huckle and Co., 115, High Rd., Palmer's Green, N. [6078

Minerva.

MINERVA, 3½h.p., overhauled; £15, or offer.—A. Smith, Baxterley Hall, Atherstone. [X7250

2¾h.p. Minerva, Whittle, Bosch, B.B., h.b.c., powerful running, good condition, except tanks; offers.—Curless, Mousehole. [6018

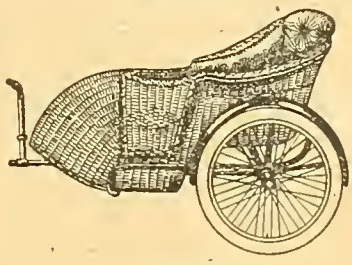
MINERVA, 1913, 3½h.p., Bosch, 2-speed, sidecar, luggage carrier, complete spares, brand new studded tyres, perfect condition; £22/15; trial.—F. Bryant, Park Lane, Kersal, Manchester. [X7308

"PERFECTION SIDECARS"

To suit all makes of machine.

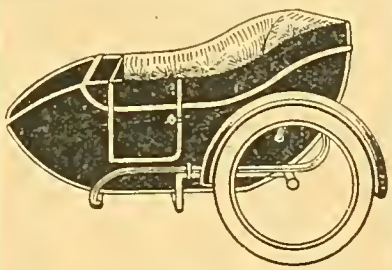
Prices from **£5 5 0.**

Full illustrated catalogue giving full particulars on application.



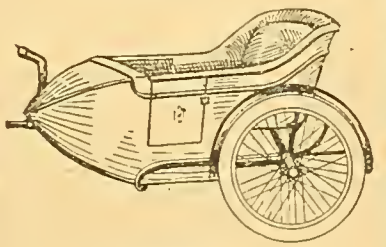
MODEL B.

Best chassis, with dropped frame, extra strong spindle, "Perfection" quick-detachable joints, three-stay side mudguard, 26×2¼in. "Avon" non-skid tyre, body: Well upholstered, with side door, with base and sides lined for passenger's comfort **£6 5 0**



MODEL E.

High-grade coach-built body, luxuriously upholstered, spring cushion, cupboard in front and under seat, side pocket for tools, spares, etc., 26×2¼in "Avon" rubber-studded tyre Standard finish: dark green, blue, or French grey **£10 5 0**



MODEL F.

Special coach-built torpedo model in three-ply wood, drop frame chassis, light and strong, cupboard with lock under front, spring cushion, and coach painted to any colour desired .. **£10 0 0**

CLEARANCE LINE OF NEW SIDECARS.

"SUPERBE" £6 6s. Sidecars, well upholstered, fitted with cushion, Avon non-skid, or Continental tyre. To fit all leading makes. Twelve months' guarantee .. .. .. Reduced to **£4 9 6**

For List of New and Second-hand Motor Cycles, see last week's issue of "The Motor Cycle."

COLLIERS MOTORIES,

WESTGATE, HALIFAX.

MOTOR CYCLES FOR SALE.

M. and M.

CATALOGUES of the new M. and M. 2-stroke at £25 on request.—Morgan and Maxwell, 80, High Rd., Streatham. [X5712

M.M.C.

M.M.C., 3½h.p., B.B. carburetter, mag. ignition, Brooks B100 saddle, good value, £16/10, or on E.P.S.—Lamb's, 151, High St., Walthamstow. [6107

Moto-Reve.

1911 Moto-Reve, horn, tools, spares, perfect; £9.—W. Hilton, Fourth Av., Blackpool, S. [X7284

Motosacoche.

£9/10.—1¾h.p. Motosacoche, fine condition, h.b.c.; bargain.—58, Blagdon Rd., New Malden. [6027

1913 Motosacoche Lightweight, brand new machine; £25; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0548

1912 Motosacoche, 2½h.p., variable gear, lamp, horn, pump, etc.: first cheque £18; going abroad; all particulars.—Box 6,530, *The Motor Cycle* Offices, Coventry. [X7200

New Hudson.

1913 New Hudson, 3-speed gear, coachbuilt sidecar, lamp, horn, all spares, new condition; £45.—Plastow, Grimsby. [X7292

NEW Hudsons.—6h.p., 1914 models; 68 gns.; exchanges or easy payments.—Maudes, 136, Gt. Portland St., London, W. [8363

NEW Hudson, 1913, 3½h.p., 3-speed, lamp, horn, and tools, guaranteed sound; bargain, £38/10, or near offer.—Shuker, Shrewsbury. [0541

NEW Hudson, 6h.p., 3 speeds, almost new, only used about 1,300 miles, complete with fitments and sidecar; £70.—Turpins, Preston Rd., Brighton. [0511

NEW Hudson, late 1912, 3½-4h.p., 3-speed, sidecar, speedometer, lamp, horn, spares, not run 2,500 miles, perfect order, ready for touring; £45.—J. Ames, Huntriss Row, Scarborough. [6017

NEW Hudson Lightweights, promptest delivery; E.P., quarter down and balance in 12 monthly instalments.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [6115

1912 New Hudson, 2½h.p. J.A.P. engine, 3-speed gear, new Palmer cord cover back, studded front, B104 saddle, very good condition; £21.—Robinsons, Green St., Cambridge. [0523

NEW Hudson, 3½h.p., single-cyl., 3-speed Armstrong gear, and Speedwell coachbuilt sidecar; this combination is equal to new in every respect; £50 secures.—Colmore Depot, 31, Colmore Row, Birmingham. [X7184

New Imperial.

1914 New Imperial-Jap, brand new, 8h.p., 3 speeds, car tyres; cost £77; delivered too late; will sacrifice for £67.—125, London Rd., Manchester. [0563

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

Norton.

1914 3½h.p. 3-speed Norton, equal to new, ridden only 400 miles, complete with P. and H. lamp, horn, etc.; £50.—Parker and Son, St. Ives, Hunts. [0496

N.S.U.

BARGAIN List

ONE 2h.p. N.S.U. Single-cyl. Lightweight, complete with 2-speed gear and free engine, 1913 model, shop-soiled; £30 net.

ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine, 1914 model; £32 net.

ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, complete with under-geared pulley, 1912 model; £25 net.

ONE 3½h.p. N.S.U. Single-cyl. Motor Cycle, complete with h.b.c. 2-speed gear and free engine, 1914 model, shop-soiled; £48 net.

ONE 6½h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine, 1913 model; £45 net.

ONE 8h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine; £25 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0538

TWIN N.S.U., 6h.p., Bosch, N.S.U. 2-speed, F.E., fine sidecar machine; bargain, £17.—Speechley, 45, Church Rd., Acton. [6125

N.S.U.'s in stock, immediate deliveries; exceptional terms. Write to us and you will save money.—Parker and Son, St Ives, Hunts. [0498

N.U.T.

EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

ROBERTSONS MOTORS LIMITED.

NEW 1914 MOTOR CYCLES.

DOUGLAS, Model "B"	£62 0
B.S.A., 3½ h.p., 3-speed, chain drive	£63 0
EDMUND-M.A.G., 3½ h.p., twin-cyl., 2-speed, spring frame	£63 0
TRIUMPH, 4 h.p., 3-speed	£60 0
DOUGLAS, Model W	£52 0
ZENITH, 6 h.p., clutch model	£75 12
DOUGLAS, Model V	£48 0
NORTON, 3½ h.p., T.T. Roadster	£50 0

BRAMBLE, IVY, MILLFORD, DALTON, and SIDETTE SIDECARS.

NEW 1913 MOTOR CYCLES.

ZENITH, 3½ h.p., clutch model	Reduced to £47
ZENITH-GREEN, 3½ h.p., water-cooled	,, £43

SECOND-HAND

1914

1576.	**INDIAN,** 2-speed	£56
1569.	**ROYAL ENFIELD** and Sidecar, large lamp and horn, spares, etc.	£74

1913

	ALCYON, 2 h.p.	£24
	ALCYON, 2½ h.p.	£29
1581.	**DOUGLAS,** Model R	£40
1580.	**RUDGE-MULTI** and sidecar	£44
1533	**B.S.A.,** 3½ h.p., 2-speed	£42
1565.	**HENDERSON,** 8-10 h.p., 4-cylinder	£55
1553.	**INDIAN,** 7 h.p., 2-speed	£48
1433.	**REGAL,** 4¼ h.p., 1912 frame, 2-speed	£32
1542.	**ZENITH,** 6 h.p.	£45
1572.	**ZENITH,** 8 h.p., special competition machine, large tank, etc.	£56
1566.	**B.S.A.,** 1913-14, Special, fitted with Armstrong 3-speed gear, and large tanks	£45

1912

1457.	**HENDERSON,** 7 h.p. F.E.	£39
1582.	**ZENITH,** 9 h.p., and sidecar	£45
1579.	**MATCHLESS,** 6 h.p. F.E.	£35
1575.	**BRADBURY,** 3½ h.p.	£25
1578.	**BRADBURY,** 3½ h.p.	£27
1430.	**F.N.** 5-6 h.p., 4-cylinder 2-speed, and Sidecar	£29
1453.	**ZENITH,** 8 h.p., and Sidecar	£46
1542.	**ZENITH** 6 h.p.	£42
1567.	**ZENITH,** 6 h.p., T.T. roadster	£39

1911

1545.	**CHATER-J.A.P.,** 2½ h.p.	£16
1478.	**ZENITH,** 3½ h.p.	£26
	— ALSO —	
1571.	1910 **DOUGLAS,** 2¾ h.p.	£15

MOTOR CYCLES AND SIDECARS FOR HIRE

FINE MACHINES. MODERATE TERMS. NO DEPOSIT.

TELEPHONE: MAYFAIR, 5767.

157, GREAT PORTLAND STREET, W.

MOTOR CYCLES FOR SALE.

O.K.

O.K. Junior, 2-speed, in stock; £30 cash, or £8 down and 12 monthly instalments.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [61

O.K. Juniors.—We are Surrey agents for this perfect lightweight. May we call on you and demonstrate its remarkable powers? It costs £30 on immediate delivery. A postcard will bring it to your door.—Meeten, Dorking. [46

Precision.

PRECISION, 3½h.p., 1912, T.T. roadster, drip feed large tank, new tyre, belt, good condition, fast; £22/10.—234, Woodstock Rd., Oxford. [X72

Premier.

PREMIER 1912 3½h.p. Standard Model, complete with accessories; £22; guaranteed.—Below.

PREMIER 1912 3½h.p., 3 speeds and clutch, splendid sidecar puller, guaranteed perfect; £2 —Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [04

PREMIER, 1912, 3-speed, and sidecar; £35; change.—Hilton and Son, Foxhall Sq., Blackpool. [X72

3½h.p. Premier, 1912½, 3-speed, clutch, only was seeing; £27/10, bargain.—13, East St., Poole, Dorset. [X68

2¾h.p. Premier, 1912 model, in good condition; a bargain, £17 to clear.—Turvey and Co., The Motor House, Sunderland. [X68

PREMIER, 1912, clutch model, in very good order £27.—Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter. [05

PREMIER, 1912, clutch model, in very good order £27.—Exeter Motor Cycle and Light Car Co., Ltd., 28, Tavistock Rd., Plymouth. [05

A SNIP.—2½h.p. Premier, Lycett's T.T. saddle, excellent condition; £17/10.—Woodward, Lintwood, Hornchurch Rd., Romford. [61

1914 3½h.p. Premier, T.T. model, complete; cost £52, sacrifice; call Friday after 6.30.—Laurel, Alexandra Grove, North Finchley, N. [60

PREMIER, 3½h.p., counter-shaft gear, the 3½h that pulls like a 6h.p.—Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter. [05

PREMIER, 1912, 2½h.p. lightweight, fast, spare belt, tyres, and everything, in splendid condition; £2 —Clarke, Wireless Station, Malin Head, Ireland. [60

PREMIER, 3½h.p., counter-shaft gear, the 3½h that pulls like a 6h.p.—Exeter Motor Cycle and Light Car Co., Ltd., 28, Tavistock Rd., Plymouth. [05

1913 3½h.p. 2-speed Premier, handle starting, with lamp and Lucas horn, Kempshall tyre on back, Dunlop front, with all tools, etc.; price £28. Robinsons, Green St., Cambridge. [05

P. and M.

1914 P. and M.'s; immediate deliveries.—Purcell, 78, Charlotte St., Tottenham Court Rd., London. [18

PHELON and Moore, 1914, with Millford coachbuilt sidecar; £67, a snip.—Midland Motor Co., Oxford. [X72

1914 P. and M. Motor Cycles; delivery from stock, cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [05

PHELON and Moore, 1911, 2 speeds, and free engine, 1913 Binks carburetter, and excellent cane sidecar; bargain, £30.—96, Crown St., Ipswich. [X72

1914 P. and M. and Special Sidecar, splendid condition, all accessories, and insurance; £68, offers.—Mundy, 42, High St., Wealdstone. [602

1913 3½h.p. P. and M., Montgomery sidecar, accessories, everything guaranteed perfect; £49; tal 1913 2¾h.p. A.J.S. part exchange.—Particulars, 80, Wellington Rd., Bilston, Staffs. [X709

P. and M. Combination, 1914, run 100 miles only, oversized tyres, lamps, horn, all spares, guaranteed perfect; cost £90; quick sale £77; dep sit system; ar trial.—Jubb, 29, Norfolk Lane, Sheffield. (D) [X712

Quadrant.

3½h.p. Quadrant, mag.; 2¾h.p. Peugeot, mag.; 2h.p. accumulator machine; trial.—P. Hancock, Laur Cottage, Furze Platt, Maidenhead, Berks. [X722

Regal.

REGAL-GREEN, 1913, 4h.p., water-cooled, 3 speed and clutch, splendid order, used solo only; £38 —Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [051

REGAL-GREEN-PRECISION, 4¼h.p., 1913-14, with sidecar, S.A. 3-speed gear, perfect condition; owner leaving England; bargain, £50.—Sykes, Paternoster Lane, Gt. Horton, Bradford. [X718

Rex.

T.T. Rex, very hot, Bosch; £16.—Life, 10, Hoghton St., Southport. [609

REX, 3½h.p., m.o.v., Bosch, fine order; £12.—Speechley, 45, Church Rd., Acton. [612

REX and Rex-Jap, 1914 models; keen exchange quotations.—Collier's, Westgate, Halifax. [0390

REX, 1911 model, 3½h.p., 2-speed, free engine; £20 —A. Holland, Clarendon St., Coventry. [X731

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND NINETY-FOURTH CONSECUTIVE ISSUE
Subscription Rates: Home 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

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Telephone: 2848 *City (five lines.)* ADDRESS: 20, TUDOR STREET, LONDON, E.C. *Telegrams:* "*Cyclist, Fleet, London.*"

An index to advertisements will be found on the page facing the back cover

The Motor Cycle in Warfare.

MOTOR cyclist despatch riders are to play an important part in the present war. That this would be the case was obvious before the crisis came. The Government took a long time before it would look with favourable eyes on motor cycles and realise their potential uses, but the value of motor cyclist despatch riders in the event of railway lines, telephones, and all other means of communication being out of action cannot be overestimated. Every opportunity has been seized in the past to impress upon the Government the immense value of the motor cycle in time of war, until, a few years ago, a small section was employed in the Army Manœuvres; the following year the number used was more than trebled, and the military motor cyclist having time and again proved his worth in no uncertain fashion, the Government has gone on multiplying the numbers and extending their uses in various directions, notably in the flying corps and transport service. All this is a feather in the cap of motor cyclists, manufacturers, and all others directly connected with them, as the success of motor cycles in warfare is simply and solely due to their present-day reliability. But the fact of motor cyclists being attached to the Army is not the only pleasing feature in this crisis; indeed, we know of nothing more encouraging than the patriotic response of motor cyclists to the call of their country. Hardly had the order for the general mobilisation of the Army been issued and the request for motor cyclist volunteers made than every vacancy was filled and thousands have since been refused.

The appeal by *The Motor Cycle* in the last issue for volunteers met with a most encouraging response. Each day scores of replies were received from readers offering the services of themselves and their machines, and these answers were at once handed to the secretary of the Auto Cycle Union, which body has placed its services and the whole of its staff at the service of the War Office authorities, and the names and addresses of those who offered their services have been classified into the counties and districts in which they reside, which list is now at the disposal of the War Office when further volunteers are required.

Last week Midland manufacturers received repeated orders from the Government for motor cycles; the War Office officials immediately on the outbreak of hostilities took details of the stocks held by the different firms, and have since acquired a large number of machines.

The Noise of Two-stroke Engines.

NOW that the two-stroke engine is so rapidly increasing in numbers and popular favour, it is interesting to draw attention to a curious feature which we have not seen emphasised elsewhere. By this we mean the curious drumming noise which many of the engines emit. This noise is quite distinct from exhaust sound, and is generally heard more distinctly when a machine is approaching than when it has past. There are many possible theories, but probably the sudden opening and cut-off of the ports is in a large measure responsible, for, at the high speed at which most small two-strokes run, the piston speed, and consequently the port openings, are exceedingly rapid. It would be instructive to hear the effect of various port shapes on this noise from such as have experimented in this direction. It has been suggested that the increased speed of the magneto chain might possibly have some bearing on the question, and it is possible that the stream of exhaust gases striking the silencer walls, quite apart from the final exhaust note, is to some extent responsible in certain designs. The silencing of the final exhaust is also a question of importance, for two-cycle engines will not stand a throttled exhaust, and consequently great care must be exercised in silencer design if quietness is to be obtained. It should be possible to make a two-stroke quieter than almost any other type of engine on account of the small number of moving parts.

A Lady's Record Ride in Lakeland.

By GEORGE D. ABRAHAM.

HONISTER Pass has been climbed by a sidecar driven by a lady. "How are the mighty fallen!" some might say, with exciting memories of a few years ago when experts on special mounts hardly achieved the ascent.

To Mrs. Mary Riley belongs the honour of being the first lady to cross the notorious pass on a motor cycle and sidecar from the Buttermere side. *En route* for a sidecar camping holiday in the Highlands with her husband and young son, she encountered two other sidecar parties at Kendal who were bound for a special test on Honister Pass (these were W. H. Carson and F. C. North on a 6 h.p. Excelsior and a 6 h.p. Ariel respectively), and persistent rumours of the petrol famine in the far North induced the lady's party to vary the route by travelling to watch the experts climb Honister. It was a fortunate plan, for the quickly developing war news made the distant journey inadvisable. A camping holiday in Lakeland provided an excellent substitute.

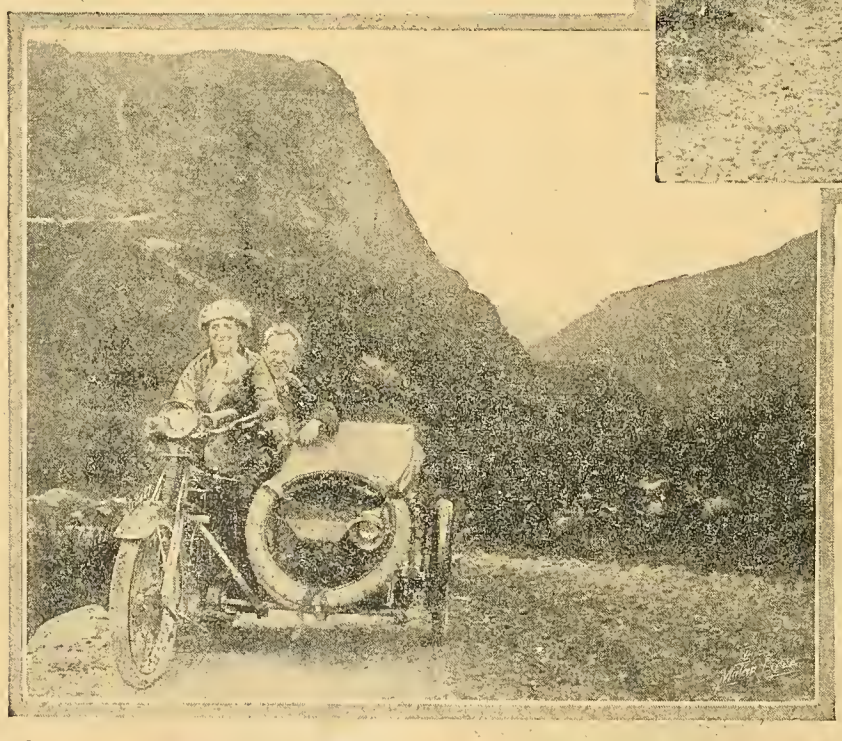
The approach to Honister was made on a day of excessive moisture—which means much in Lakeland—by way of the Devil's Elbow and Buttermere Hause. At Buttermere, during the lunch interval, the two-speed 6 h.p. Enfield with its 9 to 1 low gear received attention. A special sprocket was carried, and this was put on to bring the gear down to 12 to 1. This was a necessity considering the work on hand and the heavy load to be carried.

Then, having watched the others struggle up the slippery Hill Step, the lady rider was tempted to try the ascent. Doubtless a sight of the skilled ascents by the others assisted in the attack, for Mrs. Riley made a non-stop climb at the first attempt despite the bad weather conditions. Only once did the passenger, who rode mostly on the tool box, feel any misgivings. This was on the rocky 1 in 3½ section of Hill Step—the crux of the climb. There the spinning driving wheel failed for a moment to find a grip; a crosswise skid almost flung the machine over into the torrent-filled gorge on the right.

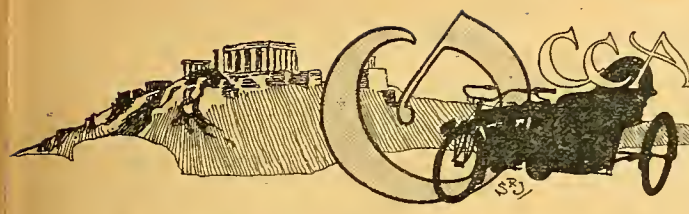
Some might say absence of body is better than presence of mind at such times, but this was not the opinion of the indomitable lady rider. With fine judgment and perfect skill she caught the firmer surface at the right moment, and with a roar the Enfield dashed upwards. The top of the pass was soon under wheel. Then, as though yet unsatisfied, the sharp hairpin to the left was suddenly taken, and a finish made at the Yew Crag slate quarries, some few hundred feet above the Honister Hause.

It was altogether an astonishing performance, but one which few lady riders should emulate. Mrs. Riley and her Enfield are a strong combination, a fact which recent competitions have accentuated.

Up out of the depths of Hill Step. The foot of Honister Pass is seen some seven hundred feet below.



"The Winning Smile." The 6 h.p. Enfield after the remarkably successful climb to the top of Honister Pass from Buttermere. Mrs. Mary Riley is the first lady motor cyclist to make the ascent.



OCCASIONAL COMMENTS

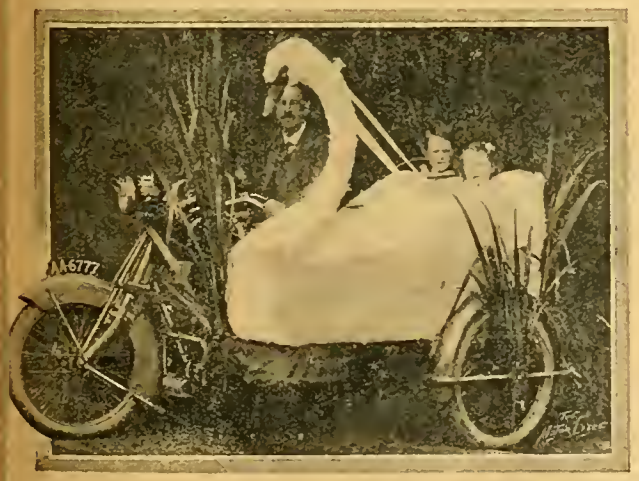
BY "IXION"

Reproved!

A friendly Yorkshireman informs me that exhaust valve springs are easily tied up with string, if the twine is interwoven through some of the coils. Obviously I regret, dear friend, that ere I reached the twice and string stage most of my brains had temporarily perspired away. The breath of moorland air which your letter brought has done me good, and my spring removing tool is now chained to the garage wall.

Mechanical Hooters.

So far as cycle cars are concerned, I believe I have solved the question of far-sounding alarms. I do not love the exhaust whistle, because of its sooting propensities. I hesitate in the face of electric alarms, because they demand big batteries, which are costly to buy and soon need recharging. The pneumatic hooter does not carry far enough, and its delicate reed chokes too often on dusty roads. So for cycle car work I pin my faith either to a pneumatic alarm, operated by a pump driven by friction off the flywheel, or to one of the new mechanical alarms, in which a rack-handle and intermediate gearing rotate a toothed wheel with great velocity against a diaphragm. To neither of these have I found any objection in use. Some of the latter, in particular, are now made in very light weights. My new Blériot mechanical horn is of very imposing appearance, and its full shriek is guaranteed to awake the seven sleepers; but it only weighs 3 lb., and therefore is not quite outside the pale of motor bicycling possibilities. If a very little more work is devoted to reducing the weight and dimensions of such accessories they will be completely suited to heavy touring motor cycles.



A prettily decorated Clyno motor cycle and sidecar, "The Swan of Avon," which won first prize in a procession recently. It belongs to Mr. C. J. Eldridge, of Fordingbridge.

The New P. and M. Twin.

I am very specially interested in the new P. and M. engine, as the 90° twin has been one of my pet foibles for many years past, though of late the horizontally opposed twin has rivalled it in my affections. My comparisons between the two types may interest readers. I have found that the 90° twin is usually the steadiest slogger at low engine speeds, but that equality of lubrication is easier to obtain on the horizontal type. There is no question that either pattern is infinitely preferable to the 50° or 60° twin on all outfits which are asked to do much "free engine" running. It is unfortunate that neither pattern is easily housed on cycle car or motor bicycle frames without some sacrifice of accessibility or aspect, and I await the detailed study of the new P. and M. in the latter respect with considerable interest. The excellent balance of a 90° twin makes it an eminently suitable engine for motor cycle purposes.

A Racing Cycle Car.

The qualities of the racing engine of to-day will be transferred, they say, to the touring engine of to-morrow. It has always been so. I have been very busy lately—I will not say "driving" so much as hanging on to the wheel of a racing cycle car, and it has marvellously strengthened my optimism anent the future of the miniature four-wheeler. Much as I love a good cycle car or light car, I feel sore when I approach some long easy slope, up which I have been accustomed to roar at any speed from 30 to 50 m.p.h., according to circumstances, on my motor cycles; I take the biggest rush I can get, and my little car is doing a very noisy and vibratory 40 m.p.h. at the take-off, which rapidly slows to 15 m.p.h. after a hundred yards or so. Down I come to second gear, accelerate up to 20 m.p.h., which represents perhaps 66% of the maximum r.p.m. available, and then curb the roaring engine down in the interests of longevity. Motor cyclists on antediluvian 500 c.c. singles, and even on modern babies of 250 c.c., shoot scornfully past me, and even if it is raining, and they are wet and mud-plastered, I envy them. My little racer has comforted me. I never let it exceed 40 m.p.h. because it only weighs 1,000 lb., and even at double legal limit it is inclined to proceed like a frightened hare in a series of sighting hops. But it takes all those tiresome slopes on top gear at 30-40 m.p.h. if the road is empty, and its acceleration from a standstill would be equal to that of most motor cycles, if wisdom did not suggest letting the engine die clean away when changing from first to second and second to top. In the near future all cycle cars will have lively, vivacious engines of this character (the Manx T.T. will lay the foundation stone of this advance), and as the trade concentrates into fewer and larger factories, prices should fall a little. Make no mistake, cycle cars are going

Occasional Comments.—

to boom before so very long, and driving a cycle car is going to be much more reminiscent of driving a high-powered motor cycle than it has been. When I say "cycle car" I imply nothing about design; but I fancy that the stereotyped designs of the future will own a closer kinship with motor cars than with motor cycles. Let us hope that the Cycle Car T.T. will become an annual event. If any firm of cycle car or light car manufacturers builds up a reputation for combining fast acceleration, high speed, top gear climbing, and real reliability in its standard models, the demand it experiences will astound it. At present the number of riders who have sampled the Brooklands type of cycle car engine does not exceed fifty or so; and the sluggishness of most standard touring chassis chills the ex-motor cyclist's enthusiasm. Wait till the qualities of to-day's racing engines are transferred—with a little refining down—to the touring chassis of to-morrow!

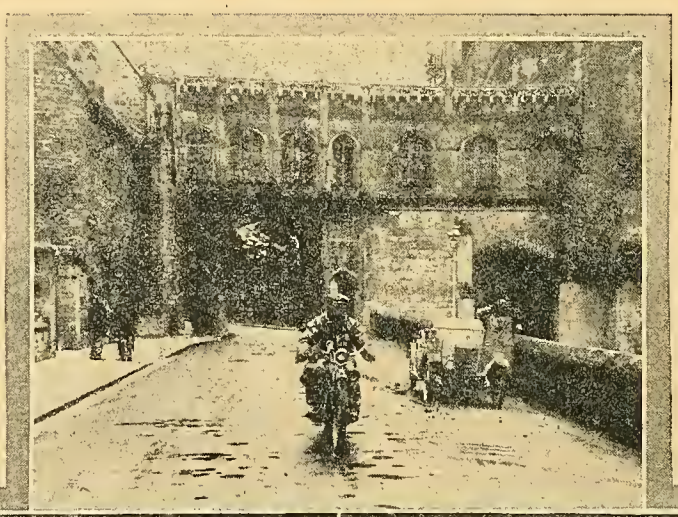
Our Latest Critic.

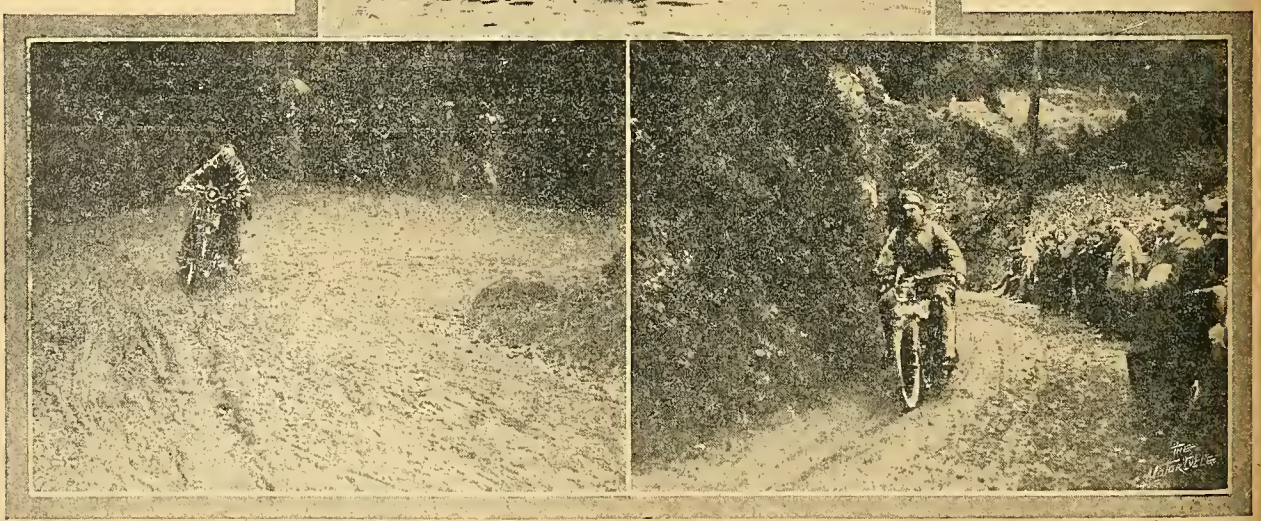
I have just been reading Mr. H. G. Wells's latest combination of political prophecy and scientific romance, entitled "The World Set Free." It is somewhat topical, as it is an attempt to picture the final European war, in which the slaughter is so appalling that national monarchies are abolished in favour of a world-republic. The chemical discovery which is responsible for the slaughter is, incidentally, applied to the perfection of the motor cycle. The "filthy oil-driven motor cycle" gives place to light shimmering steeds of silvered steel, driven by a radio-active compound, which emanates a permanent explosion, and is used in engines invented by a Bengali. As one of these motors will drive a family motor car thirty-seven miles for 1d., the lightweight of the future is evidently to be contemptibly economical. One presumes that only tramps will venture to be seen on them, and the "knuts" of that era will doubtless prefer a pocket folding aeroplane.

Petrol Consumption on Small Twins.

I see that the A.C.U. does not trouble to verify petrol economy — or extravagance — in its trials. Rather a pity, I fancy. I have no doubt whatever that most manufacturers grossly exaggerate the mileage of which their engines are capable. It is very seldom indeed that a standard $3\frac{1}{2}$ h.p. machine, as delivered to me by its makers, is equal to more than 70 m.p.g., and the small high speed twin-cylinders sop up the costly spirit at the most alarming rate. I am using a small and speedy twin for runabout work, and, though I fancied it required tank replenishment somewhat frequently, I never suspected the depth of its iniquity till I lent it to a friend for a long week-end. In returning it, "Do you know it only does 57 m.p.g.?" quoth he. Verification followed, and the awful accusation was proved. This mileage is registered at about 28 m.p.h. average speed. At a legal limit average the engine can do 73 m.p.g.—no more! It is in good tune, with all joints tight, and standard carburetter adjustment. Are most 350 c.c. machines similarly sinful? [They are not.—ED.]

M.C.C. TOUR IN THE WEST COUNTRY.





(1) E. A. Colliver (Indian) passing Wells Cathedral.
(2) G. P. Howe (B.S.A.) at the second bend on PorlockHill. (3) H. J. Beal (L.M.C.) climbing steadily up Countisbury Hill, Lynmouth.

CHAIN OR CHAIN-CUM-BELT?

The Claims of Two Popular Transmission Systems Critically Examined by "Road Rider."

ANY close student of contemporary design must notice that the leading designers of high-powered sidecar outfits are divided into two schools. The all-chain drive has been steadily growing in popularity, but a significant and stubborn minority adhere to the chain-cum-belt drive. I have spent a great part of the current season in testing these two designs, one against the other, with the aid of a good variety of first class machines, and am inclined to form the following tentative conclusions.

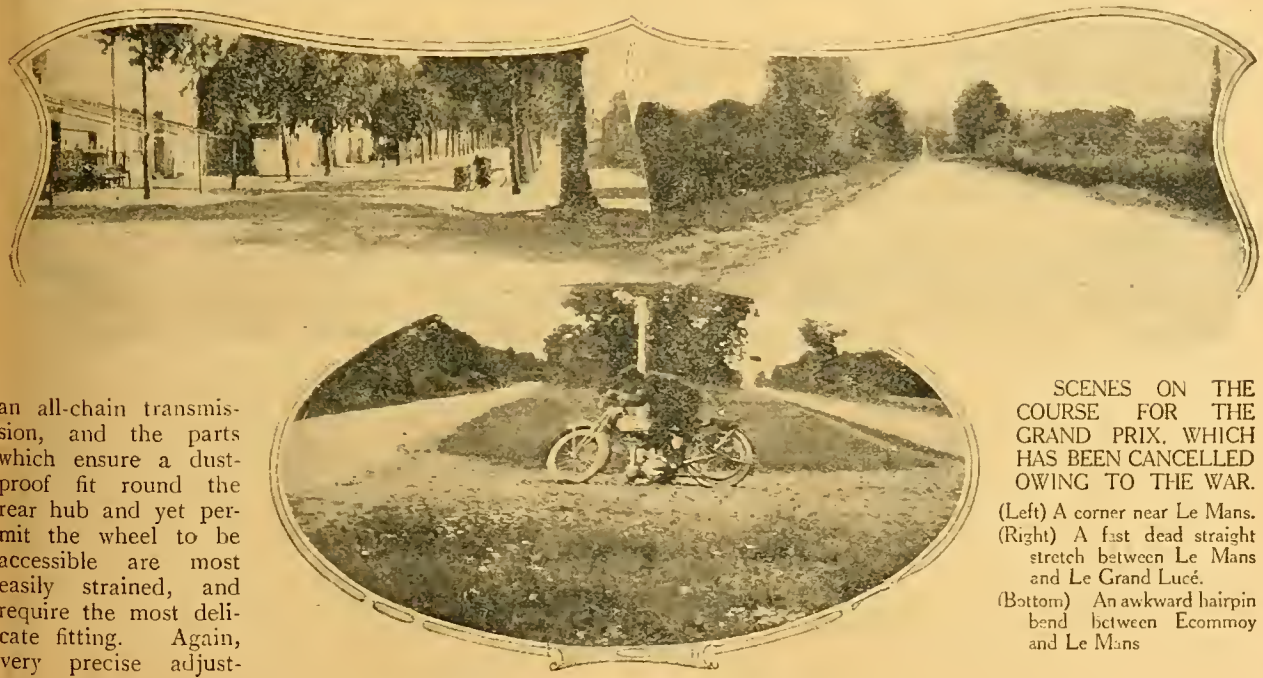
The superior smoothness often claimed for the "combined" drive is almost fictitious. During the last week I have driven two high-powered sidecar outfits, one with all-chain and one with combined drive. Both drives "snatched" to about the same extent if one attempted to pick up from a crawl on top gear; both drives were absolutely silky as soon as the machine got into its stride. At fifteen or twenty miles an hour the physical sensations failed to inform one whether the transmission was by chain, belt, or combination of the two. I personally consider that there is very little slip in the belt portion of a combined drive; the two big pulleys seem to afford a drive that is practically rigid. The combined drives *can* be softened to eliminate all snatch when accelerating from a crawl; but this can only be effected by slackening the belt to such an extent that it is liable to slip at higher rates of revolution when the pulleys are wet, or when a stiff gradient is being climbed. If the belt is properly adjusted, the drive shares the slight but perceptible snatch common to the all-chain drive.

Secondly, it cannot be denied that the combined drive has a marked superiority from a user's point of view. The final belt drive makes the removal of the back wheel a much cleaner and simpler operation than it is with either enclosed or naked rear chains. The rear chain case is always the most finicky detail of an all-chain transmission, and the parts which ensure a dust-proof fit round the rear hub and yet permit the wheel to be accessible are most easily strained, and require the most delicate fitting. Again, very precise adjustments of the length and alignment of the rear chain are essential, and a rear belt is less exacting both in length and lining up.

Thirdly, the combined drive seems superior from a manufacturing standpoint. The last point cuts both ways. The maker sells quite half his output to duffers. The more his design is fool-proof the less trouble he will have with clients, both directly through factory visits and correspondence and indirectly through his agents. Again, the manufacturing cost of the combined drive is distinctly lower than that of a fully encased all-chain drive, though there may be very little in it with the naked chains. He saves the cost of the rear chain case, which includes a number of parts requiring the most accurate fit and finish. He saves the cost of an extra belt rim for braking purposes, and simplifies the design of his rear brake control gear. He saves the cost of a cushion hub, and so on. It is true that the combined drive may deliver a fractionally less percentage of the engine power at the rear wheel when the machine is brand new; but it will deliver exactly the same percentage in three months' time, whereas the efficiency of the chain drive will have dropped considerably in that time.

The cost of upkeep of the two transmissions is similar; if anything, the advantage is in favour of the combined drive, for a new chain really demands new sprockets, whereas a new belt does not imply two new pulleys. The reliability factor of the two systems, I am satisfied, is equal even in skilled hands; and in unskilled hands, where chains are run slack, adjusted out of line, and broken by failure to adjust for "the tight spot," not to mention the possibility of wrenched and strained chain cases, the belt is probably distinctly more reliable.

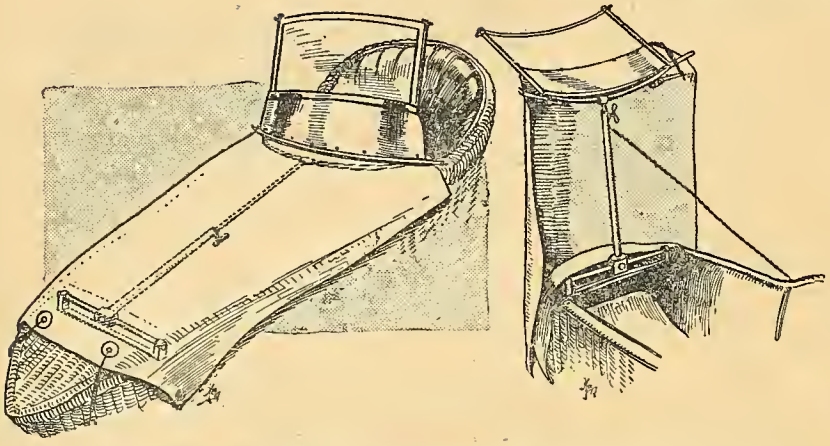
On the whole, therefore, I feel that the advantages of the combined drive are irresistible at present.



SCENES ON THE COURSE FOR THE GRAND PRIX, WHICH HAS BEEN CANCELLED OWING TO THE WAR.

(Left) A corner near Le Mans.
(Right) A fast dead straight stretch between Le Mans and Le Grand Lucé.
(Bottom) An awkward hairpin bend between Ecommoy and Le Mans

TWO NEW SIDECARS.



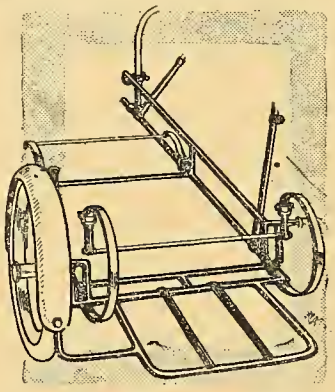
The County sidecar screen shown in position on the left, and on the right folded out of position to allow entrance to the sidecar.

THE COUNTY SIDECAR SCREEN.

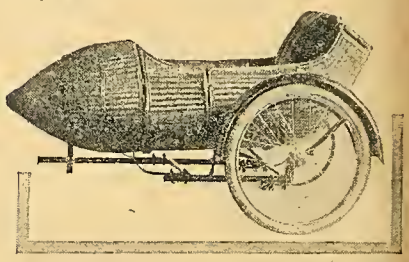
We were recently afforded a run in a sidecar machine belonging to the County Works and Garage, 3, Guildford Street, York Road, S.E., which was fitted with a novel type of wind screen, made to the design of Mr. C. Scott-Snell, A.I.A.E., A.M.S.E. The sidecar to which this fitment is attached is a Gloria, and the appearance of this is in no way impaired. A careful perusal of the accompanying illustrations will give a good idea of the method of working and construction. Should a child be carried in the toe of the sidecar the screen can be pushed right forward, or it can be locked in any intermediate position. Again, the height is adjustable, a point which must be considered in inclement weather, and any water which drains off is carried away in a little gutter. Care has been taken to design the celluloid protection with a curve so that distortion, which is so common in flat sheets of this material, is eliminated.

SIDECARS AT PURCELLS.

The sidecar chassis made by Purcells, Ltd., 74, Charlotte Street, W., are very neat in appearance, and unusually strong, as welded joints have superseded the common brazed lugs. Special provisions are made for mounting the mudguard rigidly, and the stays themselves are made in large section and held in position by nuts, which can be screwed up securely without fear of stripping threads. Again, the bracket to which the main stay is anchored is made of a very good quality malleable cast iron, the great property of which is toughness. It can therefore be seen that all chances of worry caused by the rattle of a loose mudguard are eliminated. A twin axle pillar gives ample support for the spindle, which is made of special grade steel, and welded into the axle tube. Luggage and petrol carriers are embodied if desired. Another special product of this firm is the double-seated sidecar, the chassis of which is provided with two separate sets of springs. One cannot visit Purcells without admiring their fine selection of bodies. We have tried personally the riding and springing of their sidecars over very bad roads, and found them to be excellent in every way.



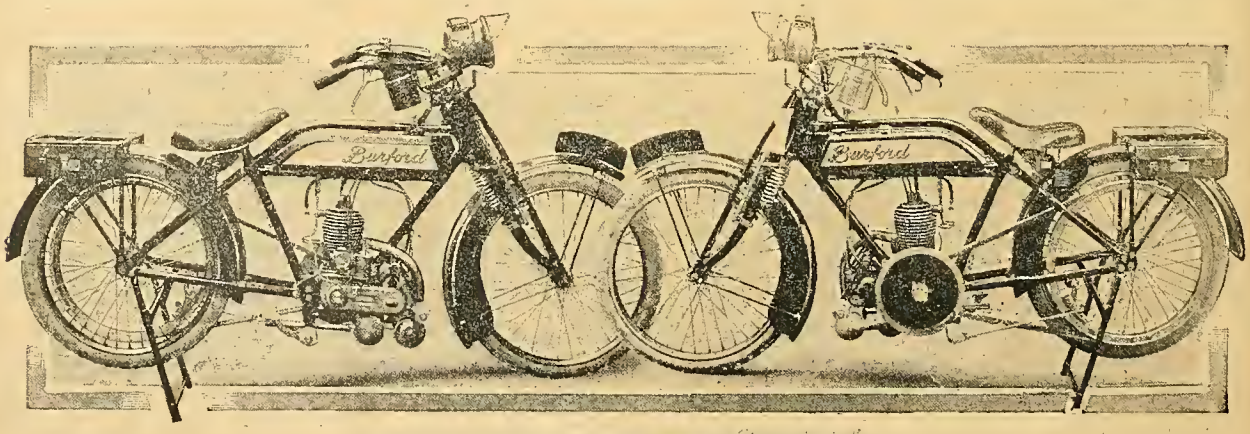
The sidecar chassis made by Purcells, Ltd.



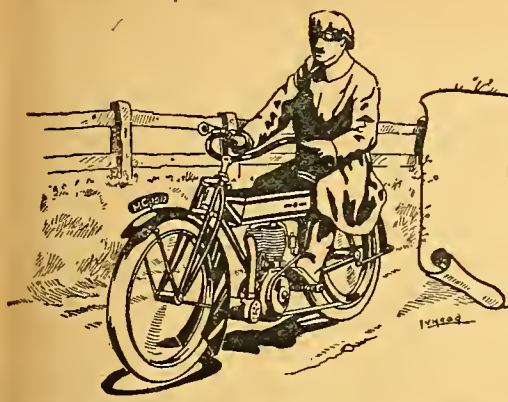
The cane sidecar marketed by Purcells, Ltd.

BURFORD TWO-STROKE.

A neat little two-stroke lightweight which we recently examined is the 2½ h.p. Burford, sold by the Automobile Consolidated Alliance, Ltd., 1, Albemarle Street, W. The model shown is single-geared and is fitted with a 2½ h.p. Villiers engine, to which a Senspray carburetter is attached. It has an excellent frame with a dropped top tube, a strong stand, excellent mudguards, a substantial carrier, and a good tank fitted with a hand pump for delivering oil into the petrol in the proportion of two pumps to half a gallon of fuel. It will be noted that the control wires are passed through the tank, and that two pairs of footrests are fitted, while in the photograph of the carburetter side of the engine the substantial pedal operating the foot brake will be noticed. A counter-shaft two-speed gear can be had to order; with this fitted the little machine should be capable of carrying its rider anywhere in reason.



Both sides of the 2½ h.p. two-stroke single-geared Burford.



CUTTING DOWN RUNNING COSTS.

Some General Hints on Economy.

FROM time to time letters appear in the motor cycling press from riders of solo machines or sidecar combinations giving details as to their running costs. The observant reader cannot fail to notice the inconsistent results obtained by owners of similar mounts, the figures given varying from something under a penny to, in some instances, double or treble that sum per mile. However, each rider seems to have prepared his accounts as accurately and conscientiously as possible. It is true that here and there such items as cost of tyres or belts have been omitted, whilst in some other letter a lamp, or speedometer, may have been charged against one year's use of the machine, and no allowance made for its end-of-season value which should be considerable. But these are minor errors which are easily detected, and the fact remains that some riders carry on their hobby much more cheaply than do others. With the rapid rise in the price of petrol which is taking place, running costs are certain to increase unless many economies are effected, and it is the object of the writer to show that these are possible without either cutting down the mileage run, or detracting in any way from the pleasure of the pastime. It is true that a more experienced rider can cut his costs down more than one who has but little practical or theoretical knowledge of his machine or the principle which underlies its working. But even the novice, by the exercise of care, can make considerable reductions in his running costs.

Three of the principal items which go to make up the cost of riding are fuel, tyres, and depreciation. Taking them in the order named, it may be shown in what way the cost of the former may be reduced.

Notes on Fuels.

Every motor cyclist knows that it is possible to run his machine on paraffin, but it is only occasionally that one meets a rider who has been bold enough to try it. It is true that paraffin has certain disadvantages. With its use carbon deposit is formed more quickly. It is also practically impossible to start up an engine from cold on paraffin without some primary heating device. But the experienced rider need take no notice of such difficulties. The taking down of an engine for cleaning purposes has no terrors to the man who knows what he is doing. All that has to be done to enable the engine to start is to shut the tap from the tank, drain the carburetter float chamber, fill it up with petrol from a handy bottle, and start up in the ordinary way, opening the tap as soon as the engine fires. The expert will be well aware also of the fact that there is a tendency for the paraffin to pass in globules to the cylinder, and that consequently a proportion of it may pass down between the rings and thin the lubricating oil. He will get over this difficulty by using as thick an oil as possible, and to do away with the cutting action of paraffin will oil up more frequently than if he were running on pure spirit. There is little difference between the mileage that can be obtained from a given quantity of petrol or paraffin, whilst the cost of the latter is about half that of the former, a saving of practically fifty per cent.

A Mixture of Petrol and Paraffin.

Admirable results can be obtained from a mixture of paraffin and petrol. There is little difference between running on paraffin alone and running on one-quarter petrol and three-quarters paraffin. A half-and-half mixture is admirable, the engine showing little tendency to overheat or become foul, and provided the fuel in the tank is well mixed before an attempt is made to start the engine, and the carburetter is drained and allowed to fill with the freshly mixed fuel or pure petrol, little or no difficulty will be experienced in starting from cold if the engine is primed beforehand. The reason why the fuel in the tank must be thoroughly mixed is that the paraffin is the heavier of the two, and so settles to the bottom of the tank during a lengthy stop. When on the road the vibration due to the road surface and the working of the engine keeps the contents of the tank properly mixed.

Even the man who fears to experiment to any extent with his machine need not hesitate about adding paraffin to petrol in the proportion of, say, one quart to three. He will then, according to the present prices, save about 2½d. per gallon, and be able to start up from the cold.

Economising in Petrol.

It is not only in the direction of using substitutes that economies can be effected in the cost of petrol. Many motor cyclists are careless as to the way in which they use the spirit, and a rider who takes every precaution can easily travel eight or ten miles more to the gallon than can the average man. He will buy his spirit in the two-gallon tins, emptying them into his tank himself, and will be specially careful when doing this. When spirit is bought in smaller quantities and emptied into the tank by the retailer it sometimes happens that the measure is not filled, and that not only is petrol spilled when carrying it from the shop to the machine, but a good deal is wasted when pouring it into the tank. If carelessly poured in, an airlock will form and a quantity of the spirit will be wasted. The use of a magneto cut-out for speed

Cutting Down Running Costs.—

instead of the throttle lever is particularly wasteful, as while the magneto is cut out, charges of valuable fuel are either being passed through or fired by heat in the silencer. There is also a tendency on the part of many riders to run on far too rich a mixture, instead of giving the engine as much air as it will take.

With machines fitted with free engine clutches, or multi-speed gear, the average rider is prone to waste petrol by allowing his engine to race, or, at any rate, to run too fast before the clutch is engaged. Frequent stopping and starting causes undue waste, as also does the tendency of many riders to use the low gear in traffic. Another form of waste is flooding the carburetter excessively every time the engine is started. In starting up from cold many riders do this until the sides of the float chamber and the air opening below the jet are dripping with petrol. As a matter of fact, as long as a few drops of spirit are thrown into the mixing chamber there is no need to do any further flooding, especially if a few drops of petrol, or preferably paraffin, have been injected into the cylinders. To restart after a traffic, or other short, stop there should be no need to have to flood the carburetter if the plug points are properly set.

When the cycle is garaged, or stopped for any length of time on the road, the petrol tap should be closed. Otherwise evaporation, particularly in warm weather, is taking place the whole of the time the machine is at rest. It is not an unknown thing for a petrol tap itself to be leaky or for a joint of either the carburetter or petrol tap union to be faulty. All these minor leakages will appreciably affect the mileage run per gallon of spirit.

Some motor cyclists waste a good deal of spirit during a day's run by using it for cleaning purposes. It is not an uncommon thing for a rider, after effecting some slight but uncleanly repair, to open a petrol tap and allow spirit to flow over his hands. Most riders when repairing a puncture use petrol to clean tube and patch. There is little or nothing to say against this course, although some would have it that the petrol has an injurious effect on the rubber, but it is well to bear in mind that the least possible quantity of petrol on a rag will suffice.

Good Driving Saves Tyres.

With regard to tyres, a good deal depends on the skill of the driver, a subject with which this article has no concern. A man who has "road sense," who can judge distances and speeds with accuracy, and who consequently uses his brake but sparingly, invariably has lower tyre bills than the careless or inexpert driver who is continually applying the brake to his back wheel. Incorrect inflation is detrimental to any tyre and it is better to err on the hard side.

At frequent intervals the covers should be examined and all stones picked out. This is work that requires to be done carefully; stones—flints in particular—often splinter into small razor-edged fragments which literally bury themselves in the rubber, and ultimately will cut through the canvas. All holes in the rubber caused by stones, etc., should be filled up with tyre stopping, especially if the hole reaches through to the canvas. In the latter case the cover should be solutioned inside, and a patch applied. After being allowed to dry, the back of the patch should be cleaned and solutioned and a piece of prepared canvas applied large enough to extend all round at least an inch beyond the edge of the patch.

Every now and then covers should be removed from the rims and the latter examined. Any dents should be taken out and all traces of rust removed with emery paper, after which the inside of the rim should be painted with a good quick-drying enamel, which must be allowed to dry thoroughly before the cover is again put in. It is hardly necessary to say that every motor cyclist should keep an exact note of the life of every tyre he puts on his machine.

Retreading Covers.

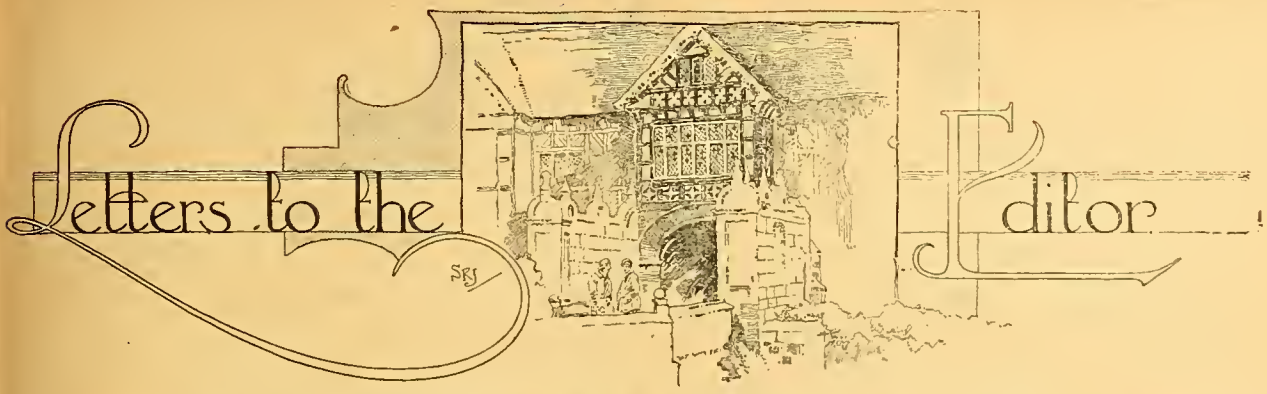
It appears to be a moot point amongst motor cyclists as to whether it pays to have covers retreaded. A good deal depends on the quality and condition of the canvas, as if this is damaged seriously or shows signs of decay through the admission of damp it is next to no good having anything much done to it. It might be retreaded by one of the many firms who do this work at extremely low rates, and used up on the front or sidecar wheel. But it is no use spending money in having an expensive retread put on the damaged fabric; nor, again, is it much use putting a retreaded cover on the back wheel of a heavy sidecar combination. But if the canvas is not damaged to any extent it will certainly pay to have a cover retreaded, in which case it is advisable to have the work carried out, if not by the actual makers of the tyre, by a firm with a high reputation.

As regards depreciation there is not a great deal to be said. The key to the whole matter lies in the care that is taken of the machine, not only whilst it is on the road, but whilst in the garage. By care on the road is not meant slow driving; a careless or inexperienced driver can do a great deal of harm to a motor cycle and yet never exceed eighteen or twenty miles per hour. On the other hand, a man can habitually drive at from thirty-five to forty miles per hour whenever the road is clear, and at the end of the season his mount may be as sound as a bell and in as good condition, except for a few scratches on the enamel, as when it left the factory.

Care of Engine and Machine.

The engine should be taken down periodically and thoroughly cleaned, worn bearings re-bushed, valves ground in, and tappets adjusted. No fault should be neglected; something "not quite right" that is left until a convenient time comes along for it to be repaired often develops into something almost irreparable. The most common source of engine trouble is under-oiling. Few motor cyclists err on the side of over-oiling, although over-oiling can do no harm whatever to an engine, provided that carbon deposit is periodically cleaned off. The only inconvenience it can give rise to is a sooted plug.

But it is only amongst the experienced that the condition of the engine is held to be a guide to its end of season value. The inexpert purchaser is taken generally by the cleanness and spick and span condition of the second-hand mount offered him, and so, in addition to keeping the engine in faultless condition the rider who wants to cut down his running costs by reducing the item of depreciation, or in other words getting more for his machine when he sells it, will pay attention to appearance, plating and enamel.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Motor Cycle Record Long Jump.

Sir,—Being a regular reader of your valuable paper, I read with interest in several recent issues the accounts of motor cycles leaving the ground. It may interest you to know that H. Jenkins, the winner of the Australian Tourist Trophy race, on approaching a slightly elevated railway crossing in the Victoria M.C.C. 100 miles road race, held at Camperdown, Victoria, cleared (on a 7 h.p. Indian) a distance of thirty-two feet; this feat was witnessed, and the distance measured immediately, by the officials.

It seems strange to me that none of the English companies follow the example of the Hendee Manufacturing Co. by establishing a home controlled depot, as the Indian seems to be becoming the most popular mount on our roads.

Murrumbeena, Victoria, Australia. GUMSUCKER.

Retreading Tyres

Sir,—After reading an article on retreads in *The Motor Cycle*, written by "Vet.," I should like to voice my opinion. Last year I was in England for a holiday, and purchased a new 6 h.p. combination, which had on the back wheel a 650 × 65 heavy tyre of a well-known make. I rode the machine for 2,000 miles, and by that time the canvas was showing, and, as I was leaving for South Africa and bringing the machine with me, I naturally wanted a new tyre, but an agent persuaded me to have the old one retreaded and recommended me to try the Hermetic. I took his advice, and have not regretted it. It was a 16 oz. tread, and cost (I think) 13s. It ran "by speedometer" 3,215 miles before being scrapped.

Now, seeing the original tyre only did 2,000 miles on good English roads, I think it speaks excellently for the Hermetic to do the above mileage on our rough South African roads, and the difference in cost between a retread at about 13s. and a new tyre at, say, £3 is an item worth considering by any rider. W.J.

Krugersdorp, South Africa.

Rear Lights.

Sir,—Recent correspondence in your columns on the subject of rear lights has prompted me, as a motor cyclist of twelve years' standing, to express my opinions for what they may be worth.

First and foremost, no one has any right to travel at night, by road, at such a speed that he is unable to stop dead within his range of clear vision ahead, unassisted by lights carried on anything he is overtaking. This, to me, is self-evident, and anyone disregarding it is guilty of criminal negligence, since he is endangering not only his own life, but those of other road-users. Consequently, I have no sympathy with those who advocate universal rear lighting, since such an enactment would be a direct inducement to careless driving.

I admit the absurdity of the present law, which renders rear lighting obligatory on motor traffic only, but, paradoxical though it seems, I consider that the number of accidents would be lessened if tail lamps were totally abolished, and riders compelled to depend entirely on themselves R. T. GOULD (Lieut. R.N.)

A Colonial Rider's Ideas about Singles v. Twins.

Sir,—In your issue of April 30th, page 571, "C 1354's" comments on his experiences with a big twin seem to me to be a bit one-sided, or else he is prejudiced against a twin machine. He says that a single is far steadier to ride through grease (which I fail to see, having ridden both), and anyone with any knowledge of what he is talking about knows that it must stand to reason that the even pull of a twin machine when riding through grease is less prone to sideskid than a thumping, jerking single, especially up a fairly steep greasy hill. Why, I have had my single turn right round on the road with me, with machine down on bottom gear of 14 to 1 or so, and the same hills would not cause me the least trouble on my twin Matchless, which is only a single-geared machine.

In concluding, just let me say that the twin machine is far ahead of the single machine for even pull, perfect balance, and comfort when riding in all weathers.

New South Wales, Australia. LOUIS H. LEE.

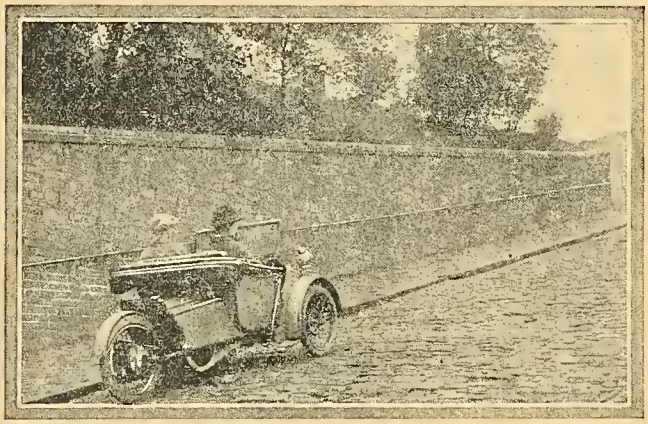
Useful Work.

Sir,—I cannot help but write to you to let you and your readers know the service the A.A. and M.U. have done for me. I was travelling with motor cycle and sidecar on a Sunday night in a little place called Pudsey, when my lamp flickered ominously and then gave up the ghost. It would not keep in, and naturally I was pulled up by an inspector and two policemen. I received the summons exactly thirty-six hours before due to appear, so I immediately sent it to the A.A., with the notification that I

At the starting line at the Penrith speed trials on Bank Holiday. In the foreground may be seen A. J. Brewin (Zenith) and R. Bownass (N.U.T).

could not attend. I heard nothing at all about the case until two days after the trial, when the A.A. sent me a letter—delightfully brief—saying they were successful in getting the case dismissed on payment of costs 4s. 6d. I can only surmise the trouble they were put to, for as they only received my letter less than twenty-four hours before court time, they must have had to wire their Yorkshire representative full particulars; there was no time for a letter.

I. FREEMAN.



An A.C. Sociable climbing a 1 in 3 gradient. (See P. W. Hill's letter.)

Hill-climbing on a Three-wheeler.

Sir,—I enclose a photograph of my A.C. Sociable on a 1 in 3 gradient at Walsall. This hill, which cannot be rushed, or the steepness realised from the picture, was easily climbed, and the engine gave no sign of over-heating or knocking. On reaching the top, we immediately proceeded "all out" without any ill-effects.

The cycle car is a standard 1913 model, except that I have fitted Harcourt radiators. I can now average about 4 m.p.h. faster, and the oil consumption is approximately 2,000 m.p.g., but the fuel consumption is so hard to believe that I had better not state it. Another improvement is that very little deposit now forms under the piston head and the oil keeps much cooler. The condition of the original Liversidge rear tyre may be noted; it is still unpunctured after covering 5,000 miles.

PERCY W. HILL.

The Question of Weight and Overseas Requirements.

Sir,—I notice several of your contributors manifest concern over the weight of the modern motor cycle, and urge the importance of manufacturers giving this point some attention, with a view to the evolution of a motor cycle which will really be a "lightweight."

Personally I own a 2¾ A.J.S., and it is looked on by the makers, at least, as a "lightweight"; but judging by your contributors' views I doubt if it would come within that classification. However, as an engineer, I must say I sympathise with the manufacturers, because I think nowadays machines are designed on quite sound principles. A few extra pounds weight are nothing compared to the greater assurance of safety, and it cannot be wondered that manufacturers are at present wary in cutting down weight, because if any firm were to produce machines which were extra light, the greater the chance there would be of them "buckling up," or breaking somewhere, under the stress and strain of even moderately hard usage. A machine travelling at twenty miles per hour passing over a stone of moderate size is very badly jarred, and the stress in certain of its parts must be very great indeed.

I must say, though my A.J.S. is "heavy," it is certainly as "handy" as can be and beautifully balanced, and this may be said, I am sure, of many other makes. I have never ridden a high-powered Indian, but a friend of mine assures me that the extra heavy weight is quite recompensed by the ease of its control.

As regards "overseas requirements," weight and safety are certainly great desiderata, combined, of course, with ease of control, and while considering the latter subject I think the handle-bar clutch is essential, and I notice "Ixion" and others in your paper strongly advocate this item of design. In choosing my machine this year I ruled out all machines having absurd and unsightly little bits of iron sticking out near the footboards, which, on reference to specifications, I found were termed "clutch controls!"

Sagar, Punjab, India. W. G. QUINTON, A.M.I.C.E.

Suggested Double Purpose Machine.

Sir,—I have noted the letters on the above subject, and I have, I think, found the ideal dual purpose machine in the 6 h.p. model twin-cylinder Bat (770 c.c.), fitted with three-speed counter-shaft gear box, and chain-cum-belt over large pulley. Of course, it is heavy for solo work, but the weight is placed low in the frame and is not noticeable, and the machine steers well.

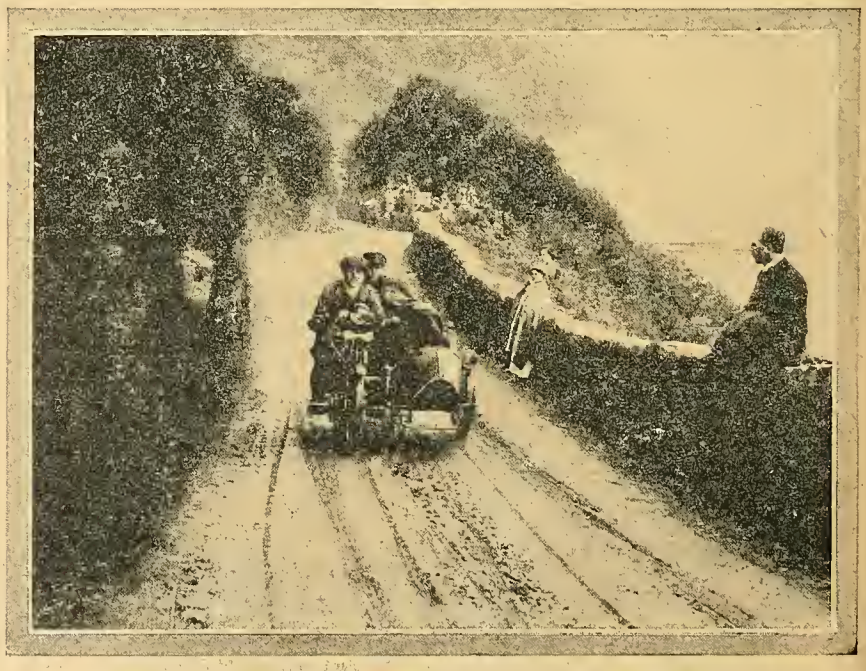
It is not necessary for me to enlarge on the speed capabilities of this machine, which is fitted with the famous J.A.P. engine, but I should add that the charm of driving such a type of motor cycle has been fully dealt with by one of the contributors to my favourite paper, *The Motor Cycle*. I am in no way interested in the Bat Motor Manufacturing Co., and should like to suggest to them the following alterations which I should consider improvements, viz., a long exhaust pipe to the rear, optional fitting of domed glass type of drip feed, and a more "sporty" type of handle-bar than any they fit at present.

BATITE.

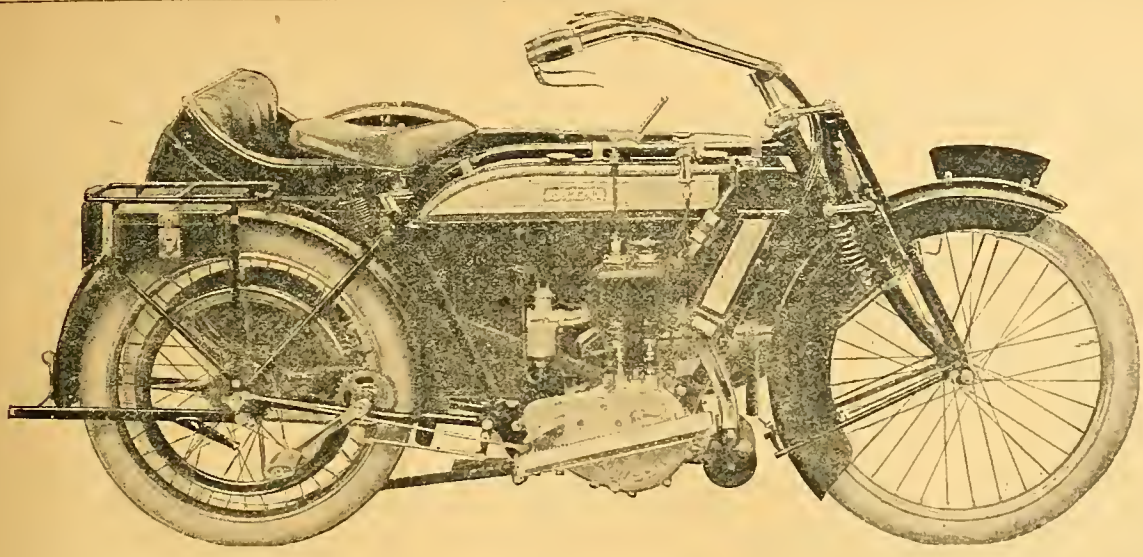
Age and Weight.

Sir,—I think many of your readers will be interested to hear that a man seventy-three years of age has recently purchased a 2½ h.p. Sun-Villiers and can be seen almost daily riding in Wisbech and the neighbourhood. Another rider of a similar machine weighs no less than seventeen stone, but has no trouble in climbing hills, which, I think, speaks well for so small an engine.

B. B. AMES.



A. Fielder (New Hudson) on Countisbury Hill, in the M.C.C. Bank Holiday Tour



THERE are too many tests—too many Gold Medals—to give much guidance to a purchaser nowadays. The above cycle goes on winning them, but—

HERE are a few Purchasers' Facts in place of Test Results.—(1.) The Humber is the lowest-priced 3½ h.p. 3-speed Motor Cycle of high grade on the market. (2.) It is built of better material than any other—simply because the makers buy in bigger bulk, have better facilities, and test all material in a fully equipped Laboratory. (3.) It carries every modern improvement, as the Specification below will show. (4.) With its Water-cooled Engine it can take a sidecar and passenger up any 1 in 5 grade, easily. (5.) It is simplicity itself to handle, and never seems to need repair. We hope to publish a few figures on this subject. (6.) It is single-cylinder—and economical.

SPECIFICATION: 3½ h.p. Single-cylinder Engine (water-cooled), 84x90 mm. Bore and Stroke, Half Compression Device for easy starting, with Kick Starter, Sturmey-Archer 3-speed Gear, Brown & Barlow Carburetter, Bowden Wires, High Tension Magneto (Gear-driven), Extra Heavy Dunlop Rubber-Studded Tyres, Lycett Pan Seat or Brooks B170 Saddle.

£63 (Air-cooled £52 10 0)

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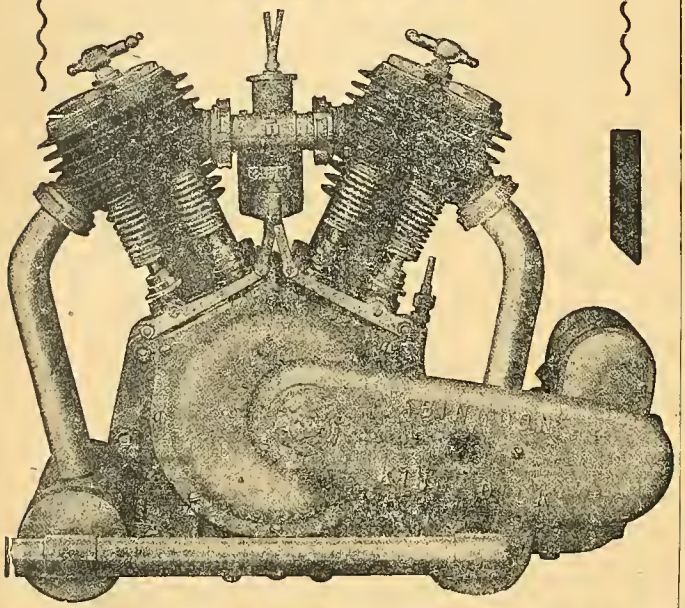
Humber

KING DICK 1ST AGAIN



North Canterbury M.C.C. Sidecar Trial, NEW ZEALAND.

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PREMIER AWARD

AGAINST ALL MAKES

NOTE.

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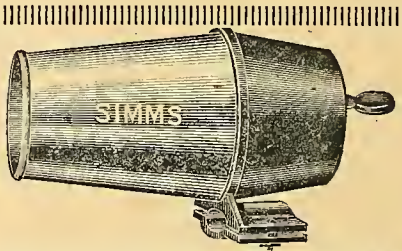

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A Self-contained Warning Signal.

THIS is quite small and you can clip it to the handle-bar of your machine in about a couple of minutes. If you prefer, it can be attached to the footboard—a favourite position—so that the trigger is handy for the foot. But wherever you fix it, Simms "Mec-Horn" will do its work well. The lightest touch on the trigger will produce a *loud*, clear blast which can be heard far in advance ; one which makes everybody aware of your approach. Ask your dealer to show you this well-made warning signal which is self-contained, and so is independent of battery or hand bulb.

Price, each 25/-

Motor car size, 35/-

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Makers of Simms Sparking Plugs

E.I.B.

CANADIAN ROAD CONDITIONS. (Left) A good road and (right) a bad surface. See accompanying letter

The Price of Petrol.

Sir,—It seems to us not only unpatriotic, but also "killing the goose which lays the golden eggs," for retailers in the motor trade to charge exorbitant prices for petrol.

We admire the petrol companies who are spending a lot of money at the present time in advertising "no advance in the price of petrol," and the action of retailers who are using the present crisis as means of getting inflated profits cannot be too strongly condemned.

We would like it to be known that, so far as we are concerned, our rate of profit will remain the same as before the crisis, so that if we can get supplies from the petrol companies, people in Birmingham can rely upon supplies at normal prices.

We trust that our action will be the means of breaking down the artificial inflation of prices which has taken place.

THE COLMORE DEPOT.

Defective Head Lights.

Sir,—I am desirous of giving you the following facts, which are of interest to all road users.

I was driving a motor cycle and sidecar near Manchester a few nights ago when the sidecar occupant and I, at the same instant, saw ahead, faintly, about three yards away, a red light. I was driving with exceptional care at the time, there being many cyclists about, and I was going at only fifteen miles per hour because I was mounting a steep gradient over a railway. I just managed to swerve to the right in time to avoid running down a cyclist and thus prevent a very nasty accident.

If the reflex light had not been there, or if I had not been very careful and quick, the result would have been most serious, and I still feel that it would not have been negligence on my part any more than on the cyclist's part if I had been unfortunate enough to run him down.

The head light of the cyclist could not be seen unless one was in front of the bicycle.

ARTHUR G. ELLERSHAW.

Canadian Road Conditions.

Sir,—I have been much interested in the correspondence in your columns with reference to riding conditions in Canada. I have been riding some time in this country, and the following mileage figures will show you that in Sunny Alberta we do not store away our machines for the winter: November, 1913, 852; December, 1913, 403; January, 1914, 168; February, 1914, 6; March, 1914, 448; April, 1914, 711.

I think it is true of all Western Canada that a Colonial model need not have a minimum of plated parts. My Triumph is a 1911 model. I have run it myself 8,000 miles and the enamel has been touched up several times, but the plating is as good as when it was new. This is due to our dry climate. The two photographs enclosed show what we consider a fairly good road and a bad one. Some of the people at home do not know what bad roads are when they grumble about roads in trials. The machines in the photographs are Indian, Flying Merkel, and Triumph, and the road shown is a main road about twenty miles south of Medicine Hat. The ideal overseas machine will not be developed until some of the British manufacturers visit the countries they wish to cater for, and ride round a bit. In this way they would soon find the shortcomings of the standard machine. I believe that a man who has ridden a considerable distance in this country could take a single-geared mount over any road that the A.C.U. could find in Great Britain. I wish I could have a go at some of your trials with mine.

W. ST. GEORGE.

Alberta, Canada.

Another Freak Hill.

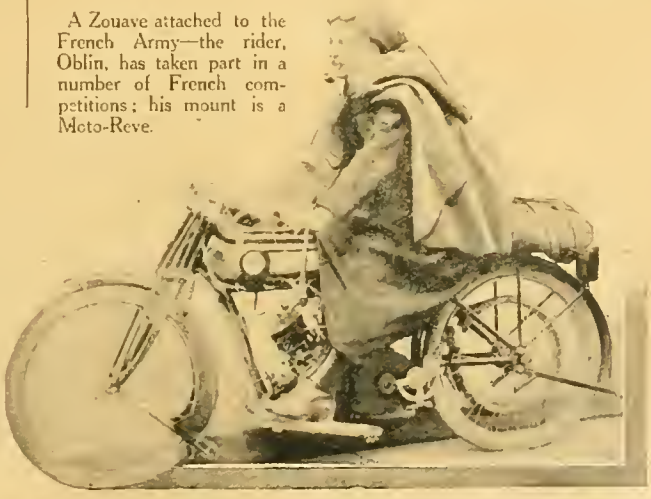
Sir,—I believe you are interested in freak hills, and there has been one discovered lately which well bears the name. It is near Todmorden, on the borders of Lancashire and Yorkshire. You take the road to Bacup from Todmorden, go under the railway arches about a hundred yards up Bacup Road, and the hill is on the left-hand side. It is known as Naze Road, and can easily be distinguished by the white farmhouse at the top. There are two gates to open—one at the bottom and the other near the top.

The hill is over half a mile long. Regarding hairpin bends, surface, and gradient, I can describe it best in the words of a motor cyclist who when he saw it said: "I have climbed most of the freak hills, including Park Rash, but have never seen anything to beat this."

Two members of the Rochdale M.C.C., both on three-speed Ariels, succeeded in reaching the summit, though both footslogged, but anyone who sees the hill will not wonder why, as it is next to impossible to get round the bends with both feet on footrests.

It has not yet been climbed with sidecar, and whoever does it will make a meritorious performance, for a worse hill I do not think it is possible to find.

G. W. STANSFIELD.



A Zouave attached to the French Army—the rider, Oblin, has taken part in a number of French competitions; his mount is a Moto-Reve.

No branch of the Service has responded to the War Office appeal for volunteers in more spirited fashion than motor cyclists. Their patriotism is proved by the fact that on Friday last, 2,000 in excess of the number required had been enrolled in London alone.

Value of Motor Cycles Recognised.

IN view of the eagerness with which the War Office has seized upon motor cycles for despatch work, we of *The Motor Cycle* cannot but feel gratified, as we have so long and so imperatively urged the greater use of these machines for such purposes. However, now the military authorities have acted, they have done so in a most thorough manner, and a vast number of up-to-date machines, well ridden, are at the disposal of the country.

Private Owners to the Fore.

The response of private owners to the War Office appeal has been wonderful. The sporting as well as the patriotic feelings of motor cyclists generally have been aroused, and hundreds of riders have placed themselves and their machines at the disposal of the authorities. In fact, so great has been the response in the Midlands, that thirty machines sent out from one famous firm, in the hands of expert riders, have been regretfully declined, for the present at any rate.

Other Ways of Helping.

It must be remembered that there are other ways than despatch riding in which drivers may give their services. The War Office requires first rate drivers of motor lorries and motor-propelled ammunition and forage waggons; also expert engine men for the flying section. It is, of course, essential that such candidates be first-class mechanics, and thoroughly understand car type engines, but many motor cyclists and cycle car drivers are in this position. Generous terms are offered for such services, particulars of which may be had from the nearest recruiting office. The aeroplane section of the army also requires skilled fitters, and many motor cyclists, anxious to volunteer, might be eligible in this direction, if their services cannot be used in other ways.

What must be Carried.

Most modern machines are suitable for use with the forces, but the War Office has in the past shown a preference for the 500 c.c. single-cylinder and the horizontally opposed twin-cylinder. The following list of spares must be carried when on active service:

One valve complete with spring, washer, and cotter.
One sparking plug
One piston ring.
Tyre repair outfit, including spares for valve.
Spare tube.
Spare belt and fastener, if belt-driven.
Spare links and spare chain, if chain-driven.
Complete set of spares for magneto.
Selection of nuts and washers.
Two valve cap washers (if used on machine).
Complete set of tools.
Two gaiters for tyre repairs.

A spare cover will be carried by signal units for each machine.

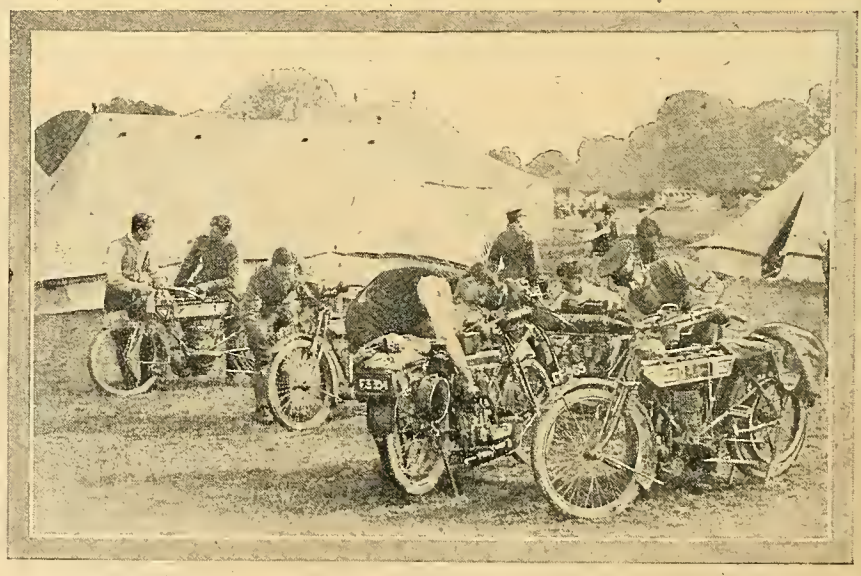
Great Rush of Applicants.

So great has been the response to the War Office appeal that we learned, on enquiry at Fulham House, Putney Bridge, S.W., where Capt. Stafford and Capt. Trapmann are in charge, that, on Thursday afternoon last, the applications exceeded vacancies by about four hundred. On Friday there were 2,000 names in excess of the number immediately required. Capt. Trapmann has enrolled twenty-five riders able to speak foreign languages, who will accompany the expeditionary force in the dual capacity of despatch rider and interpreter.

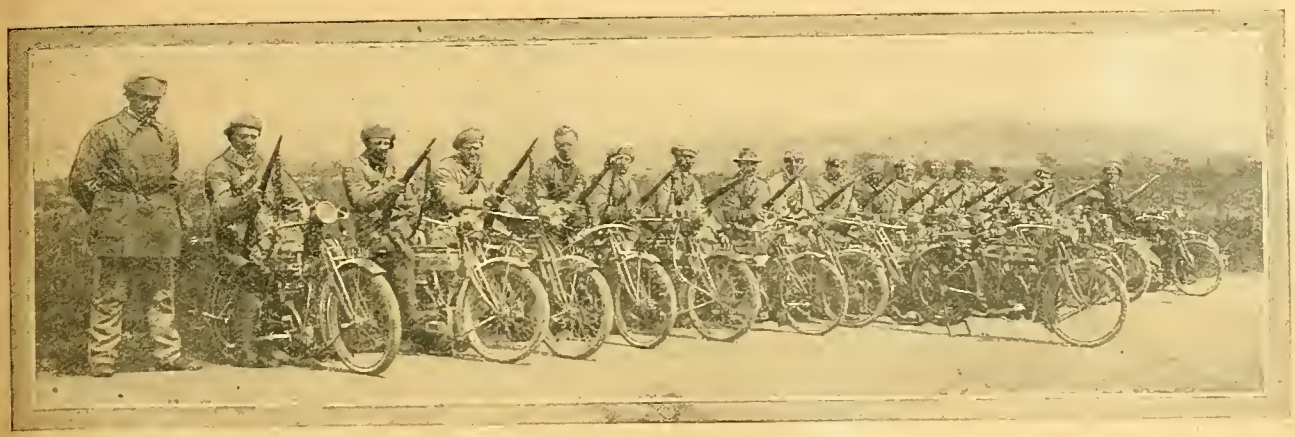
London Recruiting Scenes.

Here, by Fulham House, under the railway bridge, about thirty machines were ranged up on both sides of the road, while a little farther on, seated at a table and assisted by a rather juvenile orderly, was Lieutenant B. C. Pollard, who is a keen motor cyclist, a capable journalist, and a man of experience under actual war conditions. He was handling a difficult task in an extremely business-like manner, and any attempt to get round him on the part of an applicant was a complete failure. Not very long after our arrival a man of short stature brought round a four-year-old machine, the value of which was stated on his application form to be £35. The officer in charge asked him if he thought that that was the real value of the machine, to which the applicant replied in the affirmative, with the result that the officer asked him how he had the audacity to value a machine of an undetermined vintage at such a high figure, tore his paper in half, and sent him about his business.

Crowds of disappointed motor cyclists surrounded the table, and the most extraordinary scenes were witnessed. Those who had been lucky enough to be taken on were spending money in all directions in getting their machines put in first-class order, or even buying new ones if they thought that their own were not good enough; in fact, the number of new machines specially bought for the purpose was astounding. As the case was one of national emergency, preference was given to men who paraded in person with their mounts, bringing them up to be examined, and making their applications on the proper forms, rather than by taking in strict rotation applications which were received by letter.



IN LANCASHIRE. Motor cyclist section of the East Lancashire Divisional Signal Service. Members overhauling their machines after a hard day.



IN IRELAND. Armed Irish motor cyclists ready to defend their country. It will be noticed that the Irish volunteers carry rifles.

An Article to be Digested.

It is now just as well to call our readers' attention to the fact that in *The Motor Cycle* of July 17th, 1913, page 930b, we dealt very fully with the question of the new scheme drawn up by the War Office affecting military motor cyclists. In it, it may be remembered, reference was made to the fact that there were two schemes applicable to those who were willing to serve the country as motor cycle riders—(1) Territorial motor cyclists primarily for service at home, and (2) as members of the Royal Engineers Special Reserve, who might be called upon to go abroad. Now, if motor cyclists who are interested in military matters and are of a patriotic nature had read this article and had kept it by them they would have learnt exactly what to do at the time of the nation's need, and would have saved the organisers at the present time a vast amount of trouble, to say nothing of rendering their country valuable service. Under the present state of affairs there has been ample evidence of patriotism and a splendid show of keenness, but the patriotism has not been of the right sort, and is resulting in the presentation of untrained men to carry out important work. Looking back to the article referred to, it drives home the fact that the men the country wants are those who are thoroughly well trained and are able to read maps accurately.

Work Falls on Wrong Shoulders.

Lieut. Pollard was complaining that the London Motor Cyclists Reserve Committee should have been carrying out the work that he was doing, while Captain Stafford and he should have been free to drill recruits. He told us also that the applications after they had been dealt with by him were sent to the officer in charge of the Record Department of the Royal Engineers at Chatham. Although the lists were absolutely closed many riders had gone down to Chatham direct to try and get themselves placed on the roll, but without avail.

It is interesting to note that no fixed geared machines were accepted, and very few under 500 c.c., only those being received which were fitted with horizontal twin engines. Only one or two other 2¾ h.p. were taken in. In London motor car traffic has been considerably reduced, but a large number of motor cycles is to be seen in the streets; a detachment of ten were seen in Pall Mall the other afternoon, while outside the War Office a sixteen-stone rider was seen leaning on a motor cycle and side-car. As we have mentioned before, every post has been filled up, and, as far as we can make out, there is not a single vacancy even among the county associations. All we can do now is to register and classify names, and forward these to the Secretary of the Auto Cycle Union, who will further classify them and forward them to the right quarter. So many applications have been received by *The Motor Cycle* that they cannot be replied to individually, but every applicant may rest assured that his name and address will be duly registered by the authorities, and if he is wanted eventually he will receive due notice.

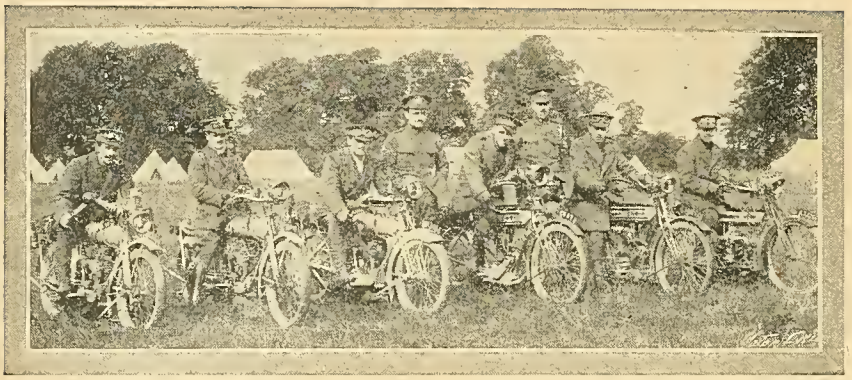
The Terms of Service.

Although at the time of writing there are no vacancies remaining for motor cycle despatch riders, it is inevitable that more will be required from time to time, and would-be applicants should communicate with their various county associations. In the meantime we will repeat the terms of service. On rider and machine being approved, a gratuity of £10 is immediately paid, and a further £5 will be paid on discharge for any reason other than misconduct. The pay is 35s. per week, and 15s. will be paid for overalls if in serviceable condition. The machine will be taken over at valuation by the military authorities, or will be replaced by a new one at the close of operations. Enlistment is for one year or for as long as the war may last.

Special Constable Service.

There is also a force of special constables, thirty thousand in number, to be enrolled in London, and it is proposed that a body of fifty motor cyclists should be included among these. They are

LONDON RECRUITS A group of London and district motor cyclist volunteers lined up outside the recruiting depot at Putney Bridge.



ON THE EAST COAST.

A group of the motor cycle section attached to the E.A. Royal Engineers, Bedford, who are at present stationed on the East Coast. The machines are composed of three twin Bats, two Rudges, and a Douglas.

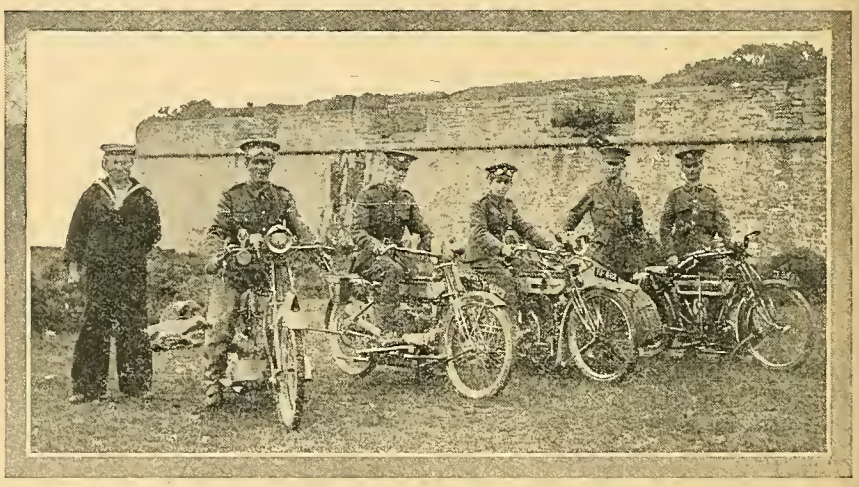
destined to work inside the Metropolitan area and five will be allotted to each district. Their duties will be to carry out patrol work. It is not proposed to pay them any remuneration, but 2d. per mile will be paid for the upkeep of the machine and its repairs while on service. Those who wish to join this force should send in their names to *The Motor Cycle* stating the make and horse-power of the machine and giving full address. Applications may also be made in person to the officer in charge of the *personnel* of the Special Police Force, Scotland House, Scotland Yard, S.W.

Despatch Riders with the French Army.

From what we have seen of the French Army in its early stages of mobilisation, it does not seem to be too well provided with motor cycle despatch riders, though it is known to possess a squad of Triumph riders. One of the most notable riders whom we saw was Oblin, who took part in the Paris-Nice trial in 1913. He was mounted on a very smart looking 3½ h.p. Moto-Rêve. He is a very fine looking man, and was in the full uniform of a Zouave, and very picturesque he looked. After having his photograph taken (see page 219) he left under orders, and made a good thirty miles an hour average over the rough road between Evreux and Nonancourt. At Havre we came across another French despatch rider, who was mounted on a Clément-Gladiator—a machine strongly resembling the English Royal Enfield in its general details.

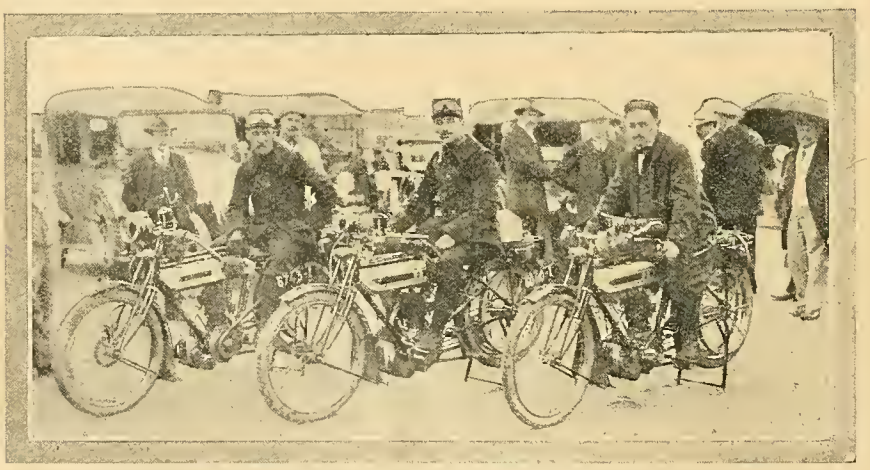
Machines for Naval Depots.

It is not only for the Army that motor cycles are being employed, for we learn that the Admiralty have taken over fifty machines from the Triumph Cycle Company, Ltd., and have intimated that more may be required. These machines, which have been despatched to Chatham, are each equipped with a spare cover and tube and the usual assortment of spares required by Government, to which the Triumph Co. have added more as suggested by experience. It is also interesting to note that no machine is accepted by Government which is not equipped with some form of change speed gear, and many riders are finding the Philipson pulley converts their fixed gear machine to comply with Government requirements. Other firms report heavy demand for their goods,



SCOUTING THE SOUTH-WEST COASTLINE.

Officers of the Seventh Devon Battalion at Berry Head, Torquay, where they are patrolling the coast, close to the place where the Spanish Armada was first engaged. Machines: Lea-Francis, Enfield, Triumph, and Levis



IN FRANCE. Motor cyclists are attached to the French Army. The trio seen above at the general mobilisation are mounted on British built Triumphs

and the Service Co., Ltd., of High Holborn, state that there has been a great rush on their stock of motor clothing. Messrs. Rudge-Whitworth, Ltd., have also received a considerable order from the Military Authorities for motor cycles. As an indication of the enormous part the internal combustion engine plays in modern warfare, we may mention that the value of the order placed last week with the Daimler Co., Ltd., was no less than £130,000.

Motor cyclists are attached to every one of the countries at present engaged in warfare.

Coventry Manufacturers and the War.

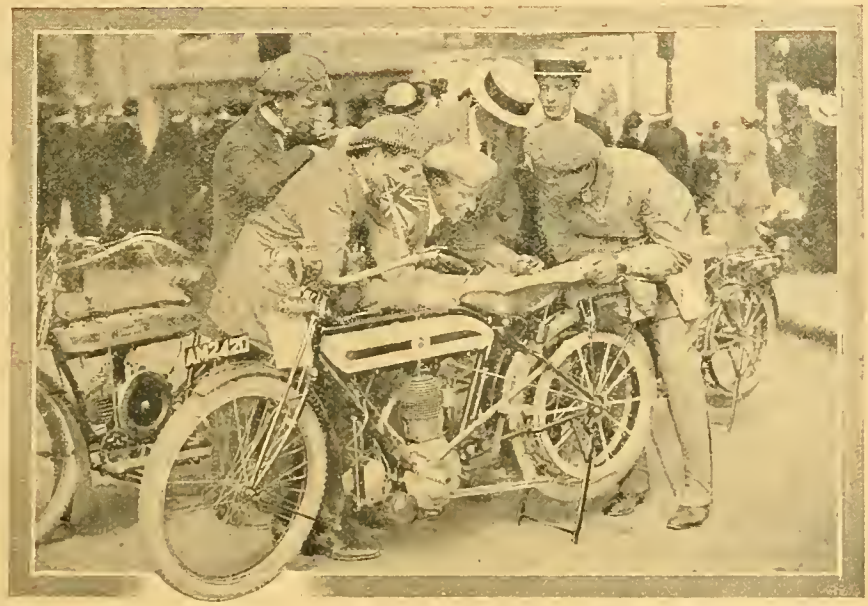
Recent events have naturally had their effect on the motor cycle trade. Foreign orders have, in many cases, been cancelled, but the bulk of the British trade remains as before, and the general opinion seems to be that from a trade point of view matters will become much more normal within a fortnight. The wild rumours which are always circulated under such conditions do much to damage

Military Motor Cycling Notes.

the industry until people become more accustomed to them and their inevitable denials. On the other hand, some Coventry firms have Government orders to execute, and not a few can stand a stock of machines for the future. At a meeting of manufacturers last week it was decided that work should go on as nearly as possible as usual, and the works opened this week though mostly on short time. This is a wise precaution, as it will help to spread the employment of labour over a longer period. Arrangements were made for assisting the families of those who have been called out to serve their country.

Advice to Non-selected Riders.

Now that there are practically no further vacancies for motor cyclists in the Army at the present time, the next question which presents itself is as to what steps the numerous disappointed riders will have to take if they desire their wishes to serve their country to be gratified. If the war continues, a certain proportion have decided hopes of employment, and we would point out that it is quite unnecessary for them to waste their time during their leisure hours. Naturally, all competition work is at a standstill, and we therefore suggest that local club members and individual motor cyclists should set about studying map reading and army conditions, so that if they are wanted they will be of real service to their country. We venture to state that a large percentage of the motor cyclists who have been accepted are at the present time bound to be inefficient as soldiers, however good motor cyclists they may be. A military rider must fulfil both qualifications, as a good motor cyclist who is not a soldier is of less use to his country than a good soldier who is a poor motor cyclist. Throughout the country there are many retired officers and non-commissioned officers who could be of inestimable service in showing those on the "waiting list" the rudiments of drill and map reading, and tell them the duties of despatch riders. One of the chief points in which the motor cyclist raw recruit may fail would be his inability to recognise the badges of rank of the officer to whom he has been instructed to carry a message, and he will waste much time in asking this and that soldier as to where the said officer may be found. It is therefore necessary that he should be instructed as regards the uniforms of commanding officers and the duties their respective ranks carry with them. We would therefore urge that all who have been disappointed make a serious attempt to obtain this knowledge, and to bear in mind that preference will be given to those who have had training as against those who have not. The Auto Cycle Union, whose secretary holds the rank of captain, might do excellent work in this respect.



Filling up a form at the London recruiting station last Thursday. The rush to enlist has been most noticeable among motor cyclists.

The windmill on Wimbledon Common, the rendezvous of motor cyclist volunteers in response to the War Office appeal. Though more than sufficient despatch riders had already been enrolled, most of those who volunteered on Saturday were accepted by Scotland Yard to distribute Royal proclamations.

The Rush to Enlist.

It is not only in the Metropolis that the rush to enlist has been so phenomenal. It is the same all over the country. In Birmingham the excess of applicants over the number required was tremendous. In Liverpool, where the

Military Motor Cycling Notes.—

A.C.U. have a Local Centre, the same tale is told, and in the first two days of recruiting over a thousand riders presented themselves.

Official Action Only Wanted.

Quite a number of correspondents have written us requesting that *The Motor Cycle* should organise a civilian motor cyclist corps. While we naturally feel the greatest sympathy with all and every effort to help the Government, we do not feel that the present time is the one for private enterprise of that sort. The authorities are fully competent to deal with the situation, and everyone who wants to join has only to fill up the necessary papers, hand them to the A.C.U., 89, Pall Mall, S.W., or to the nearest recruiting depot, and, if required, the applicant will be called up in due course.

A Good Example.

At Bristol a committee sits to allocate applicants to any special class of work. For instance, if a man volunteers for active service with the regular army his name is sent to the War Office authorities. If he volunteers for home service with the Territorials his name goes to the proper quarter, but it is in connection with men offering themselves and their machines for special work, such as service for hospitals, postal deliveries, etc., that the committee's work bears the greatest result. The committee works on the principle of a Labour Exchange, and on request from any public department for help will find the man and machine for the job. A fund is being started to provide grants towards those riders whose work may not come under direct Government remuneration.

An Error Dispelled.

One curious and common error may here be dispelled. Many persons imagine that the Government will not accept V type twin-cylinder engines, or, in fact, any engine over 500 c.c. They will, and do, accept them. What they will not do is to buy them, as the Army regulations lay it down that only single-cylinders and horizontally-opposed twin-cylinders are eligible for purchase by the War Office, but this may be changed at some future date.

RALLY OF MOTOR CYCLIST VOLUNTEERS

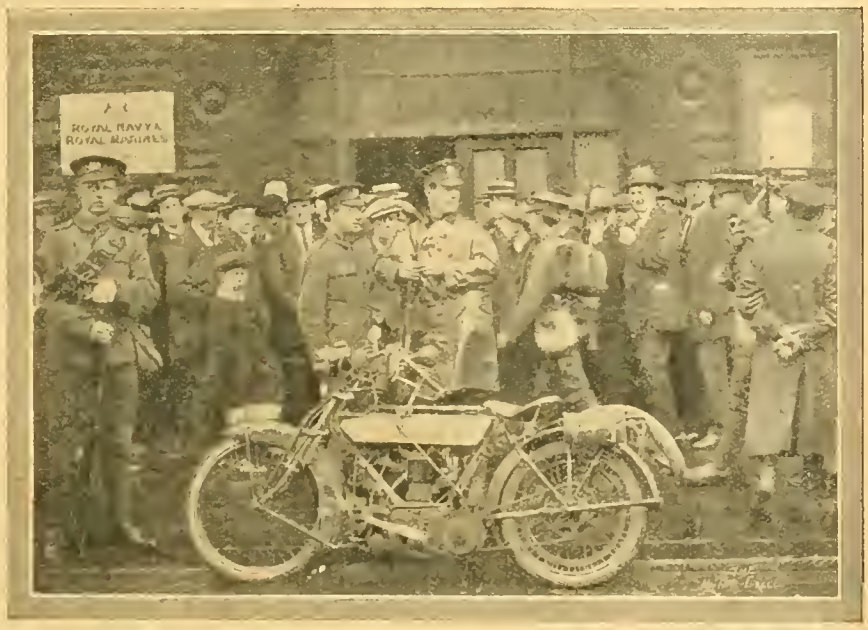
A rally of motor cyclists was held on Wimbledon Common last Saturday afternoon, with the object of obtaining offers of assistance from motor cyclists during the war. Our illustration shows the assembly, which comprised owners of all sorts of motor vehicles: motor bicycles, sidecars, cycle cars, and cars.

AN instance of the patriotic response of motor cyclists to the War Office appeal was afforded by the gathering of riders on Wimbledon Common last Saturday. The rally had been well boomed in the daily press, and a gathering (numbering nearly 500) of owners of motor bicycles, sidecars, cycle cars, and cars collected on the Common. All vacancies for despatch riders had been filled up for some days, however, and the numerous participants foregathered with the knowledge that 2,000 motor cyclists in excess of the number required had offered their services. This applied to London alone, and the same brisk response by motor cyclists had been made at the provincial recruiting stations. General Sir A. Turner addressed the Wimbledon gathering. Places were to be found for those despatch riders who knew Flemish, French, or German. It was announced that the Scotland Yard authorities were prepared to accept the services of motor cyclists up to 500 in number to distribute Royal proclamations all over London and district.

The Value of Short Range Rifle Practice.

A Suggestion to Motor Cycle Clubs by "Road Rider."

NOBODY can prophesy with confidence what course events are likely to take, and, though we hope for and expect the best, it is still perfectly possible that every healthy adult may be requisitioned for actual warfare. It would be a great pity if the bulk of our 150,000 motor cyclists were only available as despatch riders, and proved inefficient combatants in emergency. A memory of the Boer war suggests that clubs might usefully take steps to train their men in marksmanship. Rifle practice is interesting and instructive, and with competitions mostly cancelled it would be taken up enthusiastically. During the Boer war an enthusiastic patriot persuaded forty or fifty young men to practise with air-guns at a range of twenty-five yards in his garden. None of them had ever handled a service rifle until they went down to the butts to pass a shooting test on enrolment. But the effect of a few hours' short range practice was such that every single man secured a percentage of hits at 200 and 500 yards sufficient to qualify him for the marksman's badge in the regular army under the conditions then existing for the award. Short range practice with an air-gun or miniature rifle does not, of course, train a man in allowances for windage and refraction; but it is a splendid exercise in the rudiments of aiming and trigger pulling. If the war should be so long drawn out or severely contested that calls are made on the full manhood of the nation, large corps of motor cyclist marksmen, possessed of extreme mobility, might prove to be of unique service; and I commend the suggestion to our large clubs, whose membership already provides more than a plethora of despatch riders and motor cyclist scouts.



NORTH-COUNTRY VOLUNTEERS. A Territorial motor cyclist (a rider of a Bradbury) arriving at the Headquarters of the Sixth Manchester Regiment for the purpose of handing in his name. Observe the queue of volunteers in the background.

SCOUTS ON THE EAST COAST.

Our correspondent on the central east coast reports that a large number of motor cyclists are engaged there as scouts, despatch riders, and in similar capacities. Petrol is very difficult to obtain, as naturally the Government commandeer most of the available supplies, and consequently prices are very inflated. Everyone is reported as being very keen on his work, hard beds and bully beef being the only flies in the ointment. Hay beds are spoken of most highly as providing the acme of luxury. The scouts are armed with revolvers, and possess the power of commandeering a new machine if their own breaks down, a procedure which has occurred on more than one occasion.

Some of the motor cyclists who attended the Wimbledon meeting, at work. Scotland Yard have pressed a number of motor cyclists into service, whose duty it is to patrol country districts and distribute Royal Proclamations. The machines carry a distinctive plate on the front with the lettering, O.H.M.S.

THE HOME OF THE F.N.

The Belgian and Russian Armies use F.N. motor cycles exclusively. Incidentally it may be mentioned that the forts at Liège (where the F.N. factory is situated) are equipped with guns manufactured in the F.N. works.

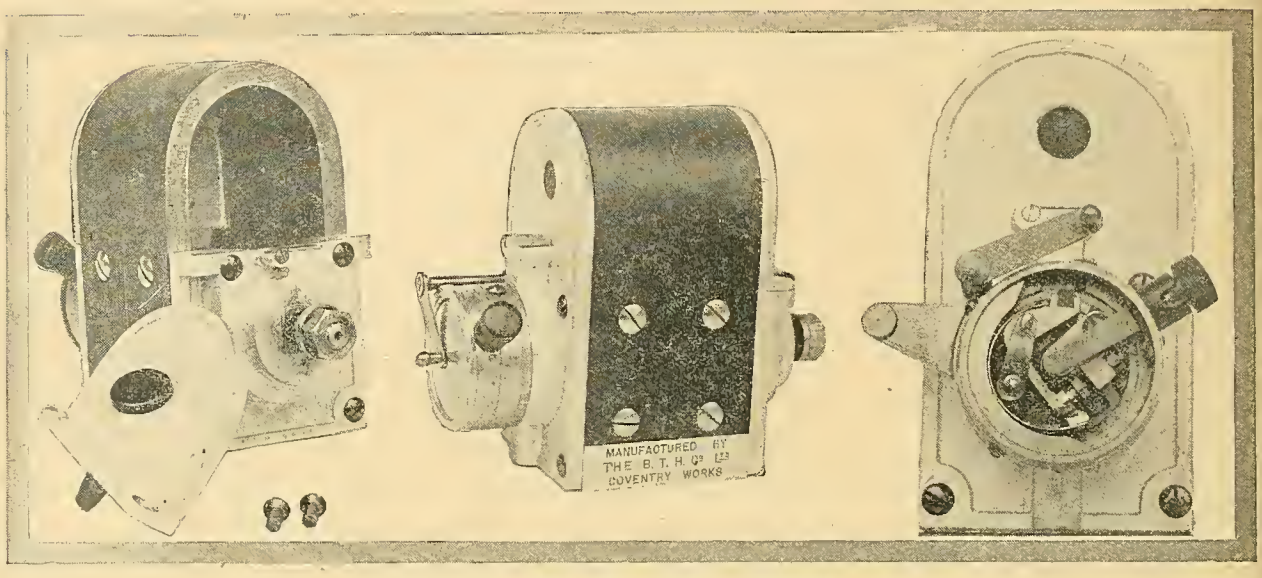
Olympia is at present being used for the incarceration of German aliens.

ADVENTURES IN FRANCE.

Maurice Greenwood, Todmorden, who was one of the English party which went to Grenoble for the abandoned F.I.C.M. Six Days Trials, has got back safely and sent us his experiences. Their machines were commandeered by the French military authorities at Lyons, and eventually, through the good offices of the British Consul, the party escaped from Lyons to Paris in a troop train, which averaged 10 m.p.h. to Paris. Thence it was an easier matter to reach the shores of England. W. Chater-Lea and his wife and C. Pressland, the two cycle car drivers, are still unaccounted for, and they must still be in France

A NEW BRITISH MAGNETO.

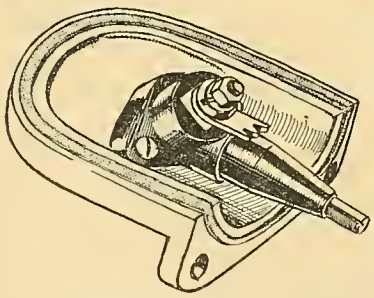
The B.T.H. Magneto—a Machine of Excellent Design and Construction.



The B.T.H., a new British magneto, described on this page.

THE magnetos in use in this country have hitherto been, almost exclusively, made abroad, the great majority coming from Stuttgart. We are glad, therefore, to be able to announce the advent of another thoroughly well made machine entirely of British manufacture.

The B.T.H. magneto, which we illustrate herewith, is made by the British Thomson-Houston Co., of Coventry, and is so designed that it can be interchanged with a Bosch of similar size; the magnets are, however, a quarter of an inch higher, which should be an advantage from an electrical point of view, as it should give a hotter spark at low speeds. The high-tension terminal, which we illustrate, is absolutely waterproof, as it contains a metal socket but no hole through into the interior; the same sketch also shows the spark gap. On the opposite side is a gauze covered window designed to allow any fumes caused by internal sparking, and which might damage the armature, to escape. This gauze is very fine and should be quite waterproof.



One end plate of the B.T.H. magneto removed to show spark gap terminal and reverse side of high tension terminal.

Lest anyone may have misgivings about the use of British made magnets, we may mention that the British Thomson-Houston Co. have for years been using magnets which do not vary more than .1% for scientific purposes, whereas the magnets of a magneto may vary as much as 10% (or 100 times as much) without detriment.

All the parts of the contact breaker are particularly substantial in construction and beautifully made, and as an instance of the great care which has been bestowed on all details, however small, it should be noted that the spring which holds the contact breaker cover in place is provided with a little handle and the oilers are fitted with ball valves.

The B.T.H. magneto forms a welcome addition to the somewhat meagre list of magneto machines produced entirely in this country.

THE GLENGARRIFF OPEN TRIAL.

The awards in connection with the two days' open reliability trial for the Dublin and District Motor Cycle Club Dublin to Glengarriff and back, which was reported in our last issue, have been made. The marks and placings of those who won awards were as follow:

G. Roche (3½ Rover)	200
S. Armstrong (6 Enfield sc.)	200
J. Browne (3½ Rover)	200
A. W. Mooney (6 Bradbury sc.)	200
F. M. Summerfield (6 New Hudson sc.)	200
W. H. Freeman (7 Indian sc.)	200
H. Macrea (2½ Imperial)	197
T. Toole (3½ Rover)	193
J. Doleman (3½ Rover)	182
R. Walshe (3½ Rover)	181
J. A. H. Waters (2¾ Douglas)	179
J. Clarke (4 Hobart)	178
J. F. A. Day (2½ Sun-Villiers)	176
S. Allen (3½ N.S.U.)	176
D. Morrough (Calthorpe c.c.)	174
T. J. Woods (3½ B.S.A. sc.)	165
J. O'Dwyer (2¾ Douglas)	162
H. W. Gibson (3½ Rudge)	121

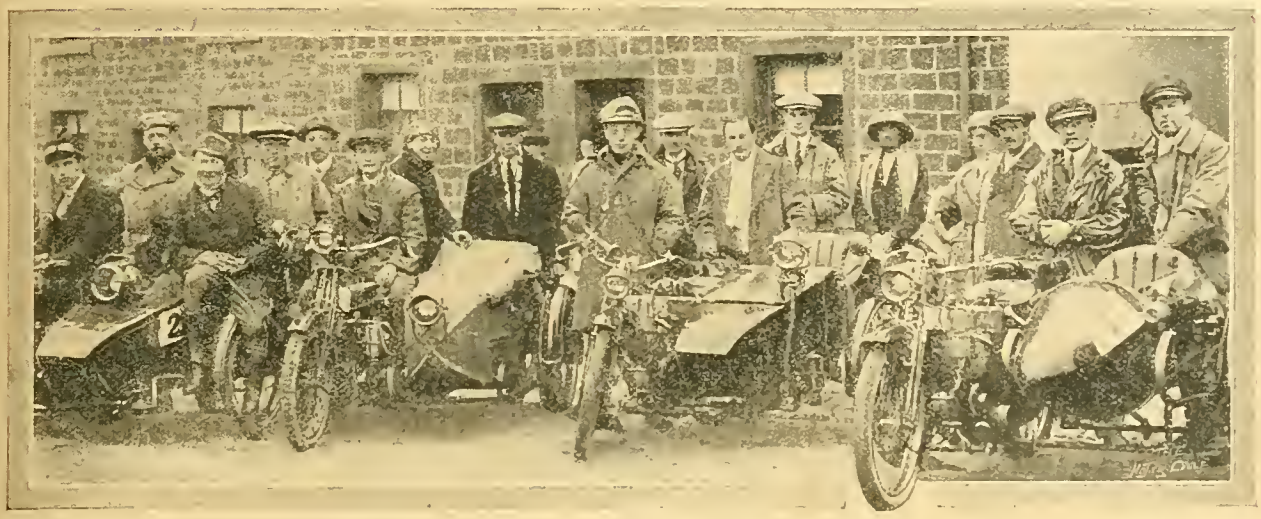
The special awards are as follow:

SIDECAR PRIZE (irrespective of horse-power).—W. H. Freeman (7 Indian).
SIDECAR PRIZE (under 500 c.c.)—T. J. Woods (3½ B.S.A.).
TEAM PRIZE.—Roche, Doleman, and Browne, all on 3½ Rovers.
PRIVATE OWNERS' PRIZE.—W. H. Freeman (7 Indian).
SINGLE GEAR PRIZE.—H. W. Gibson (3½ Rudge).

All of the competitors who secured the maximum number of marks, 200, were awarded first-class certificates and gold medals. A gold medal and a special extra certificate for meritorious performance were awarded to H. Macrea (2½ New Imperial), and silver medals were awarded to all the other finishers.

A 560-MILE TRIAL FOR A MOTOR BICYCLE.

The Bradford M.C. and L.C.C.'s Run to Brighton and Back.



A group of competitors in the Bradford M.C. and L.C.C. reliability run to Brighton and back

IN spite of the anxiety into which the country has been plunged by the war, no less than twenty-five riders started from Bradford in this trial to Brighton and back, and soon found that the trial was to be no child's play, for shortly after the first man had departed on his long journey the rain came down in torrents, and continued to do so for the rest of the night. The wind also was very troublesome, and in places had deposited small trees across the roadway.

Wind and rain, coupled with punctures and other minor troubles, made it hard for the riders to keep up to schedule time at the various unknown mile post checks. J. Sands (10 h.p. Singer) had gear trouble near the start and gave up, and Harry Reed (8 h.p. Dot sc.) had so much tyre trouble that he retired.

Difficulties on the Return Run.

The return journey, which took place on the 4th inst., was full of incidents. To begin with, petrol was four shillings per gallon, but the local manager for the Shell Co. arranged with garage proprietors for the necessary supply to the riders at normal price. Then war transports and soldiers were continually met, and W. Drake (3½ h.p. P. and M. sc.) was struck by the carrier of a passing machine and upset into the hedge. His passenger suffered most, but after attention they were able to continue. G. W. Jubb (4 h.p. Norton sc.) broke the gears, and H. Mawson (3½ h.p. Bradbury sc.) the front forks. J. Fearnley (6 h.p. Enfield sc.) was being considered a likely winner of the machine offered as a prize, when almost within sight of home he suffered a succession of bursts and punctures, which threw his calculations all wrong.

THIS WEEK "THE MOTOR CYCLE" IS ABLE TO PROVIDE ITS READERS WITH PHOTOGRAPHS AND WAR NEWS FROM ALL DISTRICTS. MOTOR CYCLISTS ARE PLAYING A MOST IMPORTANT PART IN THE PRESENT WAR, AND SPACE COMMENSURATE WITH THE IMPORTANT WORK OF MILITARY MOTOR CYCLISTS WILL BE DEVOTED TO THEIR DOINGS (SO FAR, OF COURSE, AS IT IS WISE AND PRUDENT TO DIVULGE THEM).

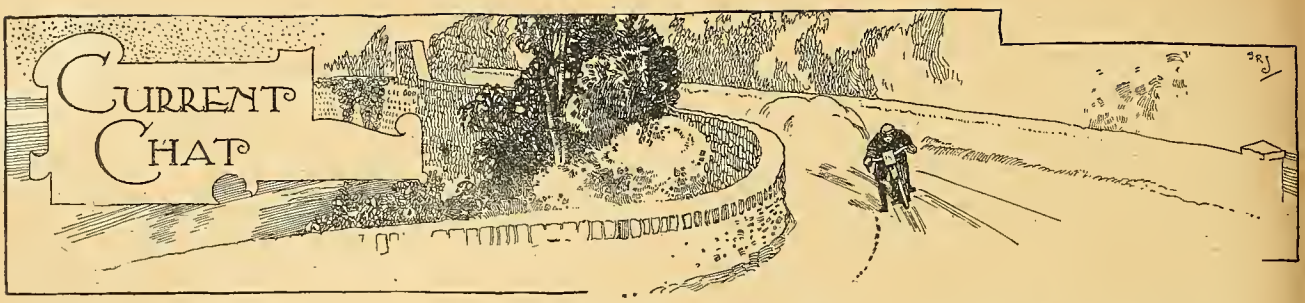
RESULTS OF M.C.C. TOUR.

The following are the results of the Motor Cycling Club's hill-climbing trial and holiday run, held on August 1st and 3rd :

	Porlock. m.p.h.	Countisbury. m.p.h.
WINNER OF CUP (SOLO CLASS).		
G. P. Howe (4 B.S.A.)	13.86	14.59
WINNER OF CUP (SIDECAR CLASS).		
H. G. R. Slingo (5-6 Clyno sc.)	14.91	15.49
GOLD MEDALS.		
L. A. Baddeley (3½ P. & M.)	12.06	16.75
J. S. Holroyd (3½ Blackburne)	12.61	14.35
W. H. Longton (3½ Alldays)	14.33	16.83
Victor Cook (7 Matchless sc.)	12.78	17.18
H. E. Parker (6 Bradbury sc.)	12.77	16.04

In addition to the above, twenty-eight silver medals have been awarded.

A double-seated sidecar fitted to an 8 h.p. Leader-Precision. This combination, driven by Eli Clark, succeeded in gaining a gold medal in the recent Bristol B & M C trial to Land s End and back



TIMES TO LIGHT LAMPS.

Aug.	14	... ...	8.21 p.m.
,,	16	... ...	8.18 p.m.
,,	18	... ...	8.15 p.m.
,,	20	... ...	8.13 p.m.

Keeping Open Lines of Communication.

We have heard from Hugh Gibson, the well-known competition rider, that he is organising a small motor cyclist corps for home defence purposes at Ainsdale, Lancs., and that he is in communication with the Cumberland M.C.C. and Edinburgh and District M.C. to secure co-operation. The idea is to enable rapid communication to be kept up between Liverpool and Edinburgh by motor cycle riders in the event of the telegraph or railways breaking down.

Motor Cyclist Volunteers.

Hundreds of names of motor cyclists willing to act as despatch riders have been received by *The Motor Cycle* in reply to our appeal on behalf of the War Office last Thursday. These names have all been classified according to the districts in which the applicants reside, and particulars of the machines have been noted. In some cases applicants have offered the services of their machines when they themselves are incapable of riding. In others riders have offered their services who have no machine at their disposal. The list of names is being compiled in conjunction with the Auto Cycle Union, which body is directly in touch with the War Office, and at a moment's notice can give the officials there the names of the motor cyclists available in any district in the United Kingdom.

A.A. and M.U. Notes.

THE PETROL POSITION.—In the interests of motorists the A.A. and M.U. have made exhaustive enquiries into the present position relating to petrol, from which it would appear that there is no shortage in the supply so far as bulk storage is concerned. At the present time, however, owing to the commandeering by the Government of motor lorries and to the congestion on the railways, great difficulties exist in getting supplies to the retailers. In addition, there is a shortage of tins, apparently due to motorists increasing their reserves, and deliveries would be considerably facilitated if empty tins are returned to garages at the earliest possible moment. The increase in price is not recognised by the producers, but in the case of motorists calling at garages other than where they usually do business higher prices are undoubtedly asked. For this reason the A.A. recommends members to order their petrol from the agent with whom they usually do business. There can be no doubt that the present position will be considerably relieved if members will temporarily exercise the most rigid economy, and do everything possible to prevent tins being withdrawn from circulation.

OUR ADVICE TO CLUBS.

At a time when every motor cyclist is anxious to serve his King and Country, and when all army vacancies are for the present filled, the advice of "THE MOTOR CYCLE" to Club Committees is to encourage members to cultivate assiduously an intimate knowledge of their own particular localities and to become well versed in the art of map reading, so that, if their services may be required eventually, they will be as useful as possible.

Ordinary competitions having been cancelled, Clubs might well arrange map reading contests and reconnaissance tests in districts not occupied by troops.

STUDYING THE MAP.
An incident of the operations in Suffolk. The machine is a twin A.J.S.

SPECIAL FEATURES.

MOTOR CYCLISTS AND THE WAR. HOW TO CUT DOWN RUNNING COSTS. A NEW BRITISH MAGNETO.

Work upon the Roads.

The disorganisation of business consequent upon the European War will undoubtedly throw many labourers out of work. As the Road Board has a considerable sum of money to provide work at such times it is desirable that the authorities should know in what places this labour could be most usefully employed. Secretaries of motor cycle clubs are, therefore, asked to request their members to make notes respecting improvements which seem to be most necessary, preference being given to schemes for widening, strengthening, and resurfacing of trunk roads where the minimum of land is required, or where it can be obtained without much difficulty, and to send these notes to the Roads Improvement Association, 15, Dartmouth Street, Westminster, S.W. If possible, the notes should be summarised by the secretaries and copies of the summaries sent to the Association.

Imports and Exports of Motor Cycles.

The value of the imports of motor cycles and parts thereof are as follow:

For month ended July 31st—

	1912.	1913.	1914.
	£	£	£
Motor cycles ...	4,857	2,640	6,675
Parts	13,444	16,204	13,159
Totals ...	18,301	18,844	19,834

For seven months ended July 31st—

	1912.	1913.	1914.
	£	£	£
Motor cycles ...	29,685	42,124	73,651
Parts	70,736	123,522	78,503
Totals ...	100,421	165,646	152,154

The value of the exports is, as usual, much in excess of the imports, and is given below:

For month ended July 31st—

	1912.	1913.	1914.
	£	£	£
Motor cycles ...	43,148	71,287	89,805
Parts	13,051	23,737	36,055
Totals ...	56,199	95,024	125,860

For seven months ended July 31st—

	1912.	1913.	1914.
	£	£	£
Motor cycles ...	238,459	440,942	557,440
Parts	87,238	142,768	216,626
Totals ...	325,697	583,710	774,066

Belgians to the Front.

Many Belgian volunteers on their way from Paris to their own country left on sidecar combinations with their wives, sisters, and children, all bedecked with flowers as if on a holiday jaunt.

Open Events Cancelled.

It is likely that the majority of open trials in the near future will be cancelled, owing to the war. News of two trials already cancelled are the Bristol M.C.C. event on September 4th and 5th to Land's End and the Liverpool A.C.C. London and back run arranged for the 15th inst.

The Aliens Restriction Order.

The Aliens Restriction Act, which was passed through Parliament last week, places alien enemies under certain disabilities in respect to the possession of firearms, motor cars, *motor cycles*, petroleum, and other articles, and requires them to register themselves with the police under stringent penalties.

A Gymkhana in the Midlands.

A gymkhana is to be held at Wellesbourne to-day (Thursday, August 13th) in aid of the St. Mary's Aston Brook Aid Scheme. There will be five events for motor cycles and sidecar outfits besides many other attractions, and the meeting will take place on the cricket ground. It is hoped that some exhibition riding will take place.

English Lady Motor Cyclists in Germany.

Two young lady motor cyclists, Miss Scott and Miss Dickenson, Wootton, Isle of Wight, have arrived home from a tour in Germany after suffering terrifying experiences. They were arrested three times as spies, hauled off their machines, and roughly handled. Although they showed duly authenticated passports they both lost their motor cycles at Frankfurt, where they were requisitioned for war purposes.

Motor Cycles in Italy.

We have called attention on several occasions of late to the advance in the sporting and business side of the motor cycle movement in Italy, which is quite a valuable market for British manufacturers, and nearly forty makes from this country are now represented there. Some admirable machines are also produced in Italy itself, the Della Ferrera, of Turin, the Borgo, also made in Turin, and the Frera, of Tradate, having done wonderfully well in racing events this year. There are about 16,000 motor cycles running in Italy at the present time.

Last Quarter's London Registration.

During the quarter ending June 30th applications for the registrations of 4,667 motor cars, 204 heavy motor cars, and 2,887 motor cycles were dealt with by the London County Council, bringing up to 78,666, 6,826, and 33,048 respectively the number of these vehicles registered since the Motor Car Act, 1903, came into force. Changes of ownership in 2,451 cases were dealt with, the total number of such changes registered being 26,146 cars and 16,059 cycles. The number of licences to drive motor cars and cycles issued was 22,201, bringing the total number up to 352,163.

A Young Motor Cyclist.

On the Folkestone-Boulogne boat the other day there was a French boy of fourteen, a well-built lad who spoke English with ease, who was returning to France in the hopes of obtaining a motor cycle and becoming a despatch rider.

The Registration of Auto-Wheels.

For the purpose of registration under the Motor Car Acts, the London County Council has agreed that an Auto-Wheel be registered apart from the machine to which it is attached, and that no further registration fee be required on the removal of the Auto-Wheel to another machine.

Mechanical v. Automatic Inlets.

Looking back through past years of this journal, one receives many a reminder of the danger of prophecy. A decade ago a technical article was published by a well-known A.M.I.M.E. on the advantage or otherwise of the use of mechanically-operated inlet valves on motor cycle engines. After a careful investigation into the claims of the m.o.i.v., then struggling to come into its own, the writer dismisses the claims of this type on the score of its being a useless complication on an engine, and also on the ground that much flywheel inertia was wasted in driving the cams. We will not give the writer's name, for we have no doubt that he has long ago changed his views. To our mind it is wonderful that the a.o.i.v. lasted as long as it did, for we well remember about ten years ago riding a machine fitted with an early m.o.i.v. White and Poppe engine, and being greatly impressed at the power produced in comparison with our mount of that period, which had a first-class engine with the older type valve.

Price of Petrol.

Boycott all garages at which highly increased prices are asked for petrol. There is no authority for increase at present, and the two leading suppliers assert that the stock is sufficient for all ordinary demands.

Danger in Cheapness.

An application has recently been made in Wanganui, N.Z., for a licence to ply for hire with a motor cycle and sidecar. The borough engineer opposed the application on the grounds that he did not consider a motor cycle and sidecar a safe conveyance! Pressed further, he thought the cheaper rate charged would disorganise the cab trade.

Important Continental Events Cancelled.

The Motor Cycle Grand Prix Race at Le Mans, for which a representative English entry had been received, is automatically cancelled owing to the war.

Though we have heard nothing official as yet regarding the third Anglo-Dutch Trial arranged to be held in Holland September 6th to 9th next, it is practically certain that the event will have to be postponed until next year.

Unofficial Record Attempt.

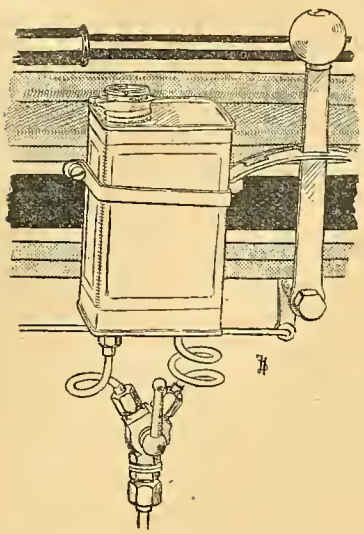
Last week an attempt was made on the End-to-end sidecar record by two Oldham motorists, Noah Oliver and Isaac Cotton, mounted on a 6 h.p. Bradbury. The first intimation of the attempt was the receipt of records of progress at *The Motor Cycle* offices, but the attempt was abandoned owing to the bad weather. We have since pointed out to the driver the risks he is running with the police and the A.C.U. in attempting such a record, and seriously we would advise him to offer his services to the Government as a despatch rider if he is anxious to show his speed proclivities.

A GLIMPSE OF THE DEVONSHIRE COAST FROM COUNTISBURY HILL.
Observe the rider on an Exmoor pony taking a buckled wheel into Lynmouth for repairs. This incident occurred during the M.C.C. Devonshire tour.

TWO-STROKES AND PARAFFIN.

An Interesting Practical Experiment.

OWING to the possible shortage of petrol in the future and the difficulty of obtaining it at reasonable prices, a member of our staff has been carrying out experiments with paraffin on his two-stroke Clyno. A quart can has been fixed to the tank to act as a petrol container for starting purposes, and the petrol tank proper was drained and filled with quite a low-priced paraffin. A three-way tap was fitted to the petrol pipe in a convenient position, and connected up to both tanks and the float chamber in the usual manner. Preparations were now complete, and the machine was taken on the road. An attempt to start on the paraffin from cold failed, as was expected, but only a float chamber full of petrol was required to warm up the engine before it took up its work on paraffin, and showed but little alteration from petrol. The mixture was slightly more tricky, and until the engine was thoroughly warm there was a slight tendency to blow back into the crank case. Subsequently the float level was altered to suit the heavier fuel, and a slight improvement was noticeable at once. At the present time paraffin is being used on the little two-stroke regularly, and no evil results are apparent nor is there any perceptible difference in power.



Showing how an oilcan may be fixed on the tank for carrying petrol for starting purposes, the main tank being filled with paraffin. The Clyno tank is particularly convenient on account of the holes in the tank.

Those who wish to try the experiment for themselves should remember to switch on to petrol a short time before stopping the engine, so as to have a float chamber full of petrol for starting purposes. The standard Amac carburetter as fitted to the Clyno is employed, though the warming device is not at present in use. An improvement in running is expected when it is refitted.

THE 3½ h.p. A.B.C.

One of our staff has recently been sampling a 3½ h.p. A.B.C., and in a paragraph written after the A.C.U. Six Days Trials, which he followed on this machine, we remarked that it was a new and untried production, meaning thereby that it had not yet won its spurs in any road trial. We would like to take this opportunity of stating that the new A.B.C. is well past the experimental stage. At Brooklands it has proved itself as a racing machine, and has undergone many private road tests, which have assured its manufacturers that it is right in every respect. That this is so was amply proved by the manner in which the machine behaved itself in our hands during the excessively severe A.C.U. Six Days Trial. There is no question of doubt that steel cylinders are in every respect successful (incidentally, the three winning Mercédès cars in the Grand Prix Race had steel cylinders), and the engine kept cool and was never once heard to knock, even under the worst provocation; it ran very smoothly, had excellent powers of acceleration, and a fine turn of speed on the level. The springing was most efficient, and the machine finished, notwithstanding the buffeting about it received over the appalling roads, in perfect condition. In about three weeks time A.B.C. Road Motors, Ltd., will move into their new works at Hersham, and hope to deliver these machines in large numbers next year.

Motor cyclist despatch riders are largely in evidence in East Anglia. Our illustrations show one of the detachments taking up their positions. The motor cycles in this corps are, incidentally, mainly composed of powerful V-type twins.

ELECTRIC LIGHTING.

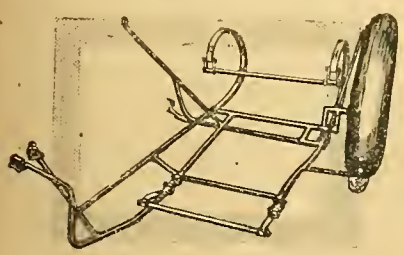
A Zenith machine belonging to Mr. M. Abraham, of Grove Lodge, Muswell Hill, has recently been equipped with a lighting set supplied by A. H. Hunt, 115, Cannon Street, E.C., and it is shown in the accompanying illustrations. Two head lights are provided, one being attached to the handle-bars and the

A. H. Hunt's electric head lights and dynamo fitted to a twin Zenith.

other to an extended bracket. The current is obtained from a set of Alklum accumulators that are housed in a wooden case attached to the carrier. Three switches are also provided outside the box, one being for the tail lamp and the other two for the head lights. A small auxiliary dynamo is driven off the front wheel and can be used in the case of an emergency.

THE F.N. SIDECAR.

The new F.N. sidecar chassis possesses many salient features, the two most prominent perhaps being the sound construction and the four-point attachment. Dealing with the former, it will be noticed, on referring to the illustration, that welded joints take the place of the more usual brazed lug type. One of the extra couplings fitted is anchored to a special lug cast on the bottom of the bevel housing. A similar lug is also provided on the opposite side of the

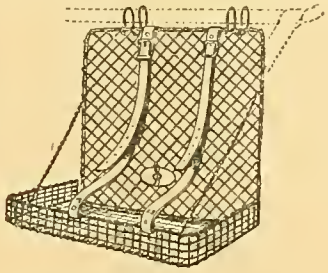


Chassis of the new F.N. sidecar

machine for sidecars as used on the Continent, attached on the right-hand side. A double axle is also utilised, and the sturdy construction of the mudguard and stay is very commendable. The bodies are designed exceedingly well and on really pleasing lines, and can be supplied with either a blue, grey, or green finish.

A USEFUL LUGGAGE GRID.

Motor cyclists are often troubled with the problem of carrying luggage, and Messrs. John Piggott and Son, Ltd., 117,

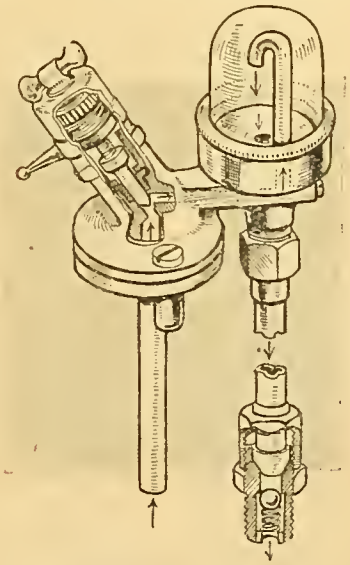


John Piggott's luggage carrier.

Cheapside, E.C., have brought out a very neat paunier grid, which we illustrate. This is easily attached to the side of the carrier, and with it a large bag can be carried without any trouble.

THE ENOTS LUBRICATOR.

Messrs. Benton and Stone, Ltd., Enots Works, Birmingham, have introduced an improved form of their drip lubricator. It will be seen that the small ball valve is screwed into the crank case, and is attached by means of a pipe to the sight drip feed itself, which is

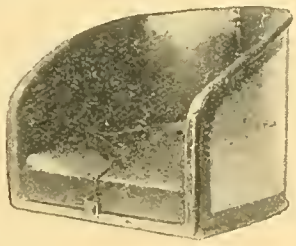


Semi-sectional view of Enots lubricator

covered by a small glass bowl. On the up stroke of the engine piston a vacuum is formed in the crank case as well as in the small glass bowl, and oil is drawn up from the oil tank and passes on its way through the small valve controlled by a screw. Not only can the rate of the flow be controlled by this small valve, but an extra lever is provided, by means of which the whole can be turned off without altering the rate of the flow

A NEW PILLION SEAT.

A comfortable upholstered pillion seat is being marketed by Messrs. Stokes and Holt, Ltd., Belgrave Road, Leicester.



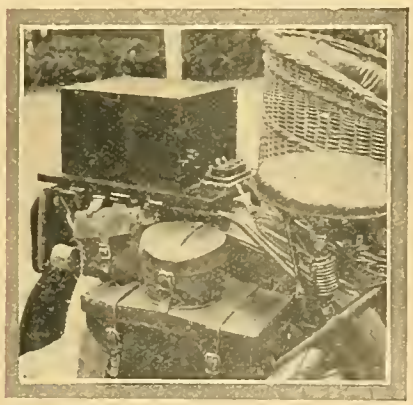
Stokes and Holt pillion seat.

It is bolted to the carrier by means of two iron plates, and the passenger is secured by means of a stout strap. For riders of powerful sidecar machines desirous of taking a third passenger this seat should prove admirably adapted.

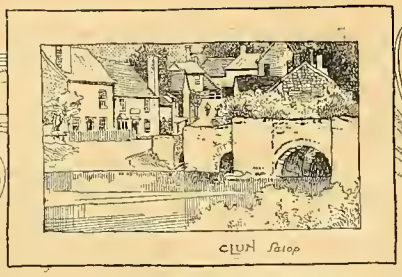
A NEW OVER-BOOT.

Being aware that there is an increasing demand for a light serviceable over-boot for motor cyclists, the North British Rubber Co., Ltd., 169, Great Portland Street, W., have introduced an article which should meet with the very hearty appreciation of all-weather riders. The boot is manufactured of the best material and workmanship, and the price is a reasonable one. It will be noted that it may be put on very easily, as it is slit down the back and fastens with glove button fasteners.

The North British Rubber Co.'s new overboot.



Alklum accumulators forming part of Hunt's electric lighting set, described on this page.



CLUB NEWS

"THE MOTOR CYCLE" LIST OF CLUB EVENTS.

The following is a list of the fixtures for the coming week, but owing to the European war we are daily receiving advice of postponement of all kinds of events, and it is possible that those given below may not be held.

Aug. 15th.—Dublin and District M.C.C. Club reunion tea at Howth.
„ 15th.—Ripon and District M.C.C. Week-end to Scarborough.
„ 15th.—Westmorland M.C.C. Hill-climb at Orton Scar, 3-30 p.m.
„ 15th.—Malvern M.C.C. Inter-club speed trial at Blackmore Park.
„ 15th.—Woolwich, Plumstead, and District M.C.C. Inter-team trial for Woolwich Challenge Cup, starting 10 a.m.
Aug. 15th.—Middlesex M.C.C. Social run to Broxbourne.
„ 17th.—Plymouth and District M.C.C. General meeting at the Rock, 8 p.m.
„ 19th.—Cardiff and District M.C.C. Hill-climb.
„ 19th.—East Essex M.C.C. Non-stop run.
„ 19th.—Bournemouth and District M.C.C. Riverside garden party.

Essex M.C.

The race meeting arranged for Saturday next, 15th inst., at Brooklands, has, owing to the national crisis, and the club not being able to obtain the use of the track, been cancelled.

Troedyrhiw and District M.C.C.

The reliability trial, which was to have taken place last week, has been indefinitely postponed owing to the European crisis.

West Hants M.C.C.

The reliability trial which was to have been held on the 29th inst. has been postponed, owing to the state of war in Europe.

Finsbury Park C. and M.C.

A hill-climb was held on the 3rd inst. at Whitchurch Hill, near Pangbourne, and was won on formula by C. W. Cooke (3½ Triumph), with J. Evans (5 Bat) second, and T. O. Manning (3½ Bradbury) third. This event, together with the speed-judging competition which is to take place on the 22nd inst., decides the holder of the challenge cup presented by Mr. G. A. Touche, M.P.

Plymouth and District M.C.C.

The winners in the trial from Penzance to Plymouth, which took place on the 3rd inst. (ninety-six miles, three checks), are as follow :

	Marks.		Marks.
F. Jewers (Crescent c.c.)	100%	A. Brand (6 Hobart)	97%
W. J. Pitts (8 Chater-Lea) ...	100%	E. J. Jarvis (2¾ Douglas)	96%
T. D. A. Chapman (8 Bat)	98%	C. R. J. Roberts (6 Matchless)	95%
F. E. Jarvis (2¾ Douglas)	97%		

Cork and District M.C.C.

Last week's reliability trial included a flexibility test and two observed hills—Gowlane Hill, near Kenmare (which caused several failures in the End-to-end trial, and on the Dublin two days' trial was considered an unfair test for passenger machines, so that only the solos were sent up, and ten of them failed), and Ballagisheen Pass (which caused a good many failures in the Cork open event earlier in the season). However, all the eighteen starters, including six sidecar machines, made clean ascents of Gowlane, and the sixteen who reached Ballagisheen also accounted for this hill. A figure of merit of 3.5 qualified in the flexibility test; formula, $\frac{\text{slow time}}{\text{fast time}}$

First-class Awards.—R. S. Russell (7 Matchless sc.), E. MacSweeny (6 Sunbeam sc.), C. Kristien (6 A.J.S. sc.), P. J. Cox (3½ Douglas), R. B. Baker (2¾ Douglas), G. H. Ogilvie (4 Triumph), C. S. Hosford (3½ Rover), M. English (2¾ Douglas), and H. Dooly (3½ Zenith), no marks lost; G. H. Haynes (2¾ Douglas), 1 mark lost.

Second-class Awards.—D. Parbury (4¼ Excelsior sc.), M. J. Cox (2¾ A.J.S.), J. Atkinson (Baby Triumph), and M. Ahern (Enfield).

P. J. Cox wins the Gibson Cup, having the least variation from 20 m.p.h. over a timed distance.

FORTHCOMING OPEN EVENT.

Coventry Open Hill-climb.

The ninth annual open hill-climb of the Coventry and Warwickshire M.C. will be held on the 29th inst., commencing at 12 o'clock. The locality of the hill will be announced some time before the event. Every machine in the touring classes must be fully equipped, or it will be transferred to the open class. No entries will be accepted from ladies. *The Motor Cycle* formula will be used, and prizes will be awarded for the fastest time (expert) and for the best performance on formula (general). Entries must be sent to Mr. H. Whiteman, secretary, Grey Friars' Chambers, Hertford Street, Coventry, not later than the 21st inst.

Classes.

1. Auto Wheels. Note.—In this class a prize will be awarded to the competitor who reaches the highest point of the hill (pedalling not allowed).
2. Standard pattern touring two-stroke lightweights, engines up to 225 c.c.
3. Standard pattern touring two-stroke lightweights, engines up to 350 c.c.
4. Standard pattern touring four-stroke lightweights, engines up to 250 c.c.
5. Standard pattern touring four-stroke lightweights, engines up to 350 c.c.
6. Standard pattern touring motor cycles (single and twins), two and four-strokes, engines up to 500 c.c.
7. Standard pattern touring motor cycles (single and twins), two and four-strokes, engines up to 750 c.c.
8. Motor cycles, two and four-stroke (open class), engines up to 1,000 c.c.
9. Sidecar combinations, engines up to 750 c.c.
10. Sidecar combinations, engines up to 1,000 c.c.
11. Cycle cars, engines up to 1,100 c.c.

HILL-CLIMB AT THE CAPE.

The C.P.M.C.C. held the July competition on the 11th over the difficult course leading to the Kloof Nek. It consisted of a flexibility hill-climb. Seventeen riders entered upon the 500 yards slow climb, after which they had to accelerate and continue at speed to the top of the hill.

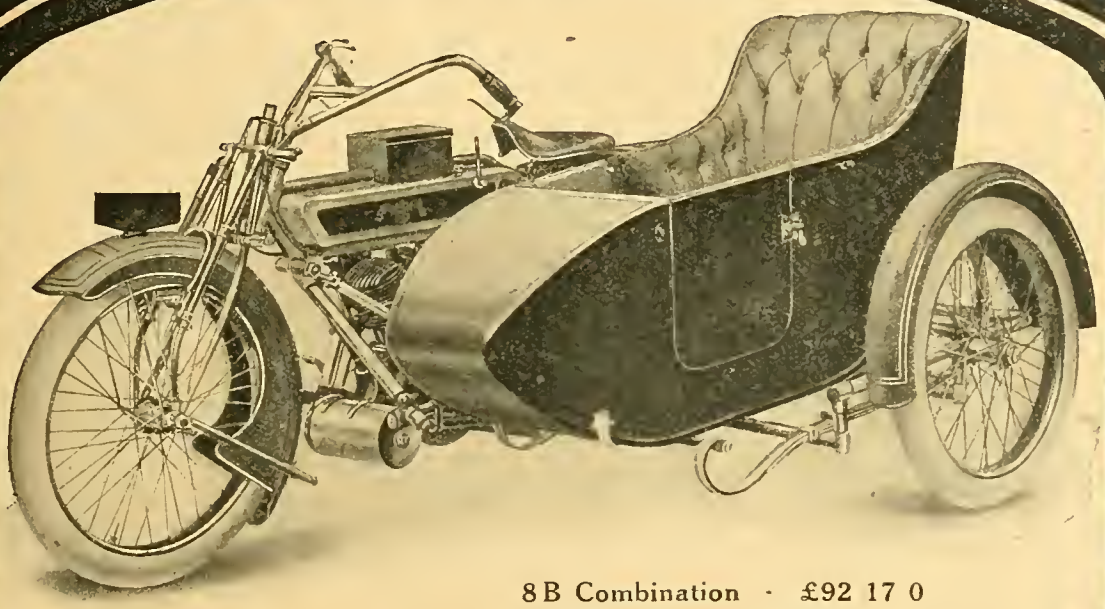
Nelson Clark (7 Indian) made the best time, 1m. 59⅕s., on the fast portion, while E. Watts (6 Enfield sc.) took 2m. 13s., his splendid corner work calling forth a cheer from the crowd. The two acute 1 in 4 hairpin bends proved the undoing of many. J. Berl (2¾ F.N.) came down at the first bend, but remounted and repeated the performance at the second, this time damaging part of his machine.

O. Prillevitz (3 Enfield), who had just returned from competing in the Johannesburg-Durban race, met his fate, as five of his clubmates did, just past the second hairpin.

The results were as follow:

1. F. Johnson (3½ Sunbeam).
2. W. Boyliss (3½ Premier sc.).
3. H. O. M. Lewis (3½ Humber).

MATCHLESS



8 B Combination · £92 17 0

THE MOST SUCCESSFUL SIDECAR COMBINATION OF THE SEASON.

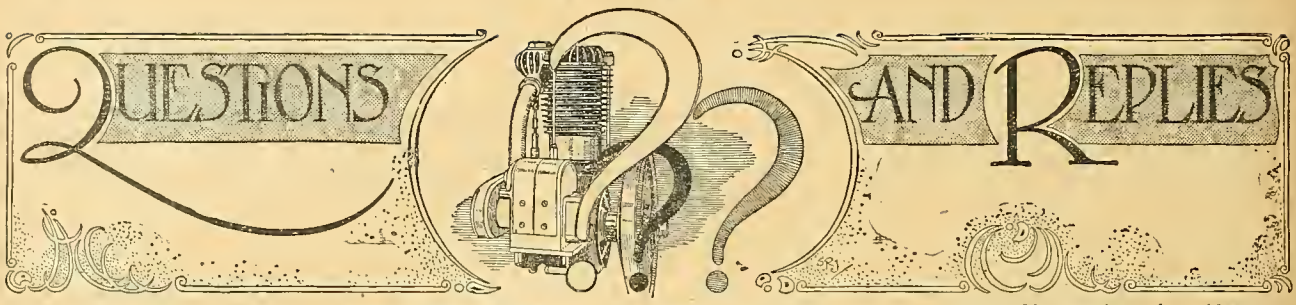
The Combination illustrated above, represents the highest class Sidecar outfit at present on the market.

BRIEF SPECIFICATION:

7 h.p. Twin Engine; Semi-automatic Carburetter; Waterproof Magneto; Large Tank; Three-speed Countershaft Gear, with indestructible metal free engine clutch and gate change; Silent Chain Drive entirely enclosed; Automatic lubrication from engine to clutch and chains; Car Tyres all round; Folding Luggage Grid; Spring Petrol Can Carrier, etc.

THE MOST SILENT MACHINE ON THE ROAD.
ASK YOUR AGENT FOR FURTHER PARTICULARS

H·COLLIER & SONS, LTD PLUMSTEAD·S·E·



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Tuning for Speed.

Q. Could you inform me what size jet in the carburetter of my 1911 Triumph would probably give the fastest speed, irrespective of petrol consumption? At present I use a 38 jet. On a good road, in good touring trim, what speed should the machine be capable of on a 5½ to 1 gear?—IP 292.

It is impossible to give you a set size of jet for the fastest speed, as it depends entirely upon the type of carburetter and the size of choke tube. Again, with an older engine it is impossible to get the high number of revolutions that you can out of a more modern one, and it is therefore impossible to use such a large jet as can be used nowadays. We should advise you to get three or four jets and hit upon the right one by trial. Such a machine as you have should be capable, when in good tune, of attaining a speed of about 45 m.p.h. on a 5½ to 1 gear.

Carburetter out of Tune.

Q. I have a 3½ h.p. single-cylinder sidecar combination, and owing to a cracked piston and loss of power I had it rebored and a new piston fitted, since when there has been excessive consumption of petrol and loss of power, while now it will not do more than thirty miles to the gallon. The valve timing is set for the exhaust valve to shut when piston is dead on top, and the inlet to open immediately the piston descends. The magneto points are about to break when the piston is on top of stroke with the lever two-thirds retarded. I have fitted stronger springs on inlet and exhaust, also new guides, but to no purpose. There is also a low level in the float chamber, and I have fitted a wire gauze over the air hole, but no improvement has resulted. I use a 31 jet, and have also tried a 38 jet, which caused knocking on the slightest hill. Can you suggest any improvement?—A.J.P.

It seems that your carburetter is quite out of adjustment, as the consumption is very excessive. You might test the inlet pipe for air leaks, as such leaks would give you the symptoms from which you are suffering. The valve timing is quite correct, but we think that you might make a slight alteration in the ignition timing. Try setting the magneto points to be on the break when the piston is on top dead centre and the lever fully retarded. You might also try a slightly higher petrol level in the carburetter.

Poor Engine Balance.

Q. I have a 1914 4 h.p. chain drive counter-shaft three-speed motor cycle. When running at, say, 30 m.p.h. and over there is very bad vibration of the handle-bars, and I also feel it, but to a lesser degree, on the footrests. The fork link bolts are not at all tightly locked, and I do not drive with a hard front tyre. Could you suggest a cause for this?—T.R.G.

The trouble you are suffering from is due to a "period" in the engine, caused by lack of correct balance. To locate the source of this trouble would be a very difficult matter, and we are afraid we cannot give you much help. It can only be cured by taking down the engine and verifying the balance of the reciprocating parts. We published some interesting articles some time ago on balancing engines, and these have now been issued in booklet form, and can be obtained from these offices price 7d. post free.

A Three Days Tour to the North.

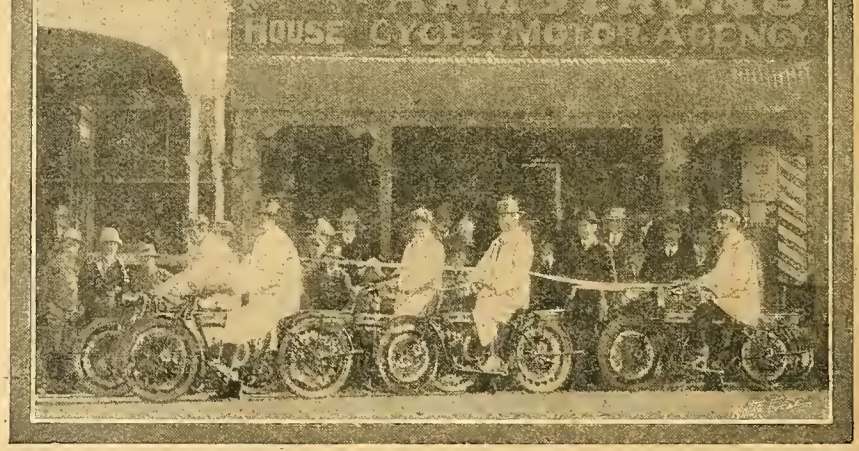
Q. I want to go by motor cycle from Sunningdale (Berks) to Duns (Berwickshire), and I should be much obliged if you could let me know the best route to take, avoiding London. I wish to spend three days over it, stopping the night twice.—H.W.S.

This would prove an easy three days run, mostly over good roads. We should recommend you to go from Sunningdale to Staines, and then *via* Uxbridge, Denham, Rickmansworth, Watford, St. Albans, Hatfield, Welwyn, Stevenage, Baldock, Biggleswade, Eaton Socon, Buckden, Stilton, Stamford, Grantham, Newark, Tuxford, Retford, Doncaster, Ferrybridge, Wetherby, Boroughbridge, along Leeming Lane, through Scotch Corner to West Auckland, Towlaw, Corbridge, Carter Bar, Jedburgh, Kelso, Greenlaw, Duns. We should advise you to stay at Newark and West Auckland.

A Gear Query.

Q. I am having a slight trouble with a three-speed hub on my 3½ h.p. single-cylinder machine, which, up to a recent date, has given great satisfaction. When travelling fast or going up hill the clutch appears to slip momentarily and engage again very suddenly with a slight jerk.—S.W.H.

You do not state whether your trouble occurs on all gears or only on top. If the latter is the case it is probably due to a rather weak return spring in the gears and not to the clutch actually. A new spring will affect a cure, though the matter should be seen to at once before the dogs become damaged.



A novel advertisement. The Armstrong Agency, which handles the Douglas in Perth (Australia), arranged a team of machines which were ridden through the town connected by streamers as above.

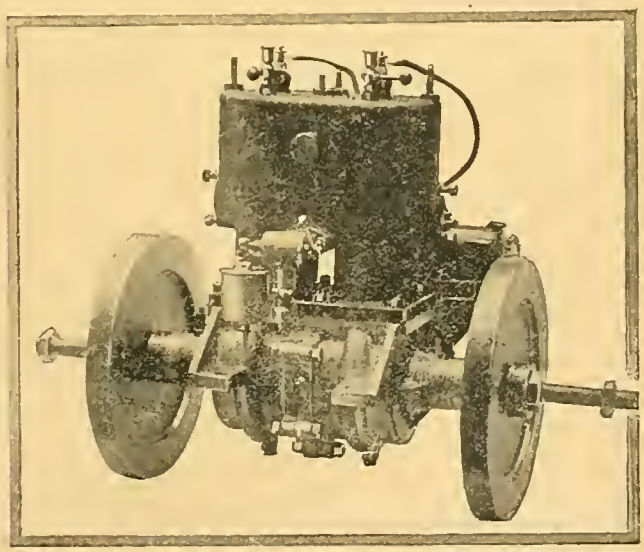
A party of M.C.C. members at Hungerford during that Club's Bank Holiday Tour

A reliability team trial took place on the 3rd inst. in the New Forest between members of the Southampton and District M.C.C. and Portsmouth and District M.C.C. The distance covered was 106 miles on a circular course through Cadnam, Ringwood, and Fordingbridge. The Southampton team proved to be the winners by one mark only, Portsmouth A team being second.

A Cycle Car Two stroke Engine.

IT is somewhat surprising that the two-stroke engine is rather more the exception than the rule in cycle car design, but there are, of course, one or two excellent products in this respect which are bound to come into their own in the near future. One of these is the Cycaren, manufactured by Messrs. T. Dickens and Co., 11, High Street, Fulham, S.W., which is a thoroughly sound engineering job. Two models are made which only differ in one or two details, one of them being rated at 6.5 h.p., while the other is known as the 9.5 h.p. type. Both are twin-cylinder units, the latter having the cylinders cast *en bloc*. The illustration shows what a remarkably clean appearance the engine presents. With a bore of 88 mm. and a stroke of 90 mm. the power developed is 9.5 at 1,000 r.p.m., and the range of speed claimed is from 300 to 2,000 r.p.m. In this design three crank bearings are essential, but the proportions in this case are excellent. The inlet gas passes between the cylinders, and is therefore warmed extensively before the final induction. Water cooling is carried out on a most liberal basis, for even at the narrowest points between the cylinders there is at least an inch of water space. It should also be mentioned that both the inlet and exhaust ports are made with very large effective areas, which have grids cast in them in order to prevent the three rings (two at the top and a scraper) from catching. Carburation is performed through the medium of a B. and B. carburetter. Mea plugs and magneto are responsible for the ignition.

The lubrication system is extremely thorough. The cylinder relies on the lubricant mixed with the petrol, while unions are fitted to both of the crankshaft bearings, and through these oil is conducted along a drilled passage in the crankshaft to the big ends. A separate feed pipe looks after the central journal, and the result of all these provisions should be a considerable prolongation of life of the bearings.



The Cycaren, a vertical twin-cylinder water-cooled two-stroke engine for use on cycle cars

A Strenuous Test.

In the annual run of the Bristol B. and M.C. to Land's End and back a fine performance was accomplished by Eli Clark, who went through the event on a Leader motor cycle with double-seated sidecar. On both outward and homeward journeys terrific rain storms prevailed and rendered the roads very heavy. In spite of this the Leader, which was equipped with an 8 h.p Precision engine, gained a gold medal.

An Excellent Lubricant.

Again, users of Castrol motor oil have scored an unqualified success, this time in the Irish End-to-end Trials. Users of this oil were successful in gaining every prize and medal with the exception of two gold medals.

Gear Prices Reduced.

The demand for the Bowden two-speed gear for motor cycles has increased to such an extent that, with increased facilities for manufacturing, Messrs. Bowden Wire, Ltd., London, N.W., the makers, have been able to arrange for a considerable reduction in the price. The cost of the standard gear has been reduced from £10 10s. to £8 8s., and for the special models arranged for Triumph, B.S.A., and Bradbury machines from £11 to £9.

Comfort on Motor Cycles.

We published lately an account of the Little Giant motor cycle, and one of the models illustrated was shown fitted with special Hammock footrests and pannier boxes. We did not mention the fact that the patents for these two fitments are held by the Kumfurt Motor Accessories Company, Cookham Rise, Berks, and are known as the Waigh patents.

Wins on Blackburnes.

Messrs. Burney and Blackburne, Ltd., Tongham, Surrey, have issued a poster giving particulars of recent successes gained on the Blackburne motor cycles manufactured by them. These include gold and silver medals won in the principal competitions of 1913 and 1914. The Blackburne machines are notable for the fitting of a large outside flywheel, detachable cylinder heads, and solid crankshafts.

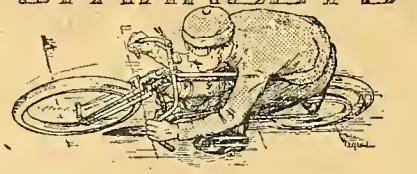
Good Value in Two-strokes.

In a recent description of the two-stroke Invicta motor cycle we inadvertently gave the price at 25 guineas. It should be 28 guineas, at which figure the value offered is remarkable. The makers are Messrs. A. Barnett and Co., West Orchard, Coventry.

Lathes for Polar Work.

The realms of sport and exploration are often in closer touch with one another than most are aware. The repair shop, so often neglected by the motorist, is fitted out by the Antarctic explorer in a precisely similar manner to that of the private garage. The Shackleton Antarctic Expedition, which is just about to leave the South-west India Dock, will take a 3½in. centre Drummond screw-cutting lathe, a sensitive drilling machine by the same firm, and an equipment of small tools such as you would find in the average motorist's workshop. It is interesting to note that the late Captain Scott took one of these lathes on his last expedition.

SPARKLETS

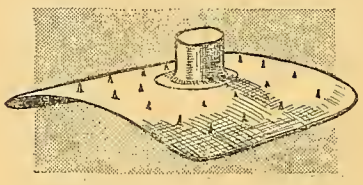


Lubrication of Auto-wheels.

The Vacuum Oil Company have issued a small pamphlet giving useful information on the lubrication of Auto-wheels. Users of these fitments would be assisted greatly by perusing one of these pamphlets.

Temporary Tyre Repairs.

The A.B.C. plug gaiter is a device which will form a very good temporary repair to a cover, at a low figure. It consists of a flat piece of rubber and canvas in the centre of which is a small rubber spigot; small spikes are also fitted, which prevent any strain being put on the spigot through creeping. The hole in the cover is cut out so as to form a tight fit over the spigot, and the gaiter is placed tightly inside the cover.

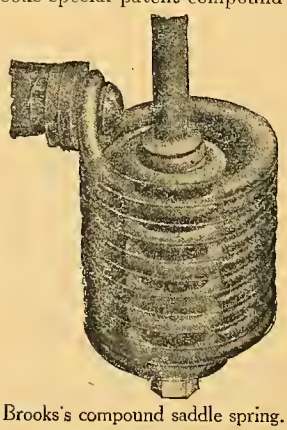


The A.B.C. tyre gaiter.

Vulcanising can then be performed, and the whole will hold for some considerable time. The gaiter can be obtained from the Pipe Motor Co., 173, Shaftesbury Avenue, W..

Comfort in Saddle Suspension.

Most riders agree that Brooks saddles are the last word in comfort and excellence of manufacture, and the main reason for the comfort provided is the use of the Brooks special patent compound spring



Brooks's compound saddle spring.

for the saddle suspension. It is a spring within a spring, and although most seasoned riders do not need to be reminded of its excellent qualities, yet newcomers to the pastime may well be advised to try its comfort-giving properties.

Recent B.S.A. Successes.

After the great success of the B.S.A. motor cycles in the Irish End-to-end Trial comes further evidence of the reliability in the shape of B.S.A. victories in the Sutton Coldfield and Streatham hill-climbs. In the Sutton competition K. Holden, with a B.S.A. and sidecar, was first on time and formula in Class VII. and did fastest time of the day for sidecars, and in the Streatham hill-climb M. C. Breeze secured three firsts and two seconds in the sidecar class. Again, on August Bank Holiday, at New Brighton track, G. W. Baker won the three miles championship of the north in 3m. 36⅘s. on a 3½ B.S.A.

Plantation Rubber for Tyres.

So many people are interested from the investment point of view in the use of plantation rubber for tyre making that it is interesting to note that the Dunlop Rubber Co., Ltd., are the largest users of plantation rubber in the British Empire. Contrary to the general impression, the use of this rubber in the production of tyres is no new thing, and its valuable properties have long since been demonstrated by ample road and track experience by the Dunlop Company.

The Enfield Two-speed Gear.

It may not be generally known that the Enfield gear can be obtained on several machines other than the Enfield. This gear was fitted to the Levis machines used in the T.T. and Calthorpe Cup Trial, to the winning Matchless in the Scottish Speed Championship, and to the Motosacoche on which F. W. Applebee won a gold medal in the A.C.U. Six Days Trial.

Catalogues Received.

Indian riders will find the catalogue of spare parts which has just been issued by the Hendee Manufacturing Co., Ltd., to be of great use to them.

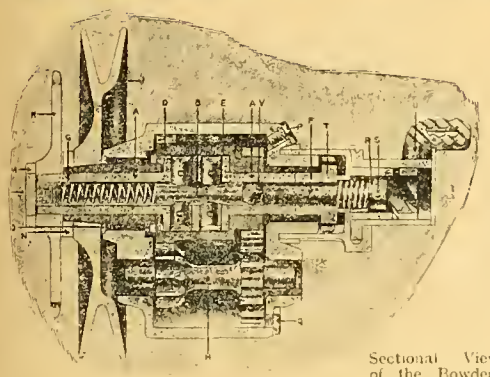
We are in receipt of the latest catalogue of Godiva sidecars, from the Godiva Sidecar Company, Limited, Conduit Works, Fleet Street, Coventry. Two models to which we would specially call our readers' attention are the C1, a particularly handsome attachment with a well upholstered body, and the model P, which is a racing model.

We have received a booklet concerning Broadmead motor car paints, varnishes, polishes, etc., issued by Hall's Auto Paint and Varnish Company, 175, Pancras Road, N.W. The book contains some interesting hints on renovating and touching up light cars and motor bicycles.

Dunkleys, Ltd., Jamaica Row, Birmingham, have forwarded us their latest catalogue of motor cycles and sidecars, and so well got up is it that we advise all prospective sidecarists to apply at once for a copy.

The latest edition of the Book of the 6 h.p. Royal Enfield Sidecar Combination has reached us, and a copy may be obtained from the Enfield Works, Redditch, free of charge, by any Enfield owner, to whom it should prove a veritable *vade mecum*. Every conceivable hint on how to obtain the best results from this well-known combination is to be found in the pages, which are profusely illustrated.

20 per cent Cheaper



Sectional View of the Bowden Two Speed Gear.

East Boldon, Co. Durham,
July 6th, 1914.

"I am pleased to say the Bowden 2-speed gear is perfect and the machine climbs with sidecar twice as well as before fitting. The kick starter is such an improvement. Wishing you every success with your gear.

(Signed) Vivian F. R. Clark.

OWING to improved manufacturing facilities the cost of production has been so reduced that we are now able to supply the standard

BOWDEN
Two Speed GEAR

at a cost of only £8-8-0

instead of £10 10 0. The cost of the models specially designed for Triumph, B.S.A., and Bradbury machines is reduced from £11 0 0 to £9 0 0.

Write for Complete Particulars.

BOWDEN WIRE LTD.,
London
Pratt Street, N.W.

Godbold

M.C.C. Devon Hill-Climbing Tour:

1 Zenith entered and completed the course.

Westmoreland M.C.C. Fixed Gear Trial:

Zenith—**FIRST.**
Zenith—**Tied SECOND.**

Streatham M.C.C. Hill-Climb at South Harting:

Full official results—Zenith gained

4 FIRSTS
3 SECONDS.

Penrith M.C.C. Speed Trials: Zenith gained

4 AWARDS in 3 CLASSES.

WEEKLY WINS

in all parts of the country, and in all classes of competition

STRONGLY EMPHASISE

the sterling merits of

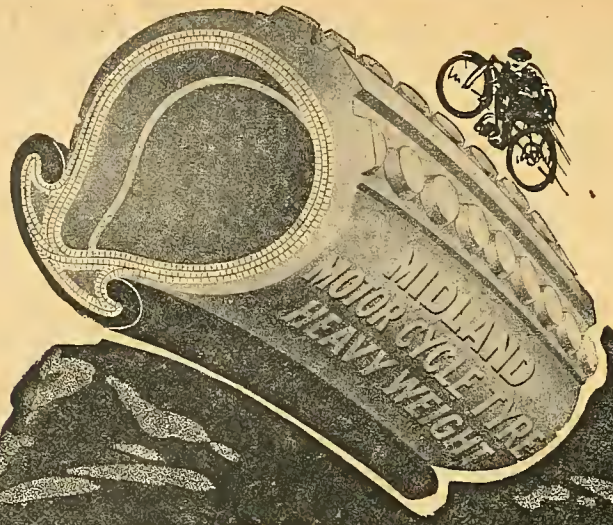
ZENITH

MOTOR CYCLES

The GRADUA GEAR—which gives infinitely variable gear ratios by merely moving a handle—has much to do with these, for *all* races, records, and competitions, successes are secured on machines fitted with this standard equipment.

ZENITH MOTORS, LIMITED,
HAMPTON COURT, ENGLAND.

Spare Parts in London of Robertson's, Gt. Portland Street.



HILL CLIMB for DOBSON TROPHY

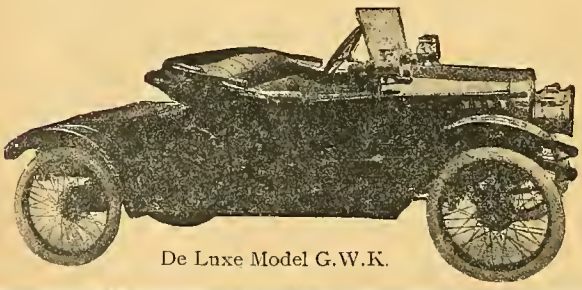
Fastest Time

in the above trial was made by Mr. Andrew Downie, of Edinburgh, whose team gained third place. All the principal teams in Scotland competed. Mr. Downie writes: *re* Midland Tyres and Belt which he used: "Both did splendidly. There was no stretch in the belt and I never required to tighten same."

ON MIDLAND

TYRES AND BELTS.
THE MIDLAND RUBBER Co., Ltd.
HEAD OFFICE & WORKS: Ryland St., BIRMINGHAM.
LONDON DEPOT: 31-34, Eagle Street, Southampton Row, W.C. Coventry Depot: Priory Works, New Buildings. Glasgow Depot: 451, Eglinton St. Cardiff Depot: Plymouth St. Milan Depot: Via Sirtori 6. Amsterdam Depot: 50, Lange Leidsche Dwaars Straat.

Taking it Easy



De Luxe Model G.W.K.

THE driver of a G.W.K. has an easy time: he just sits back comfortably and steers — and even that's easier than with most cars. He doesn't trouble about hills, however steep. Why should he? The G.W.K. friction drive gives him "a gear for every gradient," so he takes every hill with ease. Gear changing is simplicity itself. No "timing" is necessary — no "double clutching." He simply moves the gear lever and gets the gear he wants — gets it easily and silently. The G.W.K. driver doesn't worry about the "going," for, with its low centre of gravity, the G.W.K. always holds the road well — dry, wet, or rough. If the weather prove unkind, the hood can be raised in a second or two — a one man job — and the driver continues on his way completely protected, doing his 20, 25, or 30 miles an hour with clock-like — almost monotonous — regularity. Like to try the car yourself? A Postcard will fix up a trial run.

The 8h.p. G.W.K.

2-cyl. water-cooled
4 speeds and reverse.

Standard Model £150 Completely Equipped.
De Luxe Model 150 gns. Completely Equipped.

G.W.K. Ltd. Home Works, Datchet, Bucks.
'Grams: "Cars, Datchet." 'Phone: Windsor 331

In answering these advertisements it is desirable to mention "The Motor Cycle."

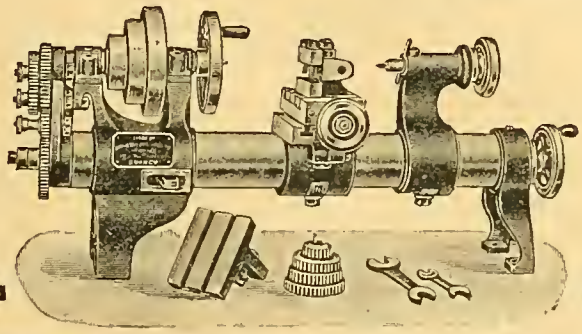
"We lose the Good we oft might gain by fearing to attempt it."—*Shakespeare.*

Many motor cyclists—although they realise the great amount of time wasted when they require renewals or repairs to be done—hesitate before undertaking them themselves.

If they thoroughly realised that with a "Drummond" 4in. centre lathe, costing **£5 10 0**, they could turn, screw-cut, mill, drill, and bore, and that Drummonds will give them free instruction on any knotty point regarding the uses of their lathes—they would hesitate no longer, but start a small workshop with one of these unique lathes as a basis.

They would gain time, money, and an added knowledge of their machine.

DRUMMOND Bros., Ld.
- - - - - - Guildford.



SPENCER MOULTON TYRES
TOUTLY ADE READS
SATISFACTORY ILEAGE OTALS
SAVE MONEY HEREBY

Spencer-Moulton Motor Cycle Tyres are made in four types: Plain Ribbed, Three Ribbed, Combination, and Steel Studded. The tread—the point of greatest friction and wear—is doubly and specially strengthened; only the finest material is embodied in the manufacture, and every tyre is subjected to minute examination before being despatched.

Illustrated booklet will be sent free on request to all readers of "The Motor Cycle."

GEORGE SPENCER, MOULTON & Co., Ltd. Works: Kingston Mills, Bradford-on-Avon, Wilts.

London: 77-79, Cannon St., E.C. Glasgow: 65-67, Bothwell St. Manchester: 237-9, Deansgate. Leeds: 68, Albion St.
Dublin: C. E. Jacob, 184, Gt Brunswick Street. Belfast: 38a, Queen Street. Cork: King Street.

P.C.B. 5.

PRATT'S PERFECTION — SPIRIT —

STANDS OUT

from all other fuels by reason of its superiority, latest proof of which is afforded by the striking and phenomenal successes in the CLASSIC RACES OF THE YEAR.

BY APPOINTMENT.

ANGLO-AMERICAN OIL CO., LTD.,
36-38, Queen Anne's Gate, London, S.W.

C.D.C.

Design
Accuracy
Strength & Reliability
Highest Quality Materials
Workmanship & Honest Value
THE FOUNDATION OF SUCCESS

F&S BALL-BEARINGS

TORMO MANUFACTURING CO.,
67-68 Bunhill Row, London, E.C.

SUMMER

Huile De Luxe

Sole Mfrs.: Prices' Company Ltd.

was used by Mr. R. CREAK DAVIS on a Chater-Lea, No. 7, who won the Silver Cup for the best sidecar performance in the A.C.U.

Six Days Trial.

Huile de Luxe was also used on Clyno, A.J.S., Enfield, and James sidecar motor cycles, all of which gained Gold Medals in this strenuous contest

The best for twin-cylinder sidecar engines.

The 1914 Lists give the prices of Oils in drums

PRICES' COMPANY LIMITED,
BATTERSEA, LONDON, S.W.

FOX'S IMPROVED PUTTEES
"F.I.P."

NEW NON-FRAY *SPIRAL* (Patented)
The best leg gear for SPORT.

including Cycling, Motoring, Bobsleighing, Ski-ing, Climbing, Walking, Golfing, or Shooting.

Made in various qualities and colours. Shade cards on application.

For Gentlemen, Ladies, and Children

Prices from 5/6 to 8/6 per pair, without Spats, and 8/6 to 13/5 per pair, with Spats. If detachable Spats, 1/- extra.

Every pair labelled "FOX."

Patentees and Sole Manufacturers—
FOX BROS. & Co. Ltd., (Dept. N.)
Wellington, Somerset.

Agents for the United States—
MANLEY & JOHNSON, 260 & 266, West Broadway, N.Y.

Motor Cycles, etc.

PANIC PRICES.

In consequence of war, we have marked down our prices considerably for cash only. Now is the time to buy right.

TERMS, CASH ONLY.

½ h.p. Twin **MINERVA**, M.O.V., with £11 Milltord Sidecar £14 10
5-6 h.p. **EXCELSIOR**, big single, chain drive £35 0
6 h.p. **CLYNO**, with Sidecar, lamp, speedometer, luggage box £28 10
6 h.p. **CLYND**, 1912, with coach Sidecar £38 0
3½ h.p. **HUMBER**, 1911 model, 2 speeds, handle starting, with new £11 10s. coach Sidecar ... £27 10
6 h.p. twin **REX**, free engine, magneto, complete with Sidecar £18 10
3½ h.p. **PREMIER**, 1912, 2-speed model, with new £12 Sidecar £32 10
6 h.p. **REX** Sidette, 1913 model, coach £14 Side car, F.R.S. lamp £39 10
3½ h.p. **PREMIER**, 1914, 3-speed model, only run 100 miles, with new £12 coach Sidecar £52 10
1914 **CALTHORPE** Minor Light Car · cost £178 : very little used £139 10
7-9h.p. twin **PREMIER**, 1914, chain drive model .. £75 0
3½ h.p. **PREMIER**, 1914, 3-speed, chain drive model £63 10
6 h.p. **REX** Sidette, speedometer, nice condition, cost £80 ..... £38 10
3½ h.p. **PREMIER**, 3-speed model £32 10
7-9h.p. twin **PREMIER**, chain drive, nearly new .. £62 10
3½ h.p. **VINDEC**, magneto £12 10
3½ h.p. **HUMBER**, 1911, 2 speeds £21 15
3½ h.p. **TRIUMPH**, 1908, free engine £20 0
3½ h.p. **HUMBER**, 1911, with new £11 coach Sidecar, 2 speeds £32 0
3½ h.p. **PREMIER**, 3-speed, nearly new £35 0
3½ h.p. **QUADRANT**, magneto £12 10
1912 **RUDGE** Multi £26 15
3½ h.p. **HUMBER**, 1914, 3-speed model, nearly new, with £11 coach Sidecar £52 10
3½ h.p. **QUADRANT**, new, 1912 model £24 10
2¾ h.p. **MINERVA** M.O.V. £7 10
1913 **REX** Sidette ; cost £80 ..... £45 0
3½ h.p. **KERRY**, 1910½ model £16 10
3½ h.p. **REX**, 1911 model £17 15
4-cylinder **F.N.**, magneto £16 10
3½ h.p. **REX**, splendid 1910 model £16 10
AUTO-WHEEL and Cycle, nearly new £12 10
3½ h.p. **REX**, 1909 model, magneto £14 10
3½ h.p. 1908 **REX**, free engine £10 10
3½ h.p. **PREMIER**, 1913, 3-speed model, with £11 coach Sidecar £45 0
6 h.p. **REX**, 1913, with £12 coach Sidecar £35 10
Twin **CLEMENT-GARRARD** £7 10

PUSH CYCLES TAKEN IN EXCHANGE.

ARMSTRONG MARK VII. 3-SPEED GEARS.
Fit one to your machine. We will supply for cash or take goods in exchange.

PRECISION ENGINES.
We have a good stock of 4½ h.p. big singles and other models. Let us take your under-powered engine in exchange and be up-to-date.

1914 BINKS JET DAMPING CARBURETTER.
Let us take your carburetter in exchange. Write for quotation. Puts new life into your engine.

MISCELLANEOUS.

3½ h.p. Centaur Engine, M.O.V., with silencer and magneto £4 15 0
2 h.p. Lightweight Engine 30 0
6 h.p. J.A.P. Engine, good order £5 5 0
New pair Saxon Spring Forks £1 7 6
New 21/- Electric Tail Lamp, brass 4 3
New Glare Electric Side Lamp ; cost 25/- 5 0
New Glare Electric Moto. Cycle Head Lamp ; cost 12/6 ..... 4 11
Douglas Carburetter, h.b. control 11 6
T.T. Handle-bars, best quality, plated 6 6
New Sidecar Body, side door 28 6
6 h.p. Water-cooled Fafnir Engine £4 10 0
Silent Silencers, 6½ × 3½in. 2 9
4½ h.p. Precision Engine, nearly new £11 17 6
New Weather-proof Magneto £3 5 0
New Tee-Bee Kick-up Stands, usually 10/6, fit any machine 6 0
B. and B. Carburetter, h.b. control 13 6
Set of Castings for heel brake 1 0
N.S.U. Gear, latest adjustable pulley, fit Triumph or Bradbury.
New Mark VI. 3-speed Gear £5 5 0
Kerry Free Engine Clutch, suit Jap £1 7 6
Bosch Magneto, to suit Triumph £2 2 6
Cowey Speedometer £1 17 6
New Coach-built Sidecar Body side door £3 15 0

BOOTH'S MOTORIES,
Portland Place, Skircoat Road, HALIFAX.
(Opposite County Court.)
Telephone 1062.

MOTOR CYCLES FOR SALE.

Bradbury.

BRADBURY, 1914 models, and sidecars; exchanges wanted, keen quotations. — Collier's, Westgate, Halifax. [0445

BRADBURY, late 1910, just re-bushed, enamel, plate, good as new, spare valve, piston rings; £20.—Stereos, 64, Hill Rd., Wimbledon. [6183

4 h.p. Bradbury, 3-speed, counter-shaft gear, kick starter, chain drive, solo or sidecar machine; 59 gns.—Cordingley, Haslingden. Tel.: 102. [X7820

BRADBURY, 4h.p., nearly new, complete with accessories, in excellent running order; £20, or best cash offer.—9, Avern Rd., West Molesey, Surrey. [6231

BRADBURY, 4h.p., nearly new, complete with accessories, in excellent running order; £20, or best cash offer.—9, Avern Rd., West Molesey, Surrey. [6263

BRADBURY 1912 4h.p. Standard Model, £25; also a 1911 at £23; both complete with accessories and guaranteed.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0551

BRADBURY, 3½h.p., 1913, fitted with N.S.U. 2-speed gear, belt drive, kick starter, Godiva coach-built sidecar, in fine condition; £42.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [5747

1913 3½h.p. Bradbury, 3-speed, Sturmey-Archer gear, kick start, head light and generator, Lucas horn, Jones speedometer, rear light, Dunlop heavy studded on front, Dunlop heavy studded on back, Dunlop belt, all accessories, torpedo cane sidecar, wind screen, Dunlop tyre and luggage carrier, perfect condition throughout, been little used; £47/10.—Apply, 2, Welbeck Rd., Birkdale, Southport. [5761

Brough.

BROUGH, 1914, horizontal twin, 2-speed model, capital order, little used; £40, or near offer.—Layton's, Bicester, Oxon. [6298

BROUGHS.—Immediate delivery from stock of the 500 c.c. horizontal twin 2-speed overhead valve models.—The West Lancashire Motor Co., Southport. [0555

BROUGH, 1914, 6h.p., 2-speed, kick start, chain drive, brand new; £75; buyer secures £15/15 Canoe-let sidecar to match gratis.—West Lancashire Motor Co., Ltd., 10, Hoghton St., Southport. [0575

B.S.A.

B.S.A., 1914¼, 4h.p., 3-speed model, guaranteed; offers invited.—F. Napier, Empire, Blyth. [X7803

B.S.A., 3½h.p., F. engine, as new, in perfect condition; £35.—Byfleet Automobile Co., West Byfleet. [6012

B.S.A., 1914 models in stock, and good delivery.—Chilow Gray, Ltd., 2, Albemarle St., Piccadilly. [0468

B.S.A. Specialists.—Every 1914 model in stock, sidecars, motor and pedal; easy payments.—Riggs, 107, Bishopsgate, London. [X7446

B.S.A. 1914 Models in stock, ready to ride away; best terms for cash or exchange, from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0492

B.S.A., 3-speed, 1914 (belt), perfect, uncratched, new Palmer cord, light car tyre on back; £48.—Write, Box 6,507, *The Motor Cycle* Offices, Coventry. [X7808

B.S.A., 1914, 4h.p., 3-speed counter-shaft model, used 200 miles only, perfect condition; cost £65, any reasonable offer.—Layton's, Bicester, Oxon. [6299

B.S.A., February, 1914, 3-speed, chain drive, 4h.p., 3 lamps, horn, complete, spares, with Canoe-let sidecar, perfect order; £60.—Button, Stewart St., Crewe. [X7775

1913 3½h.p. 2-speed B.S.A., chain driven model, magnificent order, excellent sidecar machine; absolute bargain. £37.—Parker and Son, St. Ives, Hunts. [0534

B.S.A., absolutely the sidecar machine, model 4h.p. with sidecar, immediate delivery, £77, complete; all B.S.A. 1914 models in stock for delivery; exchanges.—Cordingley, Haslingden. Tel.: 102. [X7821

Calthorpe.

CALTHORPE, 1914, 2h.p., 2-speed, practically new, perfect condition.—Clay, 35, Newarke St., Leicester. [X7779

CALTHORPE Junior, 2in. tyres, new; £23/10.—Box 6,540, *The Motor Cycle* Offices, Coventry. [X7419

2h.p. Calthorpe Junior, 2-speed, 1914 model, only used a few times, shop-soiled; £21.—Turvey and Co., The Motor House, Sunderland [X6819

CALTHORPE Junior, 2-speed, climb anything, economical, guaranteed perfect, under 150 miles; bought Scott; £21/10, or close.—44, Cavendish Av., Eastbourne. [6264

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CENTAUR, 1913, brand new, 2h.p. lightweight; bargain, £25, original price £35.—Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter. [0520

CENTAUR, 1913, brand new, 2h.p. lightweight; bargain, £25, original price £35.—Exeter Motor Cycle and Light Car Co., Ltd., 28, Tavistock Rd., Plymouth. [0570

Chater-Lea.

CHATER-LEA, 8h.p., 1913, not ridden 3,000 miles, 3in. Palmer cord tyres, 3-speed gear box, chain drive and clutch, all accessories, lamps, electric horn and speedometer, etc., also handsome sidecar, coach-built, fitted with hood and screen; cost £120, sacrifice £65.—22, Hargrave Rd., London. [6087

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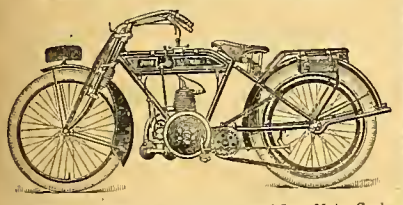

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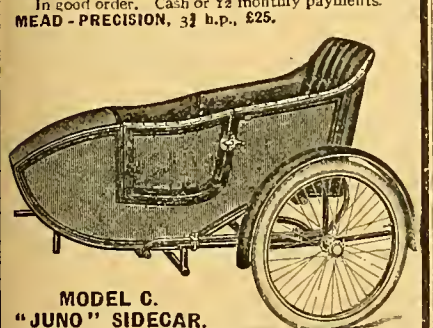

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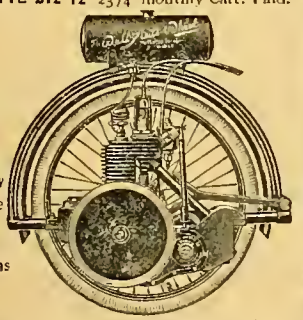

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N.S.U., 3½ h.p., 2-speed, spring forks	£19	10
N.S.U., 3 h.p., 2-speed, spring forks	£16	10
N.S.U.. 3 h.p., magneto, spring forks	£12	10
REX, 5½ h.p. 2-speed, magneto	£24	10
REX, 3½ h.p., 1909 Tourist	£19	10
REX, 3½ h.p., 1908 Tourist, spring forks ...	£17	10
REX, 3½ h.p., 1908, Roc clutch	£19	10
REX, 5½ h.p. twin, magneto	£16	10
REX, 5½ h.p., magneto, twin, handle starting	£17	10
REX, 5½ h.p., magneto, 1908 model	£19	10
ARIEL, 2¾ h.p., mageto..	£15	10
MOTOSACOCHE, magneto, lightweight	£13	10
CLEMENT-GARRARD, vertical engine	£5	15
CORONET, 4 h.p., M.O.V.	£3	15
BRADBURY 2¾ h.p. vertical.....	£8	15

— EXCHANGES QUOTED.

PERFECTION Sidecars .....from £5 5s.

List on application. Trade enquiries welcomed.

MOTOR CYCLES FOR SALE.

Lea-Francis.

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

Levis.

2¼h.p. Levis Baby, just arrived; £33/10.—Cordingley, Hasliagden. Tel.: 102. [X7827

LEVIS, 1914, 2¼h.p. Baby model, excellent condition; cash price, £25.—Layton's, Bicester, Oxon. [6301

LEVIS, 1914 models, from £33/10; exchanges quoted by return.—Collier's, Westgate, Halifax. [0388

2¾h.p. Levis, 2-speed, counter-shaft gear, just arrived; £47/10.—Cordingley, Haslingden. Tel.: 102. [X7826

LEVIS 1914 Models in stock, ready to ride away.—Cash or exchange, from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0552

Lincoln Elk.

LINCOLN-ELK, 3½h.p., 1913, 2-speed, free engine, kick starter, fitted with Bramble coachbuilt sidecar, good condition; £35, bargain; owner buying car.—37, Treadgold St., Notting Hill. [X7235

Little Giant.

LITTLE Giant, 2h.p., 2-speed, 25 gns. Come and have a demonstration run, any time.—Longman Bros. and Aitken, wholesale and retail agents, 1, King St., Acton. [6144

L.M.C.

L.M.C., 1911, 3½h.p., 2-speed gear, handle starting, sidecar, and accessories; £25.—P. J. Evans, John Bright St., Birmingham. [X7750

L.M.C., 2¾h.p., Binks, new Michelin, footboards, adjustable pulley, Hellesens, splendid little machine, been very little used; £15.—76, West St., Harwich. (D) [6160

Matchless.

NEW 7h.p. Matchless, mag., 3 speeds, in stock; £75.—Cross, agent, Rotherham. [X7777

1912 6h.p. Matchless and sidecar, V.S. 2-speed gear, perfect condition, smart; £37.—Stag Works, East Finchley, N. [6214

MATCHLESS-J.A.P. (twin), 1913, 3-speed, Projectile light, coachbuilt sidecar, as new; £55.—6, Festing Grove, Southsea. [6167

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378, Euston Rd., and 173, Gt. Portland St. [7287

MATCHLESS, 6h.p., 1910, single gear model, good order; clearance price, bargain, £24.—Layton's, Bicester, Oxon. [6302

MATCHLESS, 1913½, 6h.p., Gradua, perfect order, new tyres; £45; entertain lower power part.—61, Church St., St. Helens. [6182

8h.p. Matchless (belt), and Canoelet sidecar, new June, all spares, excellent order; owner bought cycle car; £55.—B. Turner, Coldstream. [X7319

1913 8h.p. 2-speed Chain Drive Matchless and Matchless coachbuilt sidecar, perfect condition, with accessories; £62.—Harold Petty, 32, King St., Leicester. [6061

1913 8h.p. Chain Drive Matchless, complete with commercial sidecar, speedometer, Lucas lamps, horn, etc., bought September last; any trial given; £75.—Apply, Shimeld Bros., Leicester. [X7580

7h.p. Matchless, chain drive, 3 speeds, and free engine, also coachbuilt Matchless sidecar, the most silent motor cycle made; £92/17; ready to drive away.—Cordingley, Haslingden. Tel.: 102. [X7828

Minerva.

MINERVA, 1911, 5h.p. twin, and sidecar, F.E., Bosch mag., B. and B., recently overhauled, good tyres; a bargain, £25.—Jeffery, c/o McQueen, 12, Whitecross Place, Wilson St., E.C. [6288

Motosacoche.

1913 Motosacoche Lightweight, brand new machine; £25; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0548

New Hudson.

NEW Hudson, 6h.p., 3 speeds, almost new, only used about 1,300 miles, complete with fitments and sidecar; £70.—Turpins, Preston Rd., Brighton. [0511

1912 New Hudson, 2½h.p. J.A.P. engine, 3-speed gear, new Palmer cord cover back, studded front, B104 saddle, very good condition; £21.—Robinsons, Green St., Cambridge. [0523

NEW Hudson, 1913 (late), 3½h.p., 3-speed gear, used very little, and in perfect condition, with coachbuilt sidecar, a very fine medium powered outfit; £52.—Colmore Depot, 49, John Bright St., Birmingham. [6295

1913 New Hudson, coachbuilt sidecar, 3-speed and free engine, engine just thoroughly overhauled, new bearings fitted, first-rate order, all accessories; £45.—Mince, Mount Green, Milnrow, Lancs. (D) [X7412

NEW Hudson, 1912-13, 3½h.p., 3-speed, free engine, 10/6 whistle, new P. and H. lamp set, nearly new coachbuilt sidecar (4 points), spare cover, mirror, horn, spares, tools, perfect order; £45, or nearest.—19, Broadwater Av., Letchworth. [6262

ROBERTSONS MOTORS LIMITED.

NEW 1914 MOTOR CYCLES.

DOUGLAS, Model "B"	£62	0
B.S.A., 3½ h.p., 3-speed, chain drive	£63	0
EDMUND-M.A.G., 3½ h.p., twin-cyl., 2-speed, spring frame	£63	0
TRIUMPH, 4 h.p., 3-speed	£60	0
DOUGLAS, Model W	£52	0
ZENITH, 6 h.p., clutch model	£75	12
DOUGLAS, Model V	£48	0
NORTON, 3½ h.p., T.T. Roadster	£50	0

BRAMBLE, IVY, MILLFORD, DALTON, and SIDETTE

SIDECARS.

NEW 1913 MOTOR CYCLES.

ZENITH, 3½ h.p., clutch model	Reduced to	£47
ZENITH-GREEN, 3½ h.p., water-cooled ..	,,	£43

SECOND-HAND

1914

1576.	**INDIAN,** 2-speed	£56
1569.	**ROYAL ENFIELD** and Sidecar, large lamp and horn, spares, etc.	£74

1913

	ALCYON, 2 h.p.	£24
	ALCYON, 2½ h.p.	£29
1581.	**DOUGLAS,** Model R	£40
1580.	**RUDGE-MULTI** and sidecar	£44
1533.	**S.S.A.,** 3½ h.p., 2-speed	£42
1565.	**HENDERSON,** 8-10 h.p., 4-cylinder	£55
1553.	**INDIAN,** 7 h.p., 2-speed	£48
1433.	**REGAL,** 4½ h.p., 1912 frame, 2-speed	£32
1542.	**ZENITH,** 6 h.p.	£45
1572.	**ZENITH,** 8 h.p., special competition machine, large tank, etc.	£56
1566.	**B.S.A.,** 1913-14, Special, fitted with Armstrong 3-speed gear, and large tanks	£45

1912

1457.	**HENDERSON,** 7 h.p. F.E.	£39
1582.	**ZENITH,** 6 h.p., and sidecar	£45
1579.	**MATCHLESS,** 6 h.p. F.E.	£35
1575.	**BRADBURY,** 3½ h.p.	£25
1578.	**BRADBURY,** 3½ h.p.	£27
1430.	**F.N.,** 5-6 h.p., 4-cylinder, 2-speed, and Sidecar	£29
1453.	**ZENITH,** 8 h.p., and Sidecar	£46
1542.	**ZENITH** 6 h.p.	£42
1567.	**ZENITH,** 6 h.p., T.T. roadster	£39

1911

1545.	**CHATER-J.A.P.,** 2½ h.p.	£16
1478.	**ZENITH,** 3½ h.p.	£26
	— ALSO —	
1571.	1910 **DOUGLAS,** 2¾ h.p.	£15

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FINE MACHINES.
MODERATE TERMS.
NO DEPOSIT.

TELEPHONE: MAYFAIR, 5767.

157a GREAT PORTLAND STREET, W.

MOTOR CYCLES FOR SALE.

New Hudson.

NEW Hudson, 4h.p., 1913, Canoelet sidecar, V.M. Pillion seat, Armstrong 3-speed gear, clutch, lamps, horns, new tyres, spares include tube, new cover, retread cover, belt, plug, new valves, etc., well worth seeing; £45, complete.—Butterworth, 61, Duckworth St., Darwen, Lancs. [X7780

New Imperial.

NEW Imperial Lightweight, 2 speeds; 31 gns.; in stock.—118, Hampstead Road. [6197

NEW Imperial J.A.P., 2-speed, 31 gns.; Calthorpe Junior, 2-speed, 25 gns.; both for immediate delivery.—Julian, 84, Broad St., Reading. [X7718

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

Noble.

NOBLE, 1909, 3h.p., good tyres and belt, excellent order; £14.—P. J. Evans, John Bright St., Birmingham. [X7783

Norton.

1914 3½h.p. 3-speed Norton, equal to new, ridden only 400 miles, complete with P. and H. lamp, horn, etc.; £50.—Parker and Son, St. Ives, Hunts. [0496

N.S.U.

BARGAIN List.

ONE 2h.p. N.S.U. Single-cyl. Lightweight, complete with 2-speed gear and free engine, 1913 model, shop-soiled; £30 net.

ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, complete with 2-speed gear and free engine, 1914 model; £32 net.

ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, complete with under-geared pulley, 1912 model; £25 net

ONE 3½h.p. N.S.U. Single-cyl. Motor Cycle, complete with h.b.c. 2-speed gear and free engine, 1914 model, shop-soiled; £48 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0538

N.S.U., 3½h.p., 2 speeds, free engine; 15 gns.—Captain Hyne, Brunswick Sq., Camberwell. [6269

N.S.U., 6h.p., powerful twin, 2 speeds, F.E.; £17.—Speechley, 45, Church Rd., Acton. [6258

£26.—2½h.p. 2-speed N.S.U., practically new, accessories.—Perkins, Market Place, Wokingham. [6175

N.S.U.'s in stock, immediate deliveries; exceptional terms. Write to us and you will save money.—Parker and Son, St. Ives, Hunts. [0493

N.S.U., 3½h.p., mag., 2-speed, free engine, with canoe front sidecar, fully equipped; £18.—57, Fregrove Rd., Caledonian Rd., Holloway, N. [6276

N.S.U., 3h.p., Brooks B105 saddle, in constant use, Hellesen ignition; ride away; bargain, £9.—Griffin, 41, Bowling Rd., Ware, Herts. [X7330

N.S.U. 6h.p. Twin and sidecar, 2 speeds, Bosch, Amac, nearly new tyres and belt, perfect combination; £15/15, or lightweight, or cycle and cash.—Peat, 127, Trentham St., Southfields, S.W. [6277

N.U.T.

EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

O.K.

O.K., 2-speed, 2h.p.; £30; in stock; trial machine, ready.—118, Hampstead Road. [6198

Perfect.

1914 Perfect, 3½h.p., 3-speed, coachbuilt sidecar; £40, offers; would separate.—156, Ladypool Rd., Birmingham. [X7774

P. and M.

P. and M., 3½h.p., and wicker sidecar, good running order, F.E., 2-speed; £20.—White, Confectioner, Wokingham. [6169

1914 P and M. Motor Cycles; delivery from stock; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0545

P. and M., new, and uncrated; owner unable to take delivery; list price £65; for immediate sale; what offers?—No. 6,561, *The Motor Cycle* Offices, Coventry. [X7719

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

Precision.

PRECISION Junior, 2-speed model, quite new; cost £27, bargain, £22/10.—Bunting, Harrow. [X7847

1914 4¼h.p. Precision, U. and I. sidecar, new May, 3-speed Sturmey, hood, accessories; £50, lowest.—Halsted, Sun St., Hitchin. [X7335

4¼h.p. 1913 Precision and C.B. sidecar, Armstrong gear, Druids, Bosch, Avons, B.B. carburetter, perfect; £38.—95, Repplingham Rd., Southfields. [6148

6h.p. Precision Twin, late 1913, new, complete with Eisemann mag., and silencer; £17/10, or nearest offer, cost £27.—The St. Vincent Motor and Cycle Co., Ltd., 161-169, North St., Glasgow. [X7726

MOTOR CYCLES FOR SALE.

Zenith.

ZENITH-GRADUA, 3½h.p. twin, counter-shaft, in stock; 59 gns.—Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter. [0505

3½h.p. Zenith and sidecar, in excellent running order, first-class engine; owner bought car; £27, or near offer.—Capt. Barnes, Heatherdene, Fleet. [0576

ZENITH-GRADUA, 3½h.p. twin, counter-shaft, in stock; 59 gns.—Exeter Motor Cycle and Light Car Co., Ltd., 28, Tavistock Rd., Plymouth. [0568

ZENITH 1914 Machines in stock, ready to ride away; best terms for cash or exchange, from Elce and Co., 15, Bishopsgate Av., Cannomile St., E.C. [0491

1913 8h.p. Zenith, large head light and generator, good tyres, and belt, spares, practically new torpedo cane sidecar, all complete, little used; cost £90, accept £63/10.—Apply, 2, Welbeck Rd., Southport. [6290

ZENITH Cycle, 7h.p., kick starter, 1913½, Miller lights, Cowey speedometer, Millford coachbuilt sidecar, good as new, less than 3,000 miles; cost over £100, best offer accepted.—Percifred Harrison, Dentist, Coventry. 'Phone: 1039. [0576

Miscellaneous.

ONE 3½h.p. Lincoln-Elk, 1912 model; £20 net.

ONE £14/14 Bramble Sidecar, shop-soiled only; £10/10 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0537

1914 P. and M., 3½h.p., absolutely new; immediate delivery; price £65.

1914 Scott, 3¾h.p., new immediate delivery; price 65 gns.; also Gloria sidecar, reduced, price £14.

1914 Rover, 3½h.p., new; immediate delivery; price £58; also Gloria sidecar, reduced, price £14.

1914 Douglas, 3½h.p., slightly used; immediate delivery; list price £62, what offers?

SEVERAL good second-hand motor cycles for sale at clearance prices; Ariel, Rudge, Calthorpe, Imperial Precision, etc.

ALSO a few good coachbuilt sidecars; offers entertained.

FURTHER Particulars on application to The Dumfries Motor Co., Ltd., English St., Dumfries. [X7607

5-6h.p. Motor Bicycle and Sidecar, coil; bargain, £18.—34, Hereford St., Hull. [X7369

EAGLES.—Bradbury, 4h.p. (89×89), N.S.U. 2-speed gear, free engine, with Phœnix £14/14 sidecar; £32, or separately.

EAGLES.—N.S.U. 6h.p. twin, 1911, m.o.v., Bosch, latest pattern spring forks, 2-speed gear, fine sidecar machine; £30.

EAGLES.—Bat-Jap, 6h.p., 1912-13, chain drive, 2 speeds, with clutch, kick starter, and Gloria coachbuilt sidecar; any trial; £47/10.

EAGLES.—Motosacoche, 1911, 2h.p., m.o.v., Bosch, variable gear, free engine, Druid forks; £12/10.

EAGLES.—6h.p. Bat-Jap, 1911, spring frame, excellent condition; £27/10.

EAGLES.—Premier, 1912, 2¼h.p., Armstrong 3-speed gear, free engine, new condition; £24/10.

EAGLES.—Radco, 1914, 2¼h.p. 2-stroke, slightly used, as new; £19/10

EAGLES.—N.S.U. 6½h.p. twin, late 1913 late-t improvements, 2 speeds, free engine, spring frame, drip feed lubrication, gear controlled from handle-bar, kick starter, Millford's Corvette coachbuilt sidecar, new condition, all accessories; £52; any trial.

EAGLES.—Alldays Matchless, 3½h.p., late 1912, 2 speeds, free engine, footboards, with coachbuilt sidecor; £35.

EAGLES.—N.S.U. 6h.p. twin, 2 speeds, free engine, coachbuilt latest pattern sidecar, all accessories; £40.

EAGLES.—Kerry-Abingdon, 3½h.p., late 1912, 2 speeds, free engine, new condition; £28/10.

EAGLES.—Motosacoche, 2½h.p., late 1912, variable gear, free engine, fine condition; £19/10.

EAGLES.—N.S.U., 3½h.p. (85×88), special T.T. model, very fast; £22; new condition.

EAGLES.—Triumph, 1912 clutch model, with Philipson pulley; £33.

EAGLES.—Any of the above can be had on approval, "The Motor Cycle" deposit system, or deferred payments arranged.—Eagles and Co., High St., Acton. Tel.: 556 Chiswick. [X7797

3½h.p. Motor Cycle, mag., genuine Triumph engine, all necessories; £15/10, a bargain.—169a, Lower Clapton Rd., N.E. [X7769

F.N. Engined 2¾h.p. Lightweight, Bosch mag., B. and B. carburetter, in sound running order; £12.—Byfleet Eng. Co., West Byfleet. [6013

IF You Want Bargains in second-hand motor cycles you can get them at Wanchope's (cash or easy terms), 9, Shoe Lane, Fleet St., London [X9705

SEVERAL Second-hand Magneto Motor Cycles, Bradburys, F.N.'s, B.S.A., Triumphs, etc.; cash or exchange.—Young, Bury Rd., Newmarket. [5921

GET IT AT TAYLORS

WE are Sole London and District Agents for the famous A.J.S. Motor Cycles. Winner of the 1914 T.T. Both Trade and Retail supplied. Also Special Agents for Clyno, Williamson, Enfield, Triumph, Douglas, and the popular Wall Auto-wheel. Official Stockists for Rex Spare Parts, and Sole London Agents for the F.B. two-stroke.

1914

MACHINES IN STOCK

WILLIAMSON 8 h.p. Combination, w.c.	£105 0
LEA-FRANCIS, 3½ h.p.	£68 5
P. & M. 3½ h.p., 2-speed	£65 0
DOUGLAS, 2¾ h.p., model U	£48 0
F.B., 2½ h.p. 2-stroke	£26 5

1914 SIDECARS.

MILLFORO Corvette	£12 12 0
MONTGOMERY Coachbuilt	£10 10 0
GLORIA No. 5	£23 2 6

THIS WEEK'S BARGAINS

WILLIAMSON 1914 Combination, used only for demonstration run; cost £105	£93 0
INDIAN Hendee Special 1914 Combination, hardly used, self-starter	£78 0
HUMBER, 1914, 3½ h.p., water cooled, and splendid coachbuilt sidecar, nearly new	£85 0
DOUGLAS 1914, 2¾ h.p., Model W, run only 1 500 miles	£42 0
DOUGLAS, 1914, 2¾ h.p., Ladies' Model, run 700 miles, a bargain	£44 0
HENDERSON, 1913, 8 h.p., and 1914 coachbuilt sidecar	£65 0
WANDERER, 1913, 3 h.p. twin, spring frame, hardly used, cost £45	£18 10
P. & M., 1912, 2-speed	£37 10
REX DE LUXE, 1911, 5 h.p., 2-speed, and sidecar	£26 0
TRIUMPH 1911, clutch model	£24 0
TRIUMPH 1911, 2-speed, and coachbuilt Sidecar	£32 0
ZENITH, gradua gear, and Sidecar	£31 0

WANTED

good, sound, second-hand motor cycles to sell on commission. Cheque paid promptly when sold.

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Special arrangements have been made for the prompt supply of MOTOR CYCLES, ACCESSORIES, CLOTHING, and SPARE PARTS for MOTOR CYCLIST VOLUNTEERS. Our Midland representative will personally attend to all spare parts for machines from manufacturers direct when temporarily out of stock in London.

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MOTOR CYCLES FOR SALE.

Miscellaneous.

TRIUMPHS (1914), Douglas, Clyno, B.S.A., Indian, Ivy, New Hudson, from stock; carriage paid anywhere. Try us.—Clifford Motories, Eastwood, Notts. [6174

SEND for Clearance List of motor cycles; Rovers, Singers, Triumphs, Douglas, American Excelsior, Rudges, Norton, etc.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [6270

INDIAN, 1914, T.T., Lucas lamp, horn, etc., 12 gn. sporting sidecar, £52, bargain; Triumph, 1913, F.E., lamp, horn, etc., spare bars, bargain, £32/10.—125, Malden Rd., New Malden, Surrey. [6170

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

FOR Sale, 6h.p. twin and sidecar, Whittle belt, B. and B., h.b.c. carburetter, new Dunlops, Chater-Lea spring forks, No. 2, as new; owner no time for riding; sacrifice £24.—Apply, W.B., 4, Danbrook Rd., S.W. By appointment. [6222

PROMPTEST Delivery of any make of motor cycle on our easiest deferred payment system. Exchanges entertained. Our experience at your disposal. Tuition free. Please favour us with a postcard.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [0533

ONE 1914 Scott, 8 weeks old, done 800 miles, £48; one 1912 Triumph, free engine, and sidecar, £35, or offers; one 1912 T.T. Rudge, £25; one 1913 Douglas model W, £33; one 1914 new Scott, shop-soiled, £60; one 1910 3½h.p. standard Brown, £14; one 1914 3h.p. Enfield, shop-soiled, £38.—Attwoods Garage, Eccleshall, Staffs. [X7724

1914 4h.p. Free Engine Triumph, as new, racy, all accessories, £57; 1914 5-6h.p. Ariel and sidecar, 3-speed, lamp, speedometer, etc., as new, in wonderful tune, £80, no offers; Radco 2-stroke, just out of crate, £23; Minerva, 1¾h.p., good condition, £5/10; Minerva engine, 2¾h.p., £3/10; Taylor engine, 3½h.p., £3/10; lightweight motor cycle, less engine, £3/10. Chater-Lea.—Apply, 1, The Broadway, Muswell Hill. [6147

IF You Want a reliable mount at a low price, call or write to Morgan and Maxwell, The General Motories, 80, High Rd., Streatham. Alldays, Aatoines, Bats, Bradburys, Campione, Centaurs, Douglas, Enfields, F.N.'s, Humbers, Indians, J.A.P.'s, New Hudsons, Rexes, Rudges, Scotts, Triumphs, Zeniths. We have B.B., Sensspray, Binks carburetters, magnetos, engines, tyres, plugs of all makes, tools, tubes, Albion, Roc, Mabon, and other clutches and gears. Write us your requirements, and we will do our best to satisfy you. We have recently supplied several machines for military purposes. We can supply you with a reliable motor cycle or cycle car. [X7842

THE South-Eastern Garage (late Palmer and Kitson), Ilerne Hill Station, London, S.E., offer the following bargains, which are all guaranteed to be in perfect running order: 1910 6h.p. 2-speed N.S.U., £20; 1913 Williamson, W.C., and 2-seat. sidecar, £60; 1912 Kerry-Abingdon, 2-speed, and sidecar, £35; 4h.p. Roc, 2-speed, sidecar, £22; 1911 2-speed Douglas, £22; 1909 2-speed Triumph, £26; 3h.p. Quadrant, £8; 2h.p. 1914 Calthorpe, 2-speed, £22; 2¼h.p. 1914 Douglas, 2-speed £40; 6h.p. 1914 counter-shaft Zenith, £56; 3½h.p. 1912 Ivy-Precision, £25; 1908 3½h.p. Antoine, F.E., £12; 1914 4h.p. Wolf, 3-speed, £45; 1913 3½h.p. Ariel, T.T., £35; 6h.p. 1911 Matchless, £30; 3½h.p. 1912 Triumph, £33. 1913 Kendall cycle car, 8h.p. J.A.P., hood, screen, £70. Sidecars from 35/-. Accessories—New Mabon clutch, suit lightweight, £2; Triumph pattern bars, all 5 controls, 25/-; 5-6h.p. w.c. engine, U.H. mag., Stewart-Precision carburetter, suit cycle car, £9; 3h.p. Minerva engine, £3; carburetters, horns, inner tubes, covers, belts, etc. Write for lists.—South-Eastern Garage, as above. [8451

MOTOR CYCLES, ETC., FOR HIRE

FOR Hire, sidecars, 7/6 per day, £1 per week.—Rey, 378, Euston Rd., and 173, Gt. Portland St., W. [4975

MOTOR Cars and Cycle for hire, day or week; terms on application.—Rey, 378, Euston Rd., and 173, Gt Portland St., W. [4974

TRICARS FOR SALE.

TRICAR, water-cooled, 4h.p., 2-speed gear; trial, examination, any time; £15; part exchange considered.—16, North Rd., Saltash. [X7414

SIDECARS AND FORECARS.

MELVILLE Sidecars, Halifax.—Melville Sidecars, Halifax.

SHOULD a Firm who absolutely manufacture sidecars from A to Z be able to give the maximum value at the minimum price? This granted, you cannot afford to pass us for anything sidecarish. We contend we have more variety and give infinitely better value than is offered elsewhere. It's easy to prove. Send for lists (which will clinch the argument and make a satisfied customer). Hoods, wind screens, bodies, chassis, luggage grid, etc.—Melville Sidecars, Halifax 'Phone 999 [X1703

MILLS-FULFORD Sidecar, wicker body, quick joints; £3/10.—169a, Lower Clapton Rd., N.E. [X7770

4¼h.p. Ivy-Precision, torpedo sidecar, nearly new.—Grove 224 Fore St., Upper Edmonton. [X7354

100

NEW AND SECOND-HAND MACHINES

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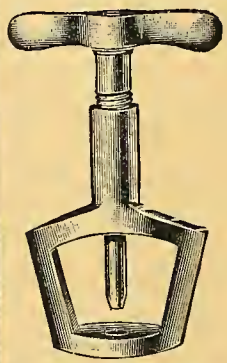

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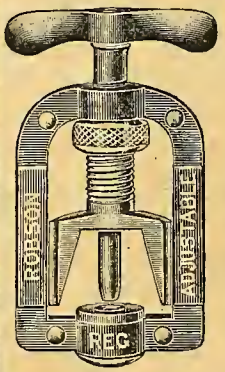

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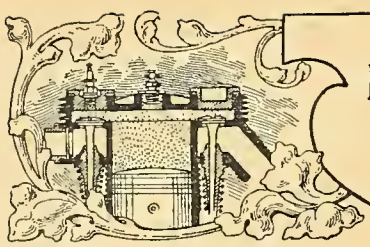
"Carry On."

THE simple and noble advice of the Chancellor of the Exchequer should be the watchword in every office and factory during this crisis. Every possible nerve should be strained to keep the trade flag flying, for the pennant of the merchantman is as vital to our life as the ensign of the battleship. No army or nation can fight or even exist on an empty stomach, and if there is any state into which the country may sink which would be more favourable than another to our foes it would be the state produced by vast bodies of artisans being cast out of employment for a prolonged period. Therefore it is necessary for each and every manufacturer to keep his doors open to the last possible instant, and not to rush to close through any sudden scare or panic. With the industry with which this journal is more intimately associated there should be no reason why work should not run on normal lines for some time to come, and, indeed, if affairs go well with us and our allies in the struggle there is no reason why the motor cycle industry should be seriously inconvenienced at all. Large Government orders have already been secured, and a great number of new machines have been snapped up by enthusiastic volunteers, and it is inevitable in the course of time that many of these machines will require replacing and many further new ones will be acquired. Surely, then, this is sufficient reason why manufacturers should build for stock. The trade has had two years of great prosperity and is in a better condition than ever before to shed a few immediate profits. It must also be remembered that when large numbers of new machines are wanted they will be wanted *immediately*. Any delays in delivery would be fatal. This is a vital reason why reasonably sized stocks might well be accumulated. Thanks to the efficiency of our Navy, the usual trade channels are open, so that the demand for motor cycles in the Colonies and Overseas Dominions should be sustained, and, indeed, we are bordering upon the period when the demand for Overseas mounts is most pronounced, and our great trade rivals ready to take advantage of it.

We hear of a number of important firms of motor cycle manufacturers who, having considered the crisis most carefully from every standpoint, have decided to keep on manufacturing steadily, having sufficient confidence in the quality of their products to know that sooner or later the demand for them will be brisk. After all, with the present shortage of horses due to the demands of the Army, power-propelled vehicles are bound to be pressed into service for a hundred and one different purposes. Business men, doctors, travellers, farmers, and veterinary surgeons are sure to take up the motor cycle in increasing numbers, and as regards the sidecar the field for this type of machine would appear to be even more pronounced. By the simple expedient of changing the type of body, business men have in the sidecar outfit a reliable low-priced vehicle costing little to run and able to perform hard work over scattered areas day in and day out. Even if petrol supplies did become scarce the owner of the business sidecar would suffer least on account of the economy in petrol consumption of these handy three-wheelers. Manufacturers who had not realised the new openings for their goods automatically brought about by war conditions should at once give attention to these subjects and other possible developments in order to cope with the demand.

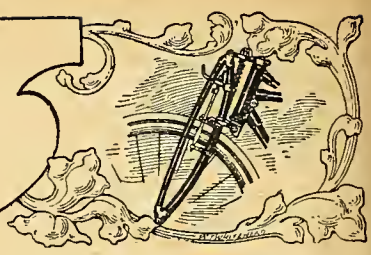
The country generally becomes calmer every day, and there is promise, and indeed a strong likelihood, that business will approach its normal scale in the near future. During war there must naturally be anxieties and difficulties for those engaged in international trade, but one feels that there has been a little too much nervousness displayed. The country, we are told, is full of food and full of money, and, therefore, we appeal to motor cycle manufacturers in general to assist in the prevention of unemployment, and remember that the welfare of the nation is governed by the welfare of the individual.



Hints for Beginners.

FIRST INSTALMENT:

The Arrival of the New Mount.

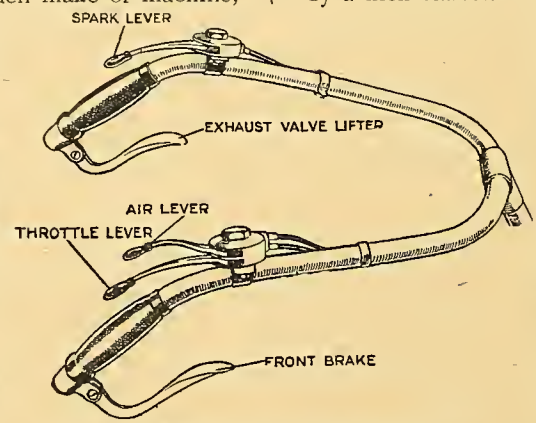


THE popularity of the motor cycle is increasing by such leaps and bounds that there must be nowadays hundreds of owners who have a very limited knowledge of the mechanical working of their machines. This is a high proof of the reliability of the modern motor cycle, but it is obvious that the owners could save themselves much trouble and considerable expense if they were in possession of a few elementary facts concerning the care and running of their mounts. It is for this class of owner, and for the prospective purchaser who is not imbued with mechanical knowledge, that the following notes are written, and the expert will find little to interest him unless some of the simple tips remind him of troubles in the days gone by. As it would be obviously impossible to give separate directions for each make of machine, it is necessary to generalise, and the advice given will be found suitable for most fairly modern machines.

The First Things to be Done.

The first thing to do on taking over a new machine is to study carefully the booklet which is usually supplied by the makers for any hints applying specially to that particular make to be found therein.

Before any attempt to start the engine is made, a thorough inspection should be carried out, and any loose nuts, bolts, etc., should be carefully tightened, but not over-screwed, as this may damage the threads.



A typical handle-bar showing usual position of controls.

See that the number-plates and any accessories are firmly fixed and will not vibrate or rattle and that the tyres are properly inflated. Test the riding position, and, if uncomfortable, make any slight alterations that are possible to ensure maximum comfort.

Now fill up the tanks, taking care that the drain tap is closed. Only a high-grade lubricant should be used. The bicycle parts should be lubricated, and, if the engine has not been previously run, two or three charges of oil should first be injected into the crank case and the pump refilled so that another charge may be injected slowly when the engine has been started. It is a good plan when dealing with a new engine to mix a full tablespoonful of oil with each gallon of petrol in the tank. This is apt to make the carburetter a little oily, but this does no harm and the mixture helps to lubricate the piston, which is often rather tight when new.

Starting the Engine.

Now test the throttle and air slides of the carburetter and see that they are working freely, and then set the throttle lever about a quarter open and the air closed. Advance the spark lever for about two-thirds of its range, and turn on the petrol and slightly flood the carburetter by pressing down the small knob on the float chamber. Then inject a few drops of paraffin or petrol into the cylinder. A fixed gear model must be placed on the stand, and the engine revolved by the pedals with the exhaust valve lifter raised. As soon as the engine is turning over freely the exhaust lift lever should be released and the engine should fire. If a gear be incorporated with the machine, the method is usually to place the lever in the high gear notch, depress the clutch pedal, and proceed as before except that it is not necessary to place the machine on the stand, and the pedals will probably be replaced by a kick starter. These remarks do not apply to all types of gear. If the engine will not fire, examine the plug points and high tension wire terminals, and see that they are clean and firmly attached. Then disconnect the lower end of the petrol pipe and see that the flow is quite free. It is quite likely that the engine will fire unevenly and emit black smoke from the silencer, in which case gradually open the air lever till these symptoms cease. Now take a seat on the machine and get accustomed to the feel of the controls (especially the brakes), but *never* race the engine running light, as this may quickly cause much damage.

If no clutch is fitted it is best to push the machine until it attains a fair speed and then release the exhaust lifter, taking care to be in such a position that it may be quickly raised again if the machine starts too fast. A machine with no clutch or pedals may sometimes be started on the stand by smartly pulling round the back wheel, but this is not advisable for the novice as it is easy to hurt one's hand on the mudguard.

Some Useful Driving Hints.

No amount of written instruction will teach an owner to drive perfectly, as it is a matter of "feel," confidence, and practice, but there are a few simple suggestions which may help to put the beginner on the right road. Keep your spark as far advanced as possible provided the engine does not knock. Give as much air as possible, provided the engine does not begin to run slower, misfire, or spit back through the carburetter. If the engine knocks on a hill slightly close the air lever, should knocking continue retard the spark lever. If the engine labours, change to a lower gear ratio.

Occasional Comments by "IXION"

The Latest Speed Dodge.

I was inspecting a rather special engine the other week when its owner offered to bet a small assembly of experts that none of them could guess the means by which its high rate of revolution was obtained. The secret—when he disclosed it—turned out to be aluminium alloy pistons in conjunction with phosphor bronze piston rings, and the cognoscenti were appropriately surprised. I wonder if many of our track experts have tried the dodge. It is, of course, common knowledge that many aviation engines have phosphor bronze rings, and I have heard it claimed that they generate less friction than the normal type, and do not gum up quite so badly. We may see them on standard touring engines yet.

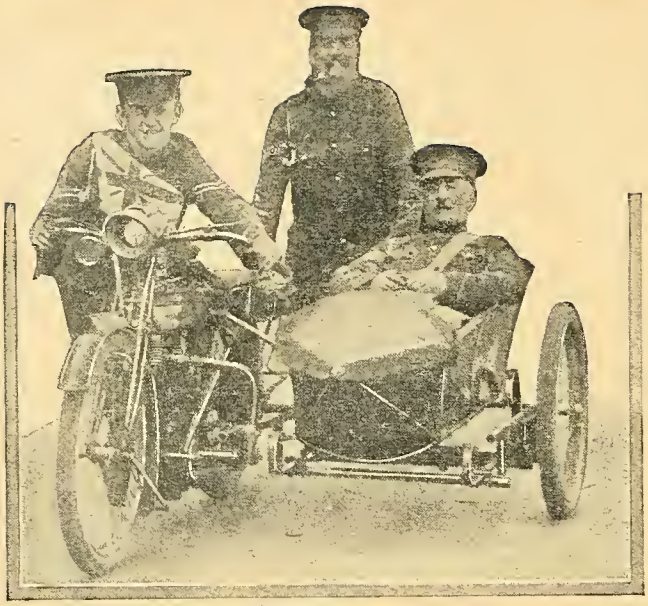
Electric Lighting.

One consequence of the standardisation of electric lighting dynamos (during the seasons of 1915 and 1916) will be a tremendous increase in night riding. At present, though motor cars are habitually used at night by the majority of owners, motor bicycles are comparatively seldom seen out after dark. The reasons are not wholly concerned with lighting problems; you can go to a ball or dinner or theatre very comfortably in a car, but the conventional costume is hardly suited to motor cycling. Then 50% of the cars on the road are driven by chauffeurs well practised in night driving; whereas, the average owner of both motor car and motor cycle has done little night work and is secretly rather nervous about it. However, lighting problems bulk very large in the contrast. Motor cycle generators are small, and can only give a steady and prolonged illumination in skilful hands. Motor cyclists have often little leisure and do not care to face the mess of cleaning a generator for the sake of a short evening spin. I found that the adoption of dissolved acetylene more than doubled the annual distance of my night riding, for it eliminated dirt and anxiety. I have no doubt that the standardisation of dynamo lighting will have a similar influence on thousands of riders within the next two years, and I hope the increased popularity of night work will react upon our warning and direction posts. It is already a simple matter to ride by night in familiar localities, but I find it very tricky work to tour in the dark, even if by "tour" I mean nothing more exacting than adding twenty or thirty miles to a day's spin which has carried me into unfamiliar districts. The road ahead requires much closer study; warning posts are practically invisible; a glance does not reveal the difference between a main road and a by-way at a fork ahead; signposts and milestones easily slip past unperceived; and the dazzle of the gas lamps in towns prevents one from sighting the direction boards fixed to buildings. One hopes that a huge influx of night riders would inspire the authorities to adorn all road direction posts and plates with green reflex mirrors or other helps to route-finding by night.

Detachable Wheels.

Long experience of mending punctures had made me rather contemptuous of detachable wheels on solo machines—their superiority on sidecar outfits is naturally obvious. However, the other week I modified my scorn a little. I was riding a machine thus equipped, and with characteristic hauteur I was about to mend the inevitable puncture with the wheel in the forks. At the last moment I decided to have the wheel out, wickedly hoping I might find something to criticise. Actually, there was a very marked increase

All motorists, except those with local numbers, are stopped at the Birmingham city boundary for identification purposes. In the photograph, a constable is seen examining the licence of a Matchless sidecar owner.



A Rover sidecar combination which is attached to the Warwickshire Yeomanry. It regularly carries three.

in comfort and convenience. I took the wheel to a comfortable bank of turf eight feet from the edge of the road, and dangled it on my knee in luxury. I bounced the wheel to shake off the accumulated grit, instead of laboriously mopping out the cover with a damp rag. When the tyre was back in the rim I bounced the wheel as a preventive of nips, instead of hurting my fingers by "rolling" the edge of the cover. Moreover, as the cover in question was brand new, of large section and incredibly stiff, I was very glad to have a decent chance to get three levers to work on it—a job that is awkward with a fixed wheel. Altogether, I returned home a determined convert, and full of the conviction that my 1915 utility hack must have detachable wheels at any cost.

Notched Ringed Pipe Unions.

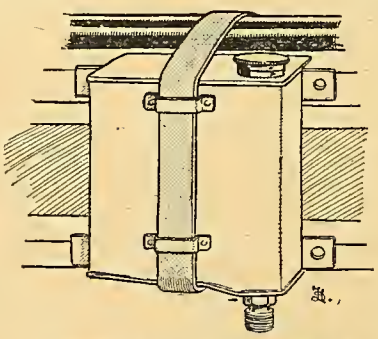
It would be interesting to hear a practical engineer's defence of the notched ring pipe unions so dear to some designers. For my own part I have conceived an inveterate prejudice against them. I never liked them on exhaust pipes, where they most frequently occur; the tiny hook prong on the C-ended removing tool always snaps off as soon as the heat and rust have tightened the threads up, and, until it snaps, you have to change the bolt about a dozen times to shift the union. After it has snapped, you rejoice that your conscience is temporarily free to knock the abomination loose with a punch and a hammer; until the punch removes all edge from the notches, and then you fall to cursing and buy the biggest pair of gas pliers imaginable! Joking apart, a hexagonal union on which a wrench can exert even pressure all the way round is surely more convenient and mechanical. When I get a double union of this type on the inlet pipe of a twin, supplemented by a spanner which does not fit it, I dissolve into tears.

Twin-cylinder inlet unions certainly take a bit of designing. It is difficult to get a pair of big hexagonal nuts to register with dead truth. The split pipe with a crampbolt is easy to handle, provided you can slide the carburetter stub sufficiently far along it to stop air leaks; and this is awkward, because you cannot clump any part of a carburetter with a mallet. Give me for preference the two-nut flange fitting as employed on the 1914 Douglas.

Petrol Consumption Trials.

A Suggestion for the More Effective Holding of Club Tests.

FOR some time it has been felt that the split second and secret check method of finding a winner in reliability competitions left much to be desired and robbed such events of much of their enjoyment, hence many excellent means have been devised to differentiate between the performances of those who have made non-stop runs, such as flexibility and acceleration tests, stopping and starting on hills, brake tests, etc., and, were it not for the difficulty of measuring the spirit correctly, petrol consumption might well be regarded as a final test of efficiency. It is, however, by no means easy to measure the petrol in an ordinary motor bicycle or cycle car tank with the instruments usually at hand; inequality of the ground, the expansion of the spirit over a hot engine, and other varying factors may all account for small inaccuracies which may well affect the result considerably.



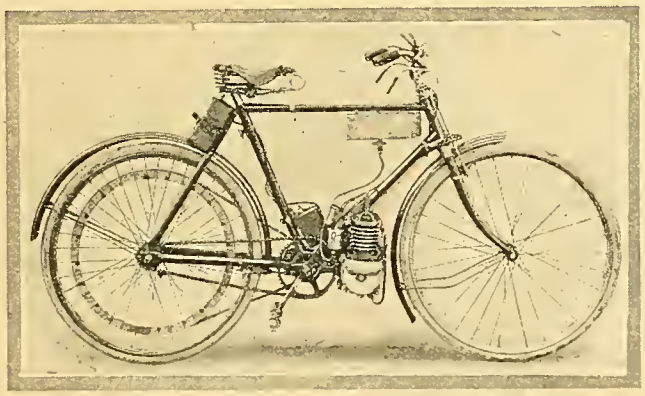
A suggested form of petrol container suitable for attachment to existing motor bicycles, or, by means of screws, to the dashboard of cycle cars.

In view of these difficulties we suggest that the A.C.U. should acquire a moderate number of small supplementary tanks holding, say, a quart of spirit. These could be made quite cheaply, and should be so designed that they could easily be fixed temporarily to motor cycles and cycle cars, and should slope at the base in such a way as to ensure that the last drop of spirit should find its way into the carburetter, preferably through a flexible tube. The A.C.U. could then hire the tanks out to clubs for their competitions. We believe that many clubs which could not afford to purchase a supply would gladly hire these tanks. Elaborate finish and fittings would be quite unnecessary: if a bracket shaped like an inverted L were attached to one side to keep them from slipping down, the tins could be strapped to the side of the petrol tank, a piece of felt having been placed between to prevent scratching. The competitors' machines could then be run to a standstill, and the results calculated on the A.C.U. consumption formula.

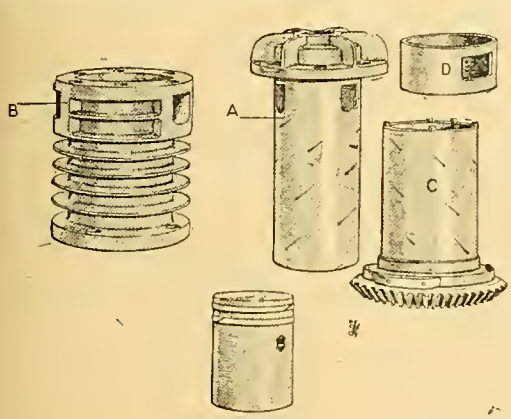
A Miniature Rotary Valve Engine.

An Unusual Design for a Lightweight.

ALTHOUGH the rotary valve has received a certain amount of attention from car manufacturers, it is seldom that any attempt has been made to adapt it to an air-cooled motor cycle. The advantages of silence and positive action are usually considered to be annulled by the difficulty of lubrication and complexity of operation. Thus it is particularly interesting to examine the design of Mr. Tooth, of Humber Road, Coventry, which the inventor has produced with the idea of obtaining the advantages without the drawbacks.



A motor-assisted bicycle, fitted with a rotary valve engine



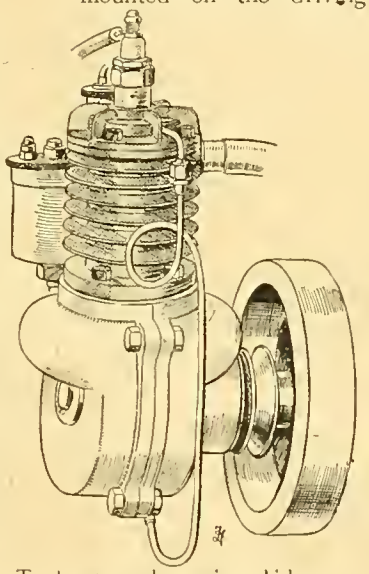
The engine, showing valve gear mechanism and cylinder. The lettering is referred to in the description.

A "Teacup" Engine.

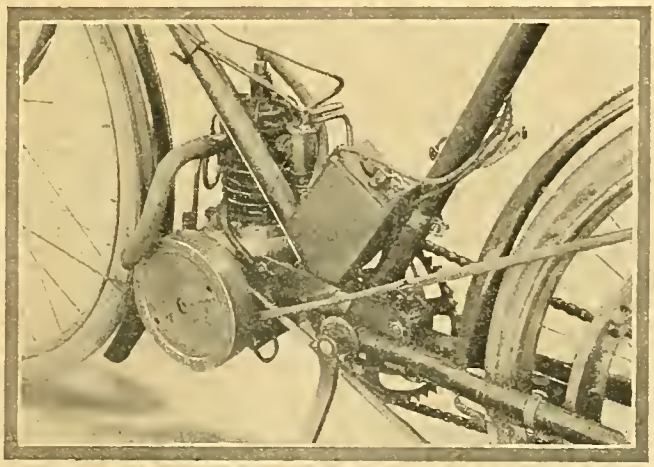
The first engine in its experimental form is a genuine lightweight and is attached to an ordinary pedal cycle by two flat clamps holding the down tubes close to the bottom bracket. The tiny engine has a bore of 38 mm. and stroke of 44.5 mm., giving a cubic capacity of 50.5 c.c., and its construction is most interesting. The cylinder proper A, in which the piston reciprocates, is carried by a flange joint at the head, which is bolted to the outer casing B, which, in its turn, is fixed to the crank case in the usual manner. Between these two members lies the driving sleeve C, which carries on its lower face a bevel driven by a half-sized bevel on the crankshaft. The rotary motion of the sleeve is conveyed to the valve ring D by means of dowel pegs shown on the upper face of C. These engage with corresponding holes in the valve ring, and an odd peg prevents the ring being mounted incorrectly. The crankshaft is built up and runs on plain bearings throughout, and an outside flywheel is mounted on the driving end of the shaft.

Lubrication is by splash, but a by-pass leads from the base chamber to the valve sleeve and thus keeps it thoroughly lubricated, while both the cylinder and driving sleeve have a series of holes and grooves which assist in distributing the oil over the moving surfaces.

The valve ring is quite plain, and has a single port which registers in turn with both the inlet and exhaust ports, which are formed in the cylinder and outer casing and set at 90° to one another.



Tooth rotary valve engine, which, as will be seen, has an outside flywheel.

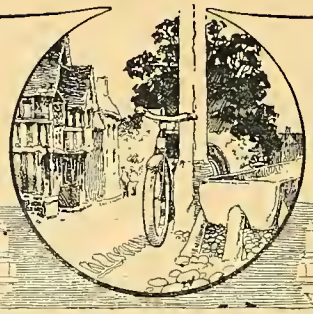


The tiny engine, showing the method of fixing it in the frame.

At the present time coil and dry battery ignition is utilised, a segment being mounted on the base of the driving sleeve and making contact with a variable point on the crank case.

On the experimental machine the drive is through a round belt, which is crossed so as to give a good friction surface on the small front pulley. On test no trouble has been found with the lubrication, and we have seen the little motor running very steadily.

Scott, Morgan, and F.N. in Ireland.



Being the Adventures of Three Tourists.

THERE were three of us. After a prolonged discussion of a suitable place for spending our annual week's holiday, we ultimately decided to try Ireland.

Accordingly, on a certain fine night in July we assembled on board the boat at Fishguard, whence we were bound for Rosslare. Since our last year's trip one of us had rung down the curtain on his youth, and, eschewing two wheels, was now the proud possessor of a Morgan runabout; the other still had his Scott, while I was again pinning my faith to my old four-cylinder F.N.

Having arrived at Rosslare the following morning, we did not hurry off the boat, but first had a comfortable breakfast and about 8.30 took train for Wexford, there being no proper road from Rosslare.

Wexford to Dungarvan.

At Wexford we secured petrol at the station, and then took our machines to a garage to have a few jobs done, while we had an early lunch.

Our destination that day was Cork, *via* New Ross and Waterford. We soon had a taste of Irish roads, and the jolting proved too much for the Morgan's chains, which, no doubt by way of protest at being too slack, jumped off. It was, however, quite a pretty run at the start by the side of the water. A steep descent took us into New Ross, but there is nothing much that calls for comment till Waterford is reached. There we left the Morgan to have its chains repaired while we refreshed our inner man with tea before continuing on our way to Dungarvan. After Waterford there are some stretches of good road followed by very bad parts, and we sped and bumped along amid pastoral scenery with pretty views of the surrounding hills. Arrived at Dungarvan we halted on the bridge crossing the river, and on re-starting the driver of the Morgan, trying to show off before the admiring crowd collected round my F.N., dashed in his clutch with a bang, and thereby sheared all the bolts off his chain wheel! We tried to look as if we had no connection with him, but he had our luggage and it meant staying the night in Dungarvan.

Dungarvan to Cork.

On the morrow we were gratified to find that the local garage had made an excellent repair of the Morgan. The job had taken till 4 a.m., so the mechanic informed us. We were indeed fortunate in finding so self-sacrificing an artificer. Glengarriff was our ultimate aim, and ten o'clock saw us *en route* for Cork. A good but dusty road with a long ascent, with a fine view of the Knockmealdown Hills, and we arrived at Youghal. After that town, however, there is not much to note till Cork is reached. Here we lunched. The country is pretty and pastoral between Cork and Macroom, and for the first ten miles or so the road is a good one.

Tyre Troubles and an Accident.

In Macroom we replenished our tanks and had but just started when the cycle car front tyre burst. There was a nasty hole in the cover, but we patched it up temporarily, and on a winding road in the midst of lovely wild moorland scenery we ambled on through Inchegeelah. About four miles beyond we were in "trouble." There are some exceedingly tricky corners, and round one of these the Scott, which was leading, met a priestly cyclist and his brother riding abreast on the wrong side of the road. The brother's head tried conclusions with that of the driver of the Scott, met him well beneath the chin, knocked him backwards off his machine, and then collapsed on top of him.

We can joke about it now, but at the time, when we came up we received a horrible fright, and it was serious enough in all conscience. There lay the two machines, their front wheels absolutely interlocked, while stretched beside the roadway was a prostrate form with our companion, a nasty gash on his cheek, and a priest bending over it. We procured water from a little cottage close by, a sponge was produced, and it was our companion, full of theory, who administered first aid to his unconscious victim. Eventually we put our patient into the Morgan and the driver conveyed him slowly back to the hotel at Inchegeelah, while our victim (whose machine had miraculously escaped vital injury, though badly battered), the priest and I followed them up. The Morgan was certainly "having its day," for after putting our patient on to a couch, our companion rushed off in it to fetch a doctor. The doctor was out, but was tracked down out in the wilds, some ten miles from Inchegeelah, at the house of the parish priest, and borne triumphantly back. The patient's injuries proved more sanguinary than serious—slight concussion, a beautiful black eye, and a severe shaking.

The incident closed with a particularly pleasant dinner in the company of the priest and the doctor. Several knotty Irish problems were settled that evening, and dawn was all but due when we reluctantly saw our friend the doctor, who had proved to be the very best of fellows, off home on a bicycle and retired to bed.

Our victim of the accident of the day before in the morning asserted that his jaw had been broken and his neck dislocated; moreover, owing to facial disfigurement, he was forced to grow a beard. The other

complained of a bit of a "head," due as he put it to the "spiritual" strain of upholding the honour of England the previous evening. Things pointed decidedly to a quiet day, so we lounged about Inchegeelah, which is a pretty little village, till the doctor turned up. He found both his patients "doing well," and after paying a visit with him to the "local dispensary," we bade good-bye to our many friends of misfortune, and were soon once more gingerly negotiating the corner of yesterday's *contretemps* on the road to Glengarriff.

Beautiful Scenery.

The lakes which break upon your gaze soon after leaving Inchegeelah are wondrously peaceful and beautiful, and contrast strongly with the rugged grandeur of the Keamaneigh Pass. Before ascending the Pass which winds away before you, take the road to the right that leads to Gonganebarra. There, full of folk lore and tradition, surrounded by mountains, lies a wild and sombre lake, whose dark waters encircle St. Finbar's sacred Isle. Then, returning, continue up the narrow winding way of the Pass which, with the turbulent rocks on either side, becomes even wilder as you ascend. The gradient is by no means steep, but there are many tortuous turnings, and the surface of the road is very loose. But who would wish to scorch through such scenery as this? We certainly should not. On descending, the road improves, but the dust was stifling. Just at the foot of the Pass there is a fine old ruin, Carriganess Castle, by the side of a tumultuous stream; later one has many a fine view of Bantry Bay and Glengarriff Harbour with their surrounding mountains. With many a halt to gaze upon the glorious panorama we continued our way on a road winding up and down, till a somewhat steep descent brought us into Glengarriff. We had put to our credit only twenty-eight miles, but we had found our way to the very heart of the scenery. After a somewhat late lunch we strolled down to the bay for a bathe.

Boating and Bathing.

Surely Glengarriff Harbour must be one of the most beautiful spots in the world. Surrounded as it is by mountains, with its many verdant islands fringed with yellow seaweed and capped with the bright green foliage of the trees and with its lovely little bays and creeks, it has a certain unique beauty all its own.

We hired a boat, and Pat Murphy (our boatman) took us to a beautiful sunny isle, from which, hot and dusty, we dived into the cool clear waters of the bay. A glorious bathe in one of Nature's most heavenly gifts. Afterwards, as we basked in the sun and smoked our pipes in contemplation, we vowed we must return to Glengarriff.

Tyre Repairs.

The Morgan's front tyre had upset its owner's nerves, and he was up soon after six o'clock next morning to do a little patching.

We two strolled down to the bay for a dip, and then, in order to chasten his spirit, we went on to the garage to tell our hard-working companion of its delights.

By the aid of a thick piece of saddle leather under the hole in the outer cover, a strap bound tightly over the outside, he had effected a rather neat repair. We congratulated him and took him into breakfast.

It was nearly noon before we were on our way to Killarney, dodging donkeys as we ascended a somewhat loose road to the tunnel at the top of the Pass, a rise of about a thousand feet. Ah! but what grand sights you will see across Glengarriff Harbour and Bantry Bay beyond! Stop and enjoy them to the full.

The Morgan on board the boat at Cork.

In Glengarriff Bay.

The little village of Sneam

It was hereabouts that my companion on the Scott snapped the Morgan "*at speed*," giving it, as he sarcastically remarked, a "time exposure." It is a fine run down to Kenmare with a straight stretch toward the end, where, if you have a mind to it, you can do some speed work. About a mile this side of Kenmare the Morgan punctured its other front tyre. As the driver was carrying our luggage we decided to wait and *listen* to him mending it.

After a good lunch at Kenmare, we then made a clean ascent to Windy Gap (the road is somewhat loose, but for a single track machine it serves), where a typical old Irish dame insisted on being recompensed with a shilling, because, forsooth, we had taken her photograph.

Instead of bearing off to the right after Windy Gap, we kept straight on, and had gone about five miles on the road to Sneam ere we discovered our error. We retraced our steps, or rather our revolutions, until the Morgan's damaged tyre gave way, resulting in a few idiomatic phrases and necessitating a new inner tube. It is these little breaks that give to us onlookers time

for the peaceful pipe and opportunity to realise fully the beauties of Nature.

And this puncture, with the Kerry Hills all around us, was particularly pleasant for us two soloists.

A Close Shave.

"One close shave necessitates another." Our friend's beard had made considerable progress since his accident, and he decided next morning to have a close shave of another, though equally painful, kind.

Lough Leane had seen fit to shroud somewhat her loveliness beneath a heavy haze. Moreover, we were informed that the boatmen were out on strike; this compelled us, instead of our intended row on the lake, to be content with a stroll about its lovely margin.

We then went on into the town. Killarney itself is by no means beautiful. We spent a very pleasant hour or so in the garage, where the cycle car received the full benefit of two new covers. The Scott meanwhile also underwent some minor repairs rendered necessary by its fall.

"Billiard Table" Roads.

Having nothing to do myself, I made suitable remarks on the subject of reliability. We really had a very pleasant time. Back we went to our hotel for lunch, and about two o'clock left Killarney for Waterville. The road had been described to us by the hotel porter as being "like a billiard table." Evidently his ideas of billiard tables were based on the condition of the one on which we had disported ourselves the previous evening. Anyhow, I have seldom been on a more unpleasant road. Later, however, the surface improved, and we had a splendid spin on the side of the hills with fine varied views of the cloud-capped mountains of the Dingle Peninsula on the other side of the water. Scudding through Cahirciveen, a somewhat dirty town full of carts and cattle, we halted just opposite Valentia Island. Hereabouts our companion, in an attempt to oil the Scott's chains, threw it down on the ground and jumped on it. We disentangled and smoothed it out, and resumed our journey. Possibly as a result of this gratuitous "turn," but more probably in consequence of his morning's work on his Scott having doubled its petrol consumption, he next ran out of petrol. We of our plenty gave to him in his need, and on a dusty and somewhat tame road, we so ran that we entered Waterville.

The Usual Champion Fisherman.

Having hitched up ourselves and our machines at an hotel we took a boat on Lough Currane. Our boatman had, of course, caught the largest salmon ever taken in the lake. What boatman worth his salt has not? Yes, Waterville is a charming centre and Lough Currane is grand, but I believe there were hosts of other beauty spots we should have seen.

We arose on the morrow soon after six o'clock. Again the long-suffering Scott was subjected to its matutinal molestations. The only really necessary job, a leaking back tyre on the Scott, was chanced, and, as a consequence, after we had gone about a mile on our way, off it had to come. Our programme was to work our way back to Glengarriff, *via* Parknasilla and Kenmare, and it was about nine o'clock when we left Waterville. The road had been described to us as the best in the south. Cut out of the side of the hills, sloping down to the sea, it follows the coast closely all the way, winding up and down, with grand views of the mountains across the estuary. We plied peacefully along until we espied beneath us a beautiful little bay. Heart could desire nothing better than a bathe in its blue sparkling waters. So leaving our machines by the roadside, we clambered down the rocks on to the beach below, and casting convention aside with our clothes, plunged into the water's pellucid depths.

An Interrupted Bathe.

And afterwards, how sweet our pipes tasted as we basked in the sun of that little secluded cove, with the dark rocks sheltering the cerulean waters, while around us on the silvery sand black cattle lay, drowsily brooding. What did it matter that one of the cows turned out to be a bull, which, evidently annoyed at one of our companion's red head, roused itself from its slumber and came bellowing towards us. We decided nevertheless that we must be moving, so hastily donning the habiliments of civilisation, we climbed back to our machines. Truly it had been worth while.

Speeding on, our way took us through a broad and beautiful valley, the skyline of which was broken by rugged peaks, with here and there a pretty white thatched cottage, and all the time away to our right the sunlit estuary and hills beyond. A gentle slope brought us into Sneam, a little village that seems to associate itself more closely with the ideal Irish village. Parknasilla was our next halt, and there we lunched, while afterwards we sat with eyes fixed on one of the most vivid pieces of colouring, the almost purple haze on the mountains, beyond the bright blue water of the island dotted estuary—an earthly Paradise.

The Last View of Glengarriff.

Once more on the road, we passed through Kenmare, and again over the Pass into Glengarriff. The wind was blowing lustily as we ascended to the tunnel, and it was all we could do to keep our machines to the road. On restarting, after a brief rest at the top once again to admire that noble view of Glengarriff Harbour, my hat blew into the valley below. I waved to the driver of the Morgan, who was behind, to stop his machine and climb down for it, but he affected not to understand my signs, and I had to fetch it myself. He is no gentleman, as I told him. It would not have taken him more than twenty minutes to get it.

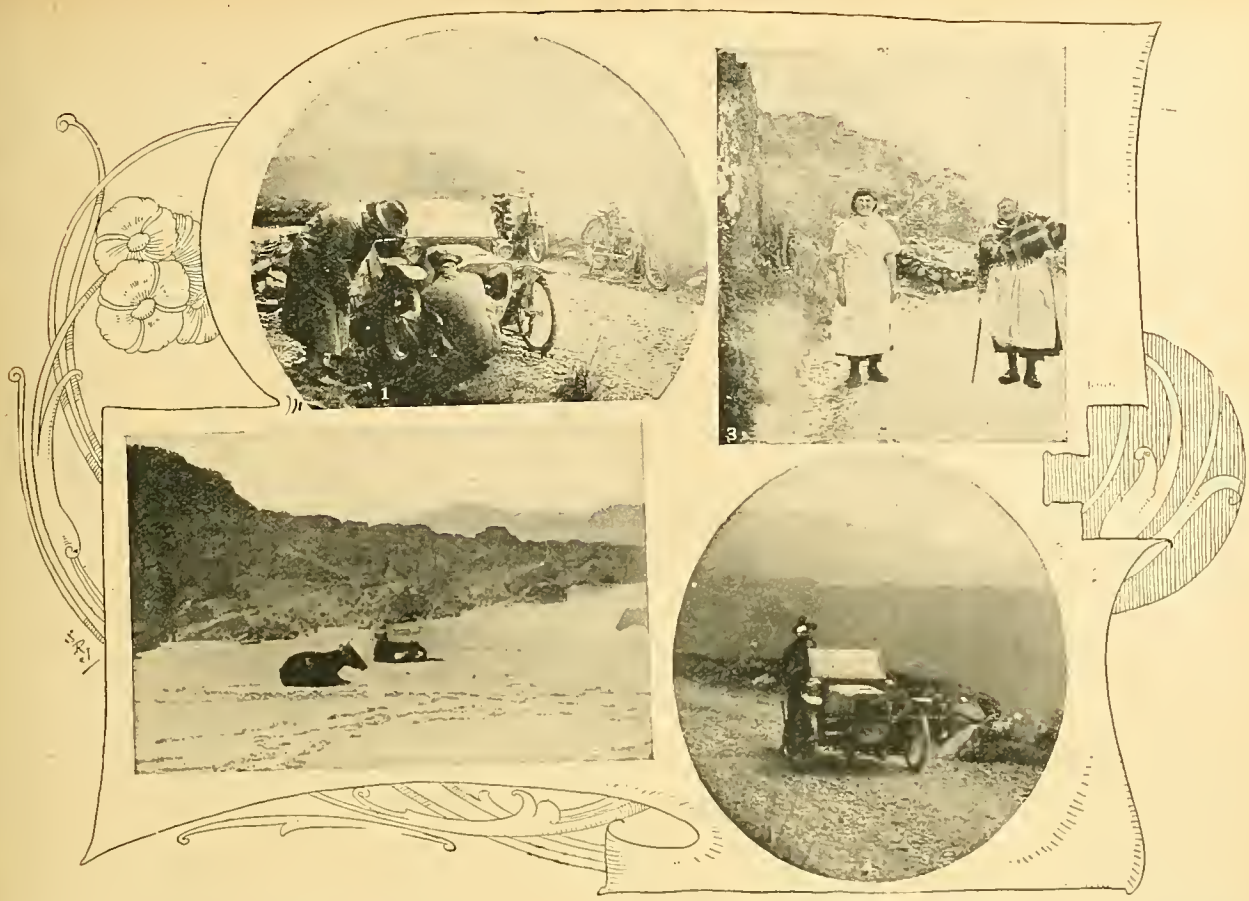
Having arrived at Glengarriff, we went down to the bay, where our old friend Pat Murphy rowed us to the best place for a bathe, and begorrah! he found a cold one.

We then had tea. I never hope to have a better day.

Friday, ever unlucky, was to be our last day, for we had decided to take the boat direct from Cork to Fishguard rather than go all the way by road to Rosslare.

After a last look at Glengarriff Harbour we set off soon after breakfast on our way. The account I shall give you of our last day may sound a little colourless I admit, but I tell you beforehand we had a good deal of fun all the same.

We took the coast road to Cork through Bantry, Skibbereen, Leap, Clonakilty, and Bandon, but I do not think we should go that way again. The road, though for the most part wide, in places had the bare



(1) Trouble with a tyre.
(2) The little bay near Waterville.
(3) "Windy Gap."
(4) The Morgan at speed on the road between Glengarriff and Killarney—according to the writer, a time exposure! Note the extremely bad road surface.

rock standing right out of the road. There are one or two pretty bits of scenery, but we had been spoiled by the splendid seascapes of the West, and as a matter of fact we only caught a glimpse of the sea here and there.

Just out of Bantry there is a somewhat steep hill with a nasty turn. We were warned against it, but all of us found no difficulty in making clean ascents.

The Scott scored a puncture, the F.N. broke a mudguard stay (the other two insist on my mentioning this) at Bandon; we lunched off fish, it being Friday, and then about ten miles this side of Cork the Morgan broke its high gear chain and trickled tamely into that city on low gear—a very ignoble finish. We had none too much time to spare, so we sent on ahead our friend on the Scott to procure our tickets for the steamer, and we then took our machines straight on board. And there from the deck, our minds replete with happy memories of wonderful scenery, we watched the coast of Ireland slowly sinking away into the dusk of evening.

Generally speaking, the roads we traversed, except where the Road Board had been at work, were either very bumpy or very loose, and almost invariably dusty. They are, moreover, for the most part particularly unsuited for a three-wheeler. A car or bicycle can usually find a track, but the progress of the Morgan where the road consisted of two deep tracks resembled that of a crab. I would state here that, on the whole, the little Morgan did marvellously.

There were no really steep gradients, but there are many sharp and dangerous corners, while the innumerable stray donkeys and cattle, and the fact that the average Irishman is none too particular as to the rules of the road, necessitate caution.

What a wealth of wonderful country is contained in this Emerald Isle of ours! It is as though Nature had made the West her boudoir, there to store all her most cherished treasures. And whether it be a wild mountain pass or peaceful vale, wooded lake or rugged seascape, there is something about it, something in the air or colouring, I know not what it is, something that is all Irish, and different from any other place.

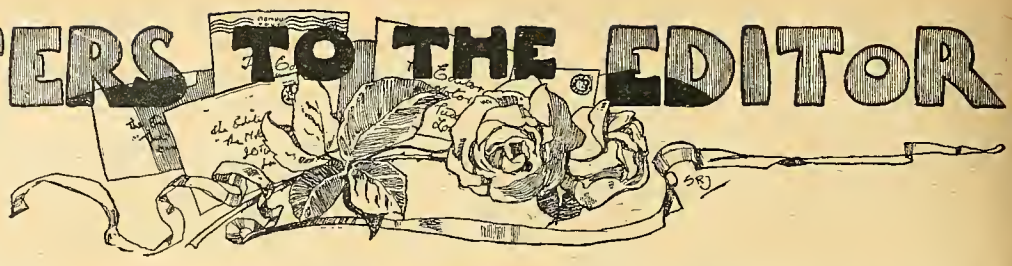
And what of the people, the bronzed and kindly peasants and the bonny shawl-clad lasses who wave to you as you pass?

We three have taken many tours together, but never a more enjoyable than the week's sojourn of some four hundred miles—a week of uninterrupted sunshine amid the glories of Erin's Isle.

> "And not by eastern windows only
> When daylight comes, comes in the light;
> In front the sun climbs slow, how slowly!
> But westward, look, the land is bright!"
>
> —*Clough.*

C.N.D.

LETTERS TO THE EDITOR



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Relation Between Horse Power and Capacity.

Sir,—I was always under the impression that there was a certain defined relation of h.p. to c.c. But after looking down the excellent list of lightweights in your issue of July 23rd I feel that I should like your assistance in untwisting what seems to me to be a veritable tangle. In comparing a few specifications, I began to group them as under :

NAME.	h.p.	c.c.
James	2¼	226
Coventry Eagle	2½	269
Elswick	2	269
Gerrard	2½	269
Levis	2½	293
Singer	2½	299
Omega	3	344
Peco	2¾	349
Regina	2¾	292
Alp	2	257
Calthorpe	2	170

These are just a few picked out at random, and they cannot all be correct, surely. ENQUIRER.

[Our correspondent is quite correct. There is a definite relation between c.c. and h.p Makers' nominal h.p. figures are only approximate. A modern engine should give 1 h.p. for every 100 c.c. ; thus a 500 c.c. engine gives 5 h.p., and so on.—ED.]

In most districts motorists are being stopped and asked to produce their licences. Cars are being examined. Above is a scene near Great Yarmouth.

A Useful Tip.

Sir,—Perhaps the following tip for brightening the lower part of a cylinder may interest readers of *The Motor Cycle*. First of all take about four feet of Manila rope, unlay the strands, and draw out three yarns from one of these, then plait these yarns tightly in the ordinary way. Hammer this out flat, or nearly so, with a wooden mallet. Saturate it with ordinary thin oil which contains some powdered bath brick and wrap it once round the cylinder. Now grip an end of the rope in each hand and work the hands in and out alternately. A few minutes' work will brighten the cylinder and a rub each night with oil alone on the rope will keep it bright. JOHN W. WALKER.

A Dangerous Practice.

Sir,—A few weeks ago I was driving along a main road in London when a wretched little urchin threw a stick at me, or rather at my machine. Having got used to the practice amongst boys of throwing any kind of article at passing motor cyclists, I did not pay much attention to the occurrence at the time. However, soon after, the machine started running very badly as if labouring up a steep hill. Being rather a novice at the sport I could not trace the trouble and decided to continue my journey. I managed to get home, not without difficulty, and imagine my surprise when I found a stick 2ft. long and ¾in. thick lodged between brake and tyre of the front wheel. It was completely hidden from view by the mudguard. Of course the tyre was completely spoilt, the rubber having worn away in places right on to the canvas as the result of the friction between stick and tyre.

I wish something could be done to stop this nuisance on the road and to make children realise the danger attaching to this practice. Would you, sir, have expected to get compensation from the insurance company in such a case? I had not much hope when I wrote to the Provident Clerks' Insurance Company and put the case before them. However, I had a letter saying that, although this kind of accident did not really come under their policy, they would pay the expense of a new tyre. This was, indeed, a pleasant surprise, and I mention it because I think such splendid treatment deserves commendation. H. A. MADSEN.

The Overseas Market.

Sir,—Kindly permit me a few lines in your valuable paper. I have just read your article of May 7th on the overseas market. I hope, in reading your remarks, the manufacturers will not think it necessary to pile on weight in order to gain strength. A light machine of reasonable strength can be taken over roads where it is impossible to go with a heavier mount. Speaking for myself, I have not much fault to find with the average machine, but I do think that less nickel plating would be an improvement. Where the makers can help us most is to fix a reasonable price on their machines to suit the different countries. Why cannot a machine be sold here at the English price plus duty, freight, etc.? The agent here must get the same profit as the English agent, and yet he puts on another thirteen or fourteen pounds. The excuse about having to support competitions is very poor, as all the competitions held here in a year would hardly make enough reading matter to fill one copy of your paper. As to the stock agents hold, I am afraid they are very small. I have been waiting about a month for a pair of foot rubbers. I could not even get a filler cap for petrol tank. I had one

W D

The War Office are purchasing both for actual service and for purposes of home defence, in the case of twin motor cycles, only those machines which have horizontally opposed cylinders, such as the Douglas. Ponder what this means when SPEED, RELIABILITY, ENDURANCE, SILENCE, and FLEXIBILITY ARE MATTERS OF LIFE AND DEATH, not only to the actual rider but may be to large bodies of troops, as in warfare, especially in the case of a surprise attack; success depends almost entirely upon the prompt and certain delivery of dispatches. This decision of the War Office experts confirms the countless successes achieved on

Douglas

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in every conceivable test, a few of the principal of which are given below. The Douglas was the pioneer of horizontally opposed twin-cylindered engines, therefore, let your mount be a Douglas, and so reap the advantages accruing to the greater experience.

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Six Days Trial.
Team Prize.
Haslam Cup.
3 Gold Medals.
1 Silver Medal.

IRELAND

End to End Trial.
Palmer Trophy
(best performance).
Lightweight Prize.
3 Gold Medals.

SCOTLAND

Six Days Trial.
3 Gold Medals
1 Silver Medal.
only 4 Douglases entered.

***Please Note.*—In the English Six Days Trial only 4 Gold Medals were awarded in the 350 c.c. class, 3 of which were secured by Douglas riders.**

DOUGLAS BROS., Kingswood, BRISTOL.

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PARIS: 190, Boulevard Pereire.
Telephone: 4687, Bristol.

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GOLD MEDALS & 1 SILVER MEDAL in the Scottish Six Days Trial.

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GOLD MEDALS in the London-Edinburgh-London, and the London-Land's End & back Trials.

made at a cost of 6s. I consider there is a good opening here for a good accessory dealer. There are hundreds of articles on the English market which never reach us. I am afraid I am repeating an old cry, but I have noticed that the efficiency of the present day machine is due to repeated efforts made by your paper to improve matters, and I hope in time that it will be the means of assisting oversea readers to obtain all they need at a reasonable price.

Wellington, New Zealand. E.G.M.

Possible Scarcity of Motor Tyres.

Sir,—In the present unsettled state of affairs, it behoves all motorists to use their tyres with the greatest care possible. Most of the great foreign tyre factories must be entirely stopped, or their output reduced to a minimum. Thus if tyres are used quickly an inevitable shortage must follow, and an effort might be made by manipulators to raise prices. We therefore beg motorists to use special care with their tyres, in order to make them last as long as possible, as it is quite conceivable that a period of shortage may arise as soon as the present stocks are consumed, but if everybody will help there is no reason why the home manufacturers should not be able to meet the demand, as under the present condition of affairs the consumption must undoubtedly decrease enormously.

DAVID MOSELEY AND SONS, LTD.

"Ixion's" Tip for Fitting Valve Springs.

Sir,—I was very pleased to read that the versatile "Ixion" has at last had the decency to try one of his own "tips."

It is a pity "Ixion" abandoned the contest at such an early stage, as he had by no means reached the most exhilarating part of the proceedings. I claim to be the first and only man who has succeeded in fitting a valve spring by the means suggested, namely, by first tying the spring together with string. It is true that the operation involved a black eye and the loss of two finger nails under very tragic circumstances. It is also true that I had forthwith to remove the spring for the purpose of disentangling the string. The fact remains, however, that I carried the adventure through to its very bitter end, and am, therefore, better qualified to write on the subject than "Ixion," who appears to have been knocked out in the first round.

It is "tips" like this that make us Britons what we are.

This "tip" breaks out once a year in company with the well-known wheeze for smashing piston rings with strips of tin and removing the belt pulley with a garden fork.

If "Ixion" is about to start a tip testing campaign he might like to try the following method of shortening the Dunlop belt. It is quite easy, and I make no charge for it. You simply lop off the end and it's done. Help!

JOHN KENNEDY, JUNIOR.

An Unusual Fault.

Sir,—I have had a peculiar trouble with a well-known two-stroke motor cycle I have been riding lately which might interest your readers.

On practically every journey the engine would misfire badly and then stop. Retiming the magneto or altering the adjustment of the contact breaker enabled me to get going for some time, when either of these operations had to be repeated. I fitted a new chain (the one supplied being very faulty), but no improvement resulted. I then had the magneto tested and found correct. The shaft was also trued in a lathe and a fresh bush fitted. Both sprockets were running exactly in line. As a last resource I tested the holes in the sprockets and found both of them had been drilled eccentric. It speaks well for the magneto that it has stood the severe bucketing for over 1,000 miles without serious damage.

Incidentally, I have had more roadside tinkering in that 1,000 miles than in my previous mileage of over 30,000 with the four-stroke 3½ h.p., but the two-stroke is a wonderful engine for climbing and power.

The two-stroke manufacturers glibly tell us how many working parts they eliminate as compared with the four-stroke, but, considering the price asked for some of their machines, the attention paid to detail and finish is very poor indeed. FRANK COMER.

British Magnetos.

Sir,—I note with interest your article on the English magneto, and should like to know if the two or three machines you mention are really English made throughout or partly only. I should also be glad to know if the ball bearings are actually made here or imported from Germany, and whether the condenser mica is selected and split in this country or imported from India, trans-shipped in bulk to Germany, and re-imported ready for sale.

Are the tinfoil, fibre, varnished paper, insulating silk, vulcanite, slip ring, carbon brushes, and carbon brush holder made in this country?

Is the copper wire drawn and enamelled in England? Are the end plates and other die-cast parts manufactured by English people? The origin of raw material is not important. Unless every part is made in England an article cannot be called "Made in England." STABILIT.

We submitted a copy of the above letter to the British Thomson-Houston Co., Ltd., whose reply is appended:

To the Editor, *The Motor Cycle*.

Sir,—We are very interested in the letter you were good enough to send us, signed "Stabilit," and are pleased to be able to assure the writer that all the parts covered by his letter are of English manufacture exclusively. Material such as mica must of necessity be obtained from India, this being split in our own factory.

We should be interested to learn if the writer of the letter is in any way connected with the German company supplying insulating material known as Stabilit

THE BRITISH THOMSON-HOUSTON CO., LTD.

Rear Lights.

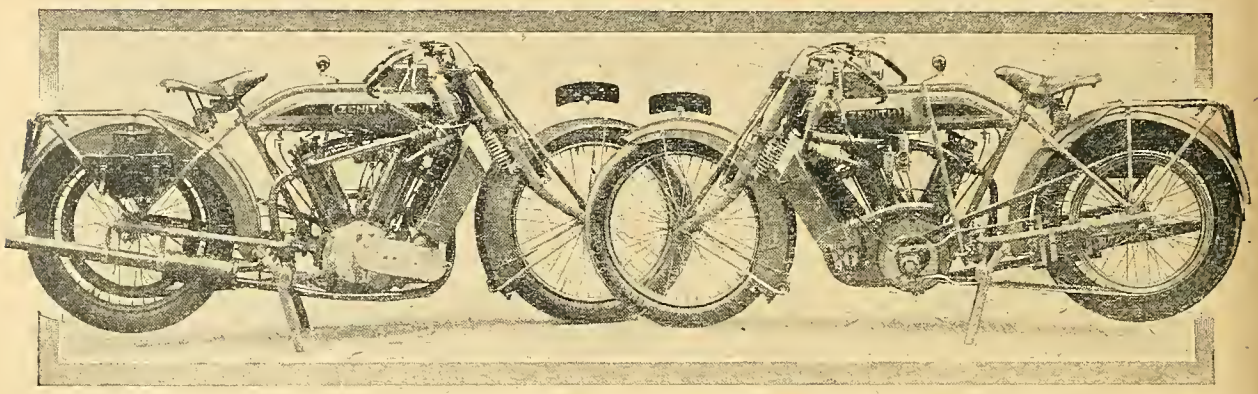
Sir,—I should like to congratulate you on publishing the letter of Lieutenant R. T. Gould, which Mr. Bennett and many other motor cyclists would do well to mark, learn, and inwardly digest

The extraordinary letter of Mr. Arthur G. Ellershaw is certainly well headed "Defective Head Lights." Mr. Ellershaw's letter is presumably in advocacy of the reflex light, but he was evidently himself driving with defective head lights if he and his passenger only faintly saw a red light "three yards away." Furthermore, if Mr. Ellershaw really was "going at fifteen miles per hour," and the cyclist was riding at, say, ten miles per hour, his rate of approach would be only five miles per hour, and any danger of collision must have been infinitesimal. Is it not rather more than likely that the "steep gradient over a railway" was the real cause of Mr. Ellershaw not sighting the cyclist sooner, and that the question of rear lights is not involved in the incident at all? W. P. COOK.

THAT ELUSIVE LICENCE!

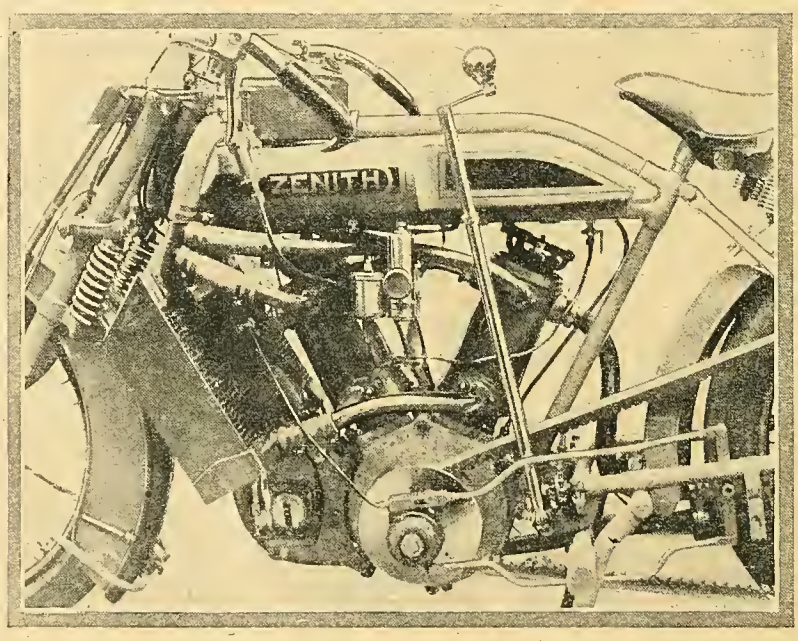
A driver of a Rover sidecar outfit searching for his authority to drive

An 8 h.p. Twin-cylinder Zenith-Green.



(1) The valve side of the machine and the silencing arrangements. (2) Showing details of the working of the Gradua gear. It will be noticed that water outlet pipes are provided on each side of the cylinders, and an additional water tank is fitted on the top tube.

THE accompanying illustrations show an interesting Zenith-Green motor bicycle supplied to the order of Mr. C. T. Freeman, Palmer's Green, Southgate, N., by Messrs. Maudes' Motor Mart. The most conspicuous feature is the 8 h.p. water-cooled Green engine, which, unlike other engines of this make, has a separate honeycomb radiator. The valve gear is of the ordinary overhead type found on the Green, so designed that if a valve breaks it cannot fall into the cylinder. The water jackets are, of course, of copper, and the water pipes and exhaust pipe of the same material. It will be noticed that the water pipes are of ample dimensions, and, consequently, the engine should keep extremely cool. The water is poured in through the small tank on the top tube, which also acts as an expansion chamber. The carburetter fitted is the well-known Binks three-jet model, while in addition to the Best and Lloyd lubricator an ordinary hand pump is supplied. The machine is fitted with a Stewart magnetic speedometer and Brooks saddle. No clutch is fitted, but the ordinary Zenith-Gradua gear, the top ratio of which is 3 to 1. Another interesting feature in the engine is the fitting of a glass window in the crank case to show the level of the oil. The bore and stroke of the engine is 85 mm. × 85 mm., giving a capacity of 964 c.c.



The new twin-cylinder V type 8 h.p. water-cooled Green engine.

A Popular Priced Levis.

WAR scares bring many horrors in their wake, but now and again a bright spot is discernible, and it is a direct outcome of the present crisis that we are enabled to announce that it is now possible to purchase a Levis lightweight for £25. In coming to the decision to place this model on the market, Messrs. Butterfields, Ltd., Stechford, state that their great desire is to keep as many of their employees occupied as possible, and that the new "Popular Levis" will only be available for a limited period. Therefore anyone who wishes to secure one should apply at once for delivery.

The engine of the 2¼ h.p. Popular Levis is 62 × 70 mm. bore and stroke, 211 c.c., and the Levis patented system of lubrication is employed. Choice of either an Amac or a Senspray carburetter is given. Ignition is effected by U.H. magneto. Druid forks, ¾in. rubber belt, number-plates, and 24in. × 2in. tyres form part of the equipment of this machine. The well known Baby model will still be marketed, and, of course, contains refinements such as it is not reasonable to expect on the low-priced Poular model.

The SINGER Smile

is born of Singer Certainty—the certainty that banishes all thoughts of worry and makes the Singer ride entirely free from care.

Would you wear it?

Then ask us for the Singer Booklet.

SINGER & Co., Ltd., COVENTRY, and

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LATEST SUCCESSES—
B.M.C.R.C. Meeting Brooklands 25th July—Mr. W. A. Jacobs on a 2½ h.p. Singer 1st. in Kilo and Mile Time Trials and beat record for 5 and 10 miles in Class A for 250 c.c. machines.

THE SEAL OF SATISFACTION

136

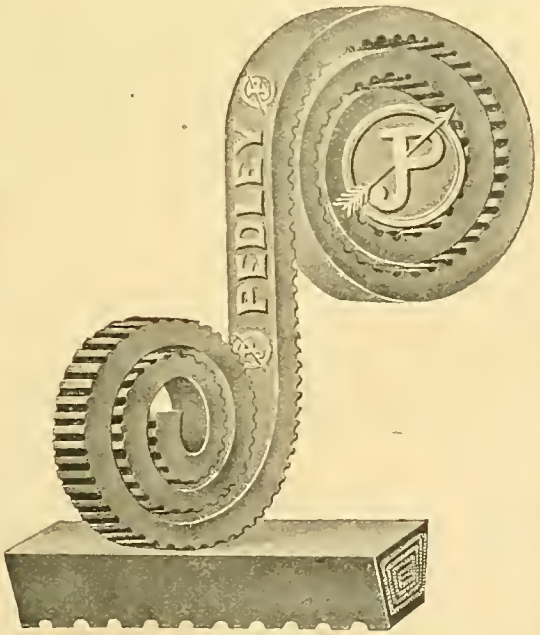
IN SEVEN MONTHS.

A Summary of Pedley Successes

from January to July.

The following is a list of the principal Pedley Belt successes gained in open competition only since January of this year. The formidable list serves to emphasize the implicit faith successful riders have in the Belt. It also establishes the impregnable position of Belt supremacy, which Pedley has held for so long — and gained by perfection of quality

Special Awards — Cups, etc.	16
Gold Medals in Open Reliability Trials	39
Silver Medals in Open Reliability Trials	13
Firsts in Races or Speed Contests	43
Records	6
Firsts in Hill Climbs and Fastest Times	19
TOTAL SUCCESSES	136



J. PEDLEY & SON, LTD.,
Gt. Charles Street, BIRMINGHAM.
LONDON: 30, Holywell Lane, E.C.

12 YEARS AGO

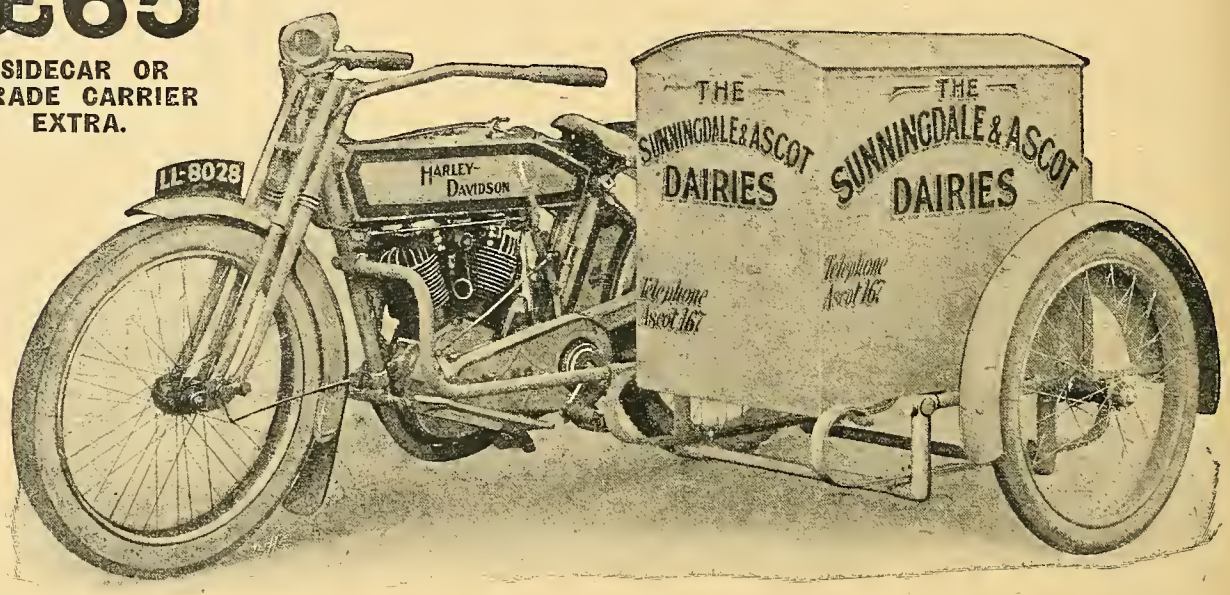
THE FIRST

HARLEY-DAVIDSON

MOTOR CYCLE WAS BUILT

£65

SIDECAR OR TRADE CARRIER EXTRA.



AND IT IS STILL RUNNING WITH 100,000 MILES TO ITS CREDIT

Harley-Davidson Motor Co.

Milwaukee, Wisconsin, U. S. A.

Distributors in England . . Robertsons, 157b Great Portland Street, W. London
Distributors in Scotland . . . . . Daniel Brash, 218 Bothwell Street, Glasgow
Dealers in the Colonies Interested in the Harley-Davidson, Write to the Factory

The Waiting List.—Advice to those Volunteers who have failed to Obtain Military or Civilian Employment. A Military Model New Hudson. Activity in the Midlands and East Coast.

LAST week it was suggested that those motor cyclists who were unfortunate enough to find that their services were not required in the Army, either at home or abroad, or in the Special Constabulary force, should seek to make themselves efficient, from a military point of view, at the earliest possible opportunity so that when vacancies occur, as they surely will (probably in a very short time), the Government would be able to take on men who are not quite in the position of the raw recruit. Naturally, anyone who has had any military training will receive immediate consideration at the hands of the authorities, and will, of course, take precedence of those who have not been employing their spare time in the useful manner suggested.

How to become Efficient.

As the authorities are of opinion, and rightly so, that private enterprise is misplaced in training corps of men for defensive purposes, and that all work of such a nature should be done by Government direct, it follows that several associations started with the idea of affording training to men not yet selected for military service, have had to suspend operations. This, as a matter of fact, should give all the more stimulus to club executives, now that competitions are non-existent *pro tem.*, to get their members to exercise themselves so far as individuals can, in military arts and crafts. Rifle shooting can often be managed, and map reading—a far more important matter than may appear at first sight—can be taken up by every one. Another point which might well be studied is the question of uniform badges, so that in the event of a waiting applicant being called up, he may not have to spend valuable time finding out each officer's rank by learning his badge. All this may sound dull work, and doubtless it is not so exciting as the sensational delights of despatch riding, but every bit of work in the world has its tedious side, and war is not a pleasant occupation to anyone.

Like Father, Like Son.

That fine sportsman, Tom Silver, has had to abandon his projected tour on a Quadrant motor cycle from the Cape to Cairo, and now his only regret is that he is debarred by the age limit from joining the British forces once again. We say once again advisedly, for Silver has already been through three campaigns—Egypt, the Nile, and the Boer War. His son, H. Silver, however, is attached to the Royal Engineers (Southern) as a motor cyclist, so he is keeping up the family tradition.

Members of the Army Service Corps, whose machines include a number of P. and M.'s, are shown in camp on the North-west Coast.

A string of motor cyclists, with their ammunition car, in East Anglia. Scores of cars and motor cycles are at present being used in the Army without identification numbers.

Heroic Defence of the F.N. Works.

The F.N. Co. have their immense works in and around the besieged town of Liège. The extensive factory of this firm is situated at Herstal, a suburb of Liège, lying to the north of that town. Its position is just under one of the forts which have held out so nobly against the Germans, and north of it is Visé, the village which was lately burnt to the ground by the attacking force. Now information has come to hand of the magnificent bravery of the women employed at the factory. Nearly all the men, from the directors to the most humble workman, have been drafted to their regiments, and the factory was defended by women against the Germans, who swore that the enemy should never take it. They armed themselves with revolvers and other weapons, and repulsed several charges of Uhlans. When the ammunition was exhausted they barricaded themselves in and poured boiling water on the Germans, with the result that many were disabled.

A group of motor cyclist despatch riders assembled on a racecourse.

Competition Riders for the Front.

Needless to say, a large number of well-known competition riders are engaged in the war, and it is quite impossible to give the names of even a tithe of them, but we may mention that one of the best-known club secretaries, Harold Karslake, of the Motor Cycling Club, is at Farnborough, attached to the Royal Aircraft Factory, and expects to leave with the expeditionary force at any moment. Cecil Hann and Humphries, the Cardan driver, are also at Farnborough, while Leonard Goss (F.N.) and A. J. Sproston, the well-known T.T. rider, are also known to have volunteered for the front, and are probably there by this time.

Clubs and Rifle Ranges.

The Bradford M.C.C. has furnished the forces with a contingent of riders, and has a rifle range at Peckett Well, near Hebden Bridge, which may be reached from that town by taking the climb over the moors *viâ* Oxenhope. The secretary of the club is Mr. T. Bullus, 28, Manchester Road, Bradford. The practice of rifle shooting for club members has the warmest support of this journal.

Military Model New Hudson.

The New Hudson Co., with characteristic enterprise, has introduced a military model motor cycle. The machine is of the single-cylinder pattern and fitted with a standard New Hudson engine, but a three-speed counter-shaft gear similar to that used on the latest model twin has been neatly embodied in the bottom bracket. Chain and belt drive is retained.

The Supply of Magnetos.

Naturally, owing to the war, all supplies of magnetos to the Bosch Company from Stuttgart have ceased. The company has, however, sufficient magnetos in stock to last for three months with an ordinary sale, and, as the demand on its resources is likely to be less than normal, firms should have no difficulty in obtaining magnetos for some time to come. At present, however, the whole Bosch stock has been taken over by the War Office, but it is not anticipated that this state of affairs will last indefinitely.

Special Motor Constabulary.

Applications from motor cyclists for the Special Constabulary were considered one day last week, when great scenes of activity were noticeable outside Scotland House, S.W. The Special Constabulary have a few vacancies in their motor corps for owners of motor cars and motor cycles. The duties are purely honorary, and applications should be made in person to Mr. Basil Johnson, Directory of Transport, Scotland House, Scotland Yard, S.W. The response to the appeal has exceeded all expectations.

Vigilance on the East Coast.

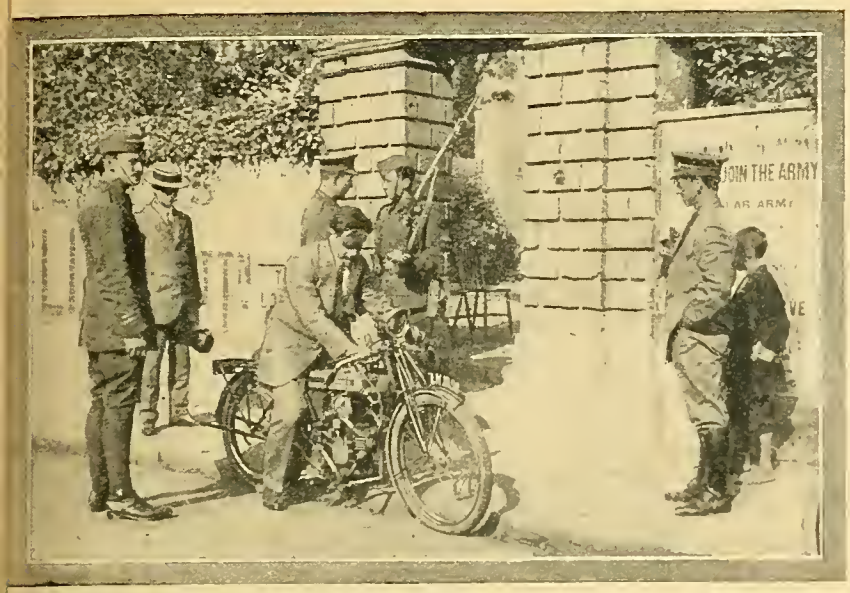
Our correspondent on the east coast reports that in many places on the east and north-east coast all motor traffic is held up by troops with fixed bayonets and loaded rifles. Licences must be produced, particulars of time, destination, etc., are taken. A search is also instituted in some instances of closed cars. Chief attention is being paid to roads leading from inland towns to the coast. The price of petrol is still high in many places and supplies are difficult to obtain.

The Clyno Company has shared in a Government order for motor cycles, a batch of machines being delivered to the War Office last week.

ARMY SCENES IN SUFFOLK

An energetic sentry

A sidecarist challenged



Captain Stafford passing a territorial motor cyclist for the waiting list, outside Fulham House, Putney, Headquarters of the County of London Regiment.

Motor Cyclists for the Army.

We recently had a few minutes interview with Captain Stafford of the County of London Regiment, who was appointed by the War Office to make the preliminary selection of motor cyclists for the Army. The work is practically now over, but he is still inspecting the machines of those riders who care to place themselves on the "Waiting List." We understand from him that those qualified have already started with the expeditionary force. After the motor cyclists have been selected by Captain Stafford they are sent on to the Royal Engineers at Chatham, where they are finally passed by the authorities.

Police Precautions with Motor Vehicles.

We learn that special police have been detailed at each entrance to Hull, who take full particulars of every car, cycle car, and sidecar which may pass, and check the drivers' licences. The only motor vehicles exempt from attention are solo motor cycles.

Wolverhampton Manufacturers.

A recent visit to Wolverhampton showed that the motor cycle manufacturers of that town are doing their best to cope with the present situation in a practical and commonsense manner. Though overtime has ceased with a very few exceptions the big firms will carry on their business steadily, and have sufficient confidence in their wares to put a certain number of machines into stock should necessity arise. The A.J.S. Co. have resolved to keep their works open, never having yet been able to fulfil every order received. The company have several interesting experiments at present under consideration. The Sunbeam also will continue manufacturing quietly, having still plenty of orders to fulfil. The Villiers well laid out works will continue to turn out quantities of their little two-stroke engines. Incidentally, we were able to examine some few alterations which are being carried out with a view to reducing four-stroking to an absolute minimum.

The Wulfruna works, in spite of the fact that a large part of their trade is done abroad, are busy producing machines, and on the whole the attitude of the manufacturers reflected the true British solidity which has made the nation what it is.

At the Clyno works we heard of a Government order which had just come to hand for sidecar outfits.

The Special Constabulary.

Motor cyclists who are desirous of enrolling themselves as special constables should apply to the Special Constabulary Office, Scotland House, New Scotland Yard, S.W., but they must understand that they give their services free and pay their own expenses. At the present time 180 have been enrolled.

More Normal Conditions.

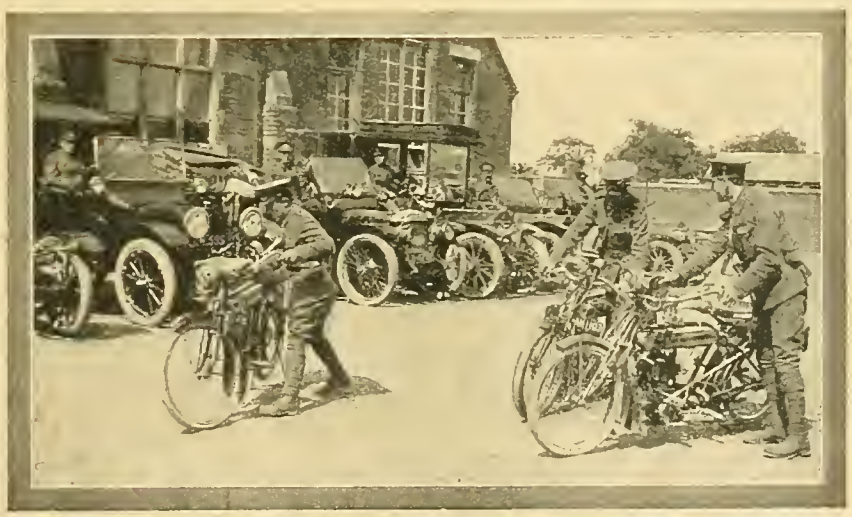
Since the early days of the war things are assuming a more normal course. There was much more activity on the road last week-end than there was the week-end before. All we want to cheer us up is the rousing news of the success of the allied armies on land or of the British fleet at sea. But we must be patient.

Birmingham Precautions.

The Birmingham authorities are taking every precaution to prevent undesirable persons entering the town, and all motor vehicles are stopped, licences are examined, and a few questions asked before the driver is allowed to proceed. On a recent occasion a member of our staff was stopped twice in one day. The police, however, were extremely civil and explained their duty pleasantly.

The Waiting List.

Everyone sympathises with the great private and even semi-public efforts that have been made to raise volunteer defence forces. One of the largest efforts in this direction was that of the body styled the London Defence Force, and therein it was proposed to enrol a large number of motor cyclists. This body, however, has had to discontinue its efforts, as Lord Kitchener does not look with approval upon any but purely Government measures in this direction. We are convinced that Lord Kitchener is right. He is the man in command, and, however disappointing it may be to the organisers and members of such forces, everyone must realise that the man in command is the best judge. Therefore, if any motor cyclists wish immediately to give their services, they should join the regular army, and when wanted as motor cyclists they will be just as efficient riders, and at the same time will have become efficient soldiers. This view of the case has just been confirmed by the Official Press Bureau, which body has issued a notice stating that it is Lord Kitchener's opinion that if private enterprises of this kind were encouraged or even allowed, recruiting for the new national army might suffer.



Despatch riders (supplied by the A.A. and M.U.) hurrying off with messages

THE M.C.C. AUGUST TOUR.

In last week's issue of *The Motor Cycle* we gave a list of the gold medal winners in the August Bank Holiday tour to the West of England organised by the Motor Cycling Club, and we now append a list of silver medal winners and are able to give some further interesting details of the behaviour of the competing machines. The timed hill-climbs up Porlock and Countisbury are the chief points to be noted, as minimum speeds were set, from 10 m.p.h. to 15 m.p.h., according to what class of machine was running. For the Cup standard higher speeds were demanded, ranging from 12 m.p.h. to 18 m.p.h. Those who know these hills will appreciate the severity of the test, especially when it is borne in mind that the road surfaces were deplorable. Fastest time up Porlock was made by F. W. Applebee (3½ Motosacoche), who travelled at 16.83 m.p.h. Countisbury presented fewer difficulties, and L. Mogridge (3½ Rudge Multi) attained a mean speed of 26.62 m.p.h. up the hill.

SILVER MEDAL WINNERS.	Average Speeds. Porlock.	Countisbury.
J. D. Drysdale (2¾ Connaught)	F.	15.33
W. E. Cook (4 Triumph)	F.	16.55
G. H. S. Letchworth (2¾ Clyno)	F.	13.79
R. Charlesworth (5 Zenith)	F.	25.43
S. Tharpe (4 Bradbury)	F.	14.78
R. M. Marians (3½ P. & M.)	14.59	20.20
J. H. Kerr (3½ N.S.U.)	F.	16.98
J. F. Selous-Jones (2¾ A.J.S.)	F.	18.53
H. J. Beal (4 L.M.C.)	Below min.	18.30
S. J. Hine (3½ Burford)	F.	18.04
L. Mogridge (3½ Rudge Multi)	Below min	26.62
C. Percival (2¾ Douglas)	10.77	12.15
C. O. Roberts (3½ Blackburne)	Below min.	18.37
H. Karslake (5-6 Ariel)	Below min	18.44
K. V. Chidley (3½ Brough)	F	14.31
D. S. Baddeley (7 Indian sc.)	F.	17.00
H. A. Cooper (4 Bradbury)	F.	14.90
F. W. Applebee (3½ Motosacoche)	16.83	17.48
O. P. C. Collier (4 Grandex-Precision)	F.	13.39
R. B. Clark (3½ Rudge Multi)	12.28	15.60
W. H. Egginton (7 Matchless sc.)	14.20	16.47
C. W. Meredith (6 Bradbury sc.)	F.	Below min.
P. W. White (7-9 Premier sc.)	F.	Below min.
T. H. Willey (3½ Premier sc.)	Below min.	13.27
W. P. Tippett (3½ Humber sc.)	F.	12.03
Victor Garland (8 Williamson sc.)	F.	13.36
L. Gibson (6 Zenith)	F.	22.43
Cecil C. Hann (G.W.K. c.c.)	Below min.	13.17

CLUBS AND RIFLE SHOOTING.

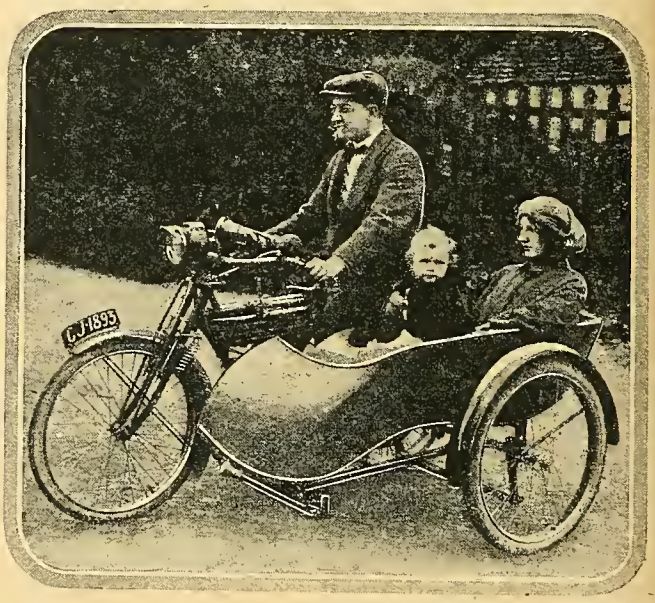
Apropos our notes last week *re* rifle shooting for motor cycle clubs, we have received an interesting letter from Mr. T. G. Bullus, hon. treas. Bradford M.C. and L.C.C., giving particulars of the rifle club section of the Bradford club. This section was formed at the beginning of the present year with about twenty members. Service rifles and Bisley targets are used, and service ammunition is provided at a low cost by the Rifle Club Association of Great Britain. Of course, members have to own their rifles, but arrangements are made to loan rifles to new members till they can obtain their own equipment. Practice takes place once a week, from 2.30 p.m. till dusk, on the rifle ranges on Hebden Moors, under the direction of two skilled instructors. This is a fine example of Yorkshire keenness, and that rifles and motor cycles have something in common to the Yorkshire mind is shown by the fact that Mr. A. A. Scott showed one of his machines at Olympia with a repeating rifle mounted on the handle-bar, and the machine equipped so as to stand up and be used as a quick-firing gun carriage. It is to be hoped that other clubs will follow the admirable example set them by the Bradford club.

SCENE ON THE BRADFORD CLUB RIFLE RANGE ON HEBDEN MOOR.

Instructor W. Lee is giving advice regarding altitude and windage. The men shoot in fours, two on each target. Three markers are in the butts, which are complete in every detail.

A LIGHTWEIGHT SIDECAR OUTFIT.

The growing popularity of lightweights has led to the introduction of lightweight sidecars. The outfit illustrated consists of a 2½ h.p. Alldays two-stroke machine with Sturmey-Archer gear and a Watsonian lightweight sidecar.



A lightweight sidecar outfit owned by a Hereford rider.

It is claimed by those responsible for the combination that it is capable of equalling the speed and hill-climbing powers of much more powerful machines. The combination is owned by Mr. Perkins, of Hereford, and was supplied to him by Waltis and Co., of that city. It is altogether a most interesting and novel turnout, but one which, in our opinion, should be used solely by light passengers.

MAP READING AND RIFLE PRACTICE.

The Coventry and Warwickshire Motor Club has arranged a lecture on map reading for to-morrow (Friday) at 7 p.m. at the King's Head Hotel, followed by a lecture on rifles. Both lectures will be brief. A rifle section is being formed.

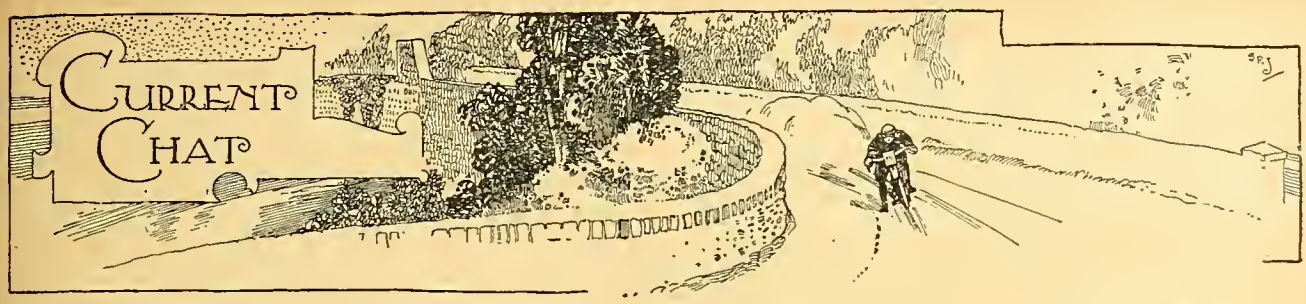
On Saturday afternoon at two o'clock, a test of map reading is to be held, when maps will be handed to members, who will be expected to follow the routes marked thereon.

The Coventry Club Committee has contributed ten guineas to the Prince of Wales's Relief Fund.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.



TIMES TO LIGHT LAMPS

Aug. 20	...	...	8.16 p.m.
,, 22	...	...	8.11 p.m.
,, 24	...	...	8.6 p.m.
,, 26	...	...	8.2 p.m.

The Motor Cycle on the Farm.

A motor cyclist, named W. Campbell, is having a special sidecar built for attachment to his 4 h.p. Triumph, in order to convey farm produce to market from a Hampshire village. This is one of many utilitarian services to which a reliable motor cycle can be put.

Meetings Abandoned.

The B.M.C.R.C. race meeting proposed to be held on Saturday, the 22nd, is abandoned, and the North-Western A.A. have decided not to hold their open hill-climb in September. The annual Coventry open hill-climb is to be held on August 29th.

The Matchless at the Front.

The three Matchless sidecar outfits taken to France by C. R. and H. A. Collier and R. E. Guest had to be left behind in Paris, and are now doubtless being utilised by our allies. These machines were magnificently fitted up, and each had a complete electric light installation, and it is doubtful if any finer outfits will be used in the war. R. E. Guest, it may be mentioned, has joined his regiment, and F. J. Ellis, the secretary of the Woolwich, Plumstead, and District M.C., is employed at the Arsenal. The inter-team trial which was to have been organised by this club has been abandoned.

An Excelsior Big Twin.

An Excelsior V type twin of 7 h.p. is at present in the pattern-making stage. Its bore and stroke will be 85 × 88 mm., and the valves are of the side-by-side pattern mechanically operated. The lubrication system is to be the same as on the single-cylinder Excelsior, *i.e.*, *viâ* the gudgeon and crank pins. This new mount is, of course, being designed primarily for sidecar use, and a point which might be considered more generally is that all adjustments as far as possible will be arranged on the side opposite to the sidecar in order to render them more readily accessible.

The Magneto Supply.

With the war has come a shortage of magnetos, Stuttgart, the source of practically nine-tenths of our supplies, having been cut off from us. Therefore, the chance of the British manufacturer of magnetos has come, and the chief motor manufacturers held a meeting in Coventry last week to further this project. The efforts to encourage home-made magnetos is rather tardy, but now it has been made we sincerely trust it will not be allowed to drop, and that out of temporary inconvenience permanent supplies may be assured. In last week's issue of *The Motor Cycle* we described the new B.T.H. magneto, for which a bright future is confidently predicted.

It is not realised generally that the Bosch Magneto Company have a large magneto factory in the United States, and it is possible that in the event of a serious shortage magnetos may be obtained from this source, or they may be even manufactured in this country.

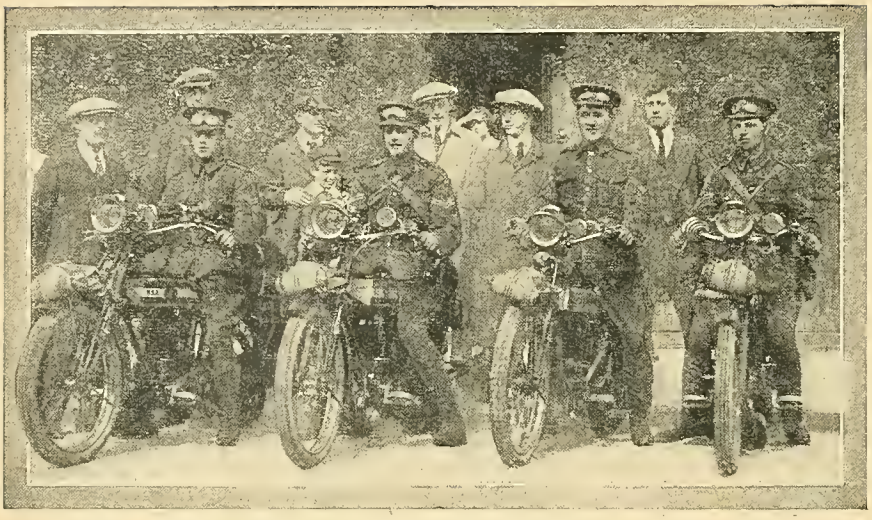
SPECIAL FEATURES.

MOTOR CYCLES IN WARFARE.
SCOTT, MORGAN AND F.N. IN IRELAND.
THE SIDECAR FOR BUSINESS PURPOSES.

Insurance Policies and the War.

Motor cyclists whose machines are being utilised in Government service are reminded that no existing insurance policies on their motor cycles hold good at the present moment. It is possible, however, that the great insurance companies may be able to formulate some scheme to remedy this state of affairs, but no pronouncement can yet be made on this point.

A despatch rider attached to the Brigade Staff of the Fifth Yorkshire Regiment. The machine is a Scott



WELL-KNOWN BIRMINGHAM MOTOR CYCLISTS ON THE POINT OF DEPARTURE FOR ACTIVE SERVICE.

Left to right: Howard Newman, the well-known Ivy rider; Roy Lovegrove, Scott T.T. rider; Ernest Sarsons, a Birmingham manufacturer and motor cyclist; S. W. Kitchen, a 1914 T.T. rider of an Abingdon. Each rider is astride a new machine (three B.S.A.'s and a Triumph) fitted up most completely. No registration numbers are required.

The Cycle Car Race in Doubt.

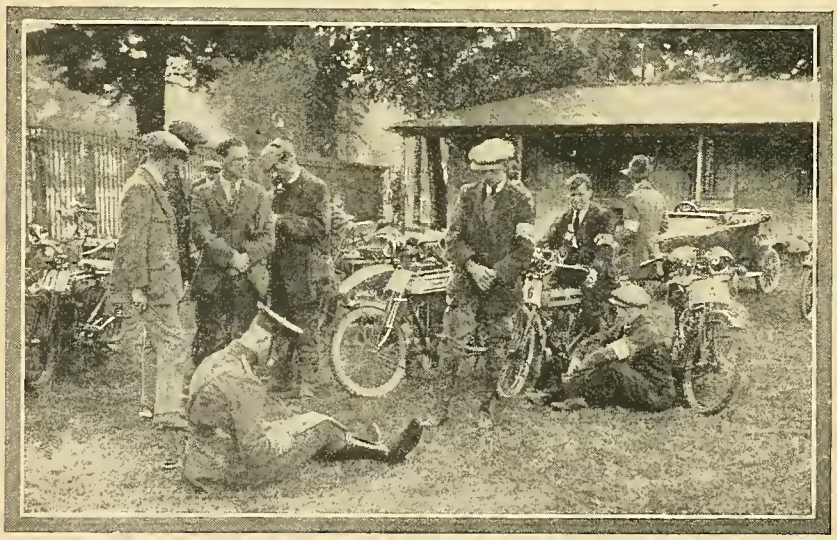
At the present time the A.C.U. is undecided as to the fate of the race for cycle cars and light cars in the Isle of Man, and it is likely that the final decision on this matter will not be arrived at until one month before the race.

Bandsman Blake as Scorcher.

Bandsman Blake was charged before the West Flegg Norfolk magistrates one day last week for riding a motor cycle on the highway near Yarmouth to the common danger of the public, but, as both the well-known pugilist and the constable who had stopped him had been called to the war the case was dismissed, the Chairman of the Bench stating that the defendant had gone to serve his country and everyone was useful at the present time.

Cycle Car Drivers in France.

W. Chater-Lea and C. Pressland arrived back in England last week after a most exciting trip on their Chater-Lea and Crouch cycle cars. When we left the pair at Grenoble on August 2nd they were thinking of returning *viâ* the Galibier Pass, one of the most difficult climbs included in the International Six Days Trials course. We learn that both succeeded in making the ascent, and, indeed, thought less of it actually than they had been led to expect. The ascent necessitated 3½ miles of low gear work. Many exciting incidents, as may be imagined, were crammed into their long trip across France, and finally the cycle cars had to be left behind at Dieppe. While sympathising with the drivers, we congratulate them on emerging successfully.



SCENE IN THE EAST MIDLANDS. The Colonel of the regiment writing despatches while motor cyclists wait around him for instructions.

The Special Constabulary Force.

For the Warlingham district no fewer than sixty motor cyclists have been enrolled, and are being equipped with revolvers by the local residents. Their duty will be the guarding of railway bridges, etc.

British-made Magnetos.

At the present time it is of great importance that British-made magnetos should be brought to the notice of manufacturers and the public. Last week we described the B.T.H. machine, and it is not generally known that Messrs. Thomson-Bennett, Ltd., Cheapside, Birmingham, have been making all-British magnetos in a quiet way for the last seven years, and can supply several patterns to suit single and twin-cylinder engines. Messrs. Thomson-Bennett point out that "now is the time, while there are still stocks for immediate requirements, when arrangements should be made for the future, as it must necessarily take time, even with others entering into the business, before a steady flow of new machines will be obtainable."

OUR ADVICE TO CLUBS.

At a time when every motor cyclist is anxious to serve his King and Country, and when all army vacancies are for the present filled, the advice of "THE MOTOR CYCLE" to Club Committees is to encourage members to cultivate assiduously an intimate knowledge of their own particular localities and to become well versed in the art of map reading, so that, if their services may be required eventually, they will be as useful as possible.

Ordinary competitions having been cancelled, Clubs might well arrange map reading contests and reconnaissance tests in districts not occupied by troops.

The Price of Petrol.

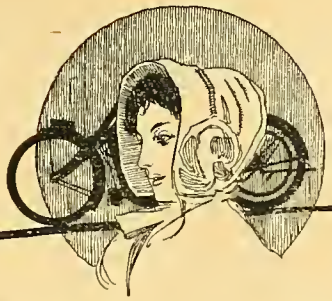
We hear that the Colmore Depot's campaign against inflated petrol prices, announced in our Correspondence columns last week, has met with immediate success. We are informed that the petrol companies gave the Colmore Depot every assistance in meeting the demand, but that, on the other hand, 2s. 6d. per gallon wholesale was asked by one firm for benzole.

BRITAIN'S BEST MOTTO: "BUSINESS AS USUAL."

After careful consideration the Coventry and Warwickshire Motor Club Committee has decided to hold its open hill-climb announced for Saturday, Aug. 29th. A number of manufacturers have promised their support, feeling that it is in the best interests of the trade that competitions be revived. There are eleven classes on the programme, embracing motor cycles, sidecars, and cycle cars of all types, and it has been decided to extend the entries until Monday next, first post.

The secretary of the event is Mr. H. Whiteman, Greyfriars Chambers, Hertford Street, Coventry.

Two Lady Riders in Germany.



Exciting and Unpleasant Adventures on the Eve of War.

By MISS W. J. SCOTT.

WE started off on our trip by motor cycle to Bayreuth so peacefully on the 15th July, never dreaming of the possibilities of war, and here we are back again on the 4th August, all that is left to us of the two bicycles being a spare belt, an inner tube, and a sparking plug.

Our outward journey seems tame now, but at the time it was quite interesting. We left the Isle of Wight by the 7.15 a.m. boat to Southampton, rode up to London, had the motor cycles put on board the *Batavier V.*, and arrived the next morning at Rotterdam. In due course we passed through the formalities of the Dutch Customs, had our passes signed, and duly arrived at our destination, Lensden, near Amersfoort, where we stayed two nights. We were much disappointed at the state of the roads in Holland. The main roads are paved all over, and are in such bad repair that it was impossible for us to go faster than about fifteen miles an hour. Alongside some of the roads there are special paths for cyclists, which are often very good and smooth, and we were thankful whenever we could get on these. During the next few days we went through the usual vicissitudes of a motor cyclist—punctures, a little carburetter trouble, belt and clutch slip, etc.—but nothing really to hinder us, and we slept the nights at Rheinberg, Niederbreisig, Wiesbaden, and Würzburg. The scenery round Wiesbaden is very lovely and the roads excellent. We stayed in Wiesbaden itself for two days. After leaving Würzburg our luck with fine weather changed, and we were caught in a terrific thunderstorm, and forced to stay the night in a most primitive wayside inn at Rupertsburg, near Eichstätt, where our supper and breakfast consisted of black bread and coffee. The next day we rode through most beautiful scenery and along a fairly good road to Regensburg. From there to Bayreuth was only an easy day's run, but the clutch on my friend's machine kept slipping on every slight gradient, and the clay roads, owing to the heavy thunder showers, were like butter, so we eventually stopped at the little village of Haag, and reached Bayreuth on the morning of July 25th. There we spent seven days of peaceful sight-seeing and opera-going, often going for little tours on our motor cycles. On these, as everywhere else on our trip out, we found everybody very kind and always civil. It was only natural that we were a great source of interest, as ladies are practically never seen on motor cycles in Germany.

(Above) Miss W. J. Scott and (below) Miss J. Dickinson on their 2¾ h.p. Douglas machines.

War and Rumours of War.

There were no English newspapers to be had, and except that we heard that Austria had declared war against Servia, there was not even a rumour of our finding any difficulties on our homeward way until the evening of the 1st of August, when the news began to be disquieting, and we were warned that passports would require to be looked at and so forth; also when we went as usual for our Poste Restante letters they were refused us, and we heard that the post was in the hands of the military. That evening we heard that 4,000 soldiers were to be quartered in the town on the following day.

All the English and Americans then began to make hasty preparations for an early start, we among the number; but even then there seemed nothing to make us think of encountering any real difficulties. On August 2nd, a Sunday, we started off at 7.30, the first real intimation of warlike preparations being that the man at the garage only allowed us to fill up with petrol behind a building where we could not be seen, as *all* petrol was requisitioned by the Government. Well, we started off, and for the first fifteen miles or so we were not interfered with, nor did we see any soldiers or any military preparations, and so we came to Kulmbach, the first town on our route. Here we turned off

Two Lady Riders in Germany.—

for Lichtenfels, on the way to Eisenach and Cassel. Just beyond Kulmbach my companion had a puncture which delayed us some little while, and as we started onwards we met all the village people just coming out of church. They stopped us, the men demanding to see our papers. These, fortunately for us, were all in order, passports, bicycle passes, German tax papers, etc., and we were allowed to proceed. Hardly were we through the village than we came to a level crossing, where three or four men were busily shutting the gates, and others were as hastily loading their rifles with ball cartridges.

Arrested!

We were hauled off our bicycles and told to consider ourselves under arrest. Three or four men with fixed bayonets walked in front, and as many behind, and about a hundred peasants accompanied us. It was an awfully hot day, and my cycling clothes were thick and heavy, so I began to find pushing my bicycle a rather fatiguing game, and began to lag behind, and told my friend to do the same, but in a moment the guards shouted at us to go on faster or else the bayonets would be used. After some ten minutes or more we got to the station, where the waiting room was made into a temporary guard room, and we could sit down. We were told that the gendarmerie from the nearest town had been sent for, and that they would decide what was to be done with us. In due course four men arrived, thoroughly examined all our papers, and then searched our suit cases for incriminating papers of any description. Needless to say they found nothing. They told us that news of us had been telephoned all along the line from Kulmbach, and that we should be stopped at every level-crossing, at every bridge, at every cross-road, and at every village, and that in case we changed our route, our description had been telephoned on to every cross-road in the neighbourhood. We asked these people, who were quite nice to us, to be kind enough to give us some kind of a permit, which would enable us to get on unmolested. This they did and we got on for a mile or two, were stopped at the first bridge, showed our paper, and were allowed to pass on.

This cheered us up considerably, and we entered the next village quite unconcernedly, and had almost got through it when we encountered another hostile crowd who stopped us, examined the paper again, and were just on the point of letting us go when they discovered that the paper had no official seal on it. This was quite enough, and we were instantly arrested for the second time. Having learnt by experience that no breathing time was allowed, I quickly divested myself of my heavy coat and knapsack, got them on to the bicycle, and we started the march back all through the village, being reinforced at every moment by soldiers and crowds of villagers. These were not quite so hostile, and we got help from some of the boys in pushing the bicycles, which was a great relief to us. At the station, where we were again examined, was a young German officer, who told us we had much better give up all idea of proceeding on our bicycles, that no pass would really help us, that the further we went the more military we should encounter, and that he strongly advised us to go on by train, and told us he would give us a permit to take us as far as Lichtenfels, where we could get a train for the frontier. This he did, and, loth to leave our machines behind, we started once more for Lichtenfels by road.

Ochsenfurt near Würzburg.

View from bridge near Mainz over the Main.

The Town Hall at Ochsenfurth near Würzburg

Rough Reception from Hostile Crowd.

On the way we were held up several times, but allowed on again after our paper had been shown. About half a mile from the town we overtook a noisy band of Reservists, and these, when they discovered we were only two ladies, shouted to us to stop, and as this was done not quite quickly enough for them, they absolutely dragged us off our bicycles. I believe that these men had no right whatsoever to stop us, but they were uproarious and I suppose thought it a bit of fun. We were very roughly handled by them, but eventually one older-looking man amongst them came forward, looked at our passports, etc., and allowed us to proceed. We were then within sight of the town, and rather heaved a sigh of relief to think that we should at last get a little peace. But this was not the case, for at the entrance of the town we were met by one of the ugliest and most hostile crowds I have ever seen. We rode quietly side by side so as not to get separated, and then came the order "Halt! or we shoot." Some of the men ran off for the police, leaving us in the middle of the

Two Lady Riders in Germany.—

road closely guarded by soldiers and civiiians. One would have thought we were the most dangerous spies caught red-handed; they could not have treated us worse. They shouted to us that if we attempted to move or speak to each other we should be instantly shot.

An old man standing in front of me then began talking to me; he was quite friendly, really, of better class apparently than the rabble around us. He said he could not understand why two respectable ladies should be riding motor cycles instead of staying quietly at home. Did we not know that war was declared, etc., etc. I answered him that, of course, I could quite understand his point of view, as he *was* at home, but that we were *not*, and, although we were trying our very utmost to get there as quickly as possible, he and his nation were doing their utmost to prevent it. This seemed to appeal to his sense of humour, and he then began to call the ruder boys and girls to order. They were just beginning to get out of hand, pulling at our hair, snapping their fingers in our faces, and so forth, and then he suggested to the calmer of the guards that they should escort us at any rate into the shade, and not keep us in the broiling sun.

Kindness from the Police.

Much to our joy we were soon met by uniformed police, who escorted us and kept off the crowd, who then contented themselves with shouting, "To prison, to prison." The chief of police was excessively kind to us, and helped us in every way. He brought us into a room, had the bicycles guarded by police, cleared the streets, and then proceeded to write a further permit for us as far as the Dutch frontier. He added to his kindness by accompanying us to the station, and, while he assisted my friend with the machines, I went to get the tickets. I was asked for my passport, which I showed, also I told the man I should require tickets for the motor bicycles, and that the chief of police was on the platform with us. Whether or not he believed me I do not know, for at that moment someone outside the station recognised me, and in a moment the whole building was swarming with men and boys, and the man at the ticket office, telling me to wait a moment, went out by a side door and fetched in a whole band of soldiers. Seeing I was going to be instantly surrounded and separated both from my friend and the chief of police, I made a dash, ducked under the bayonets, and flew through the crowd on to the platform just in time to find the chief saying good-bye to my friend, believing all was well. He was perfectly furious, white with anger at the brutal behaviour of his countrymen, and just hurled abuse at them all, told them what curs they were to bully two perfectly harmless and helpless women, insisted on the tickets being then and there handed over to us, and a telegram despatched to Würzburg to say we were not to be interfered with, but were to be helped to the frontier.

We said good-bye to the Chief of Police with real regret, for had it not been for him I scarcely think we should have left Lichtenfels that day

Over the Frontier at Last.

Two Dutch youths gave up their places to us, otherwise we could not have had a seat at all, but the bicycles had to be left behind. At Würzburg we booked to Utrecht, the only Dutch town to which tickets were issued. All through the night we were continually leaving one train for another, but reached Cologne about 6 a.m. and Utrecht at 2 p.m. Thence, with many difficulties, we proceeded through Hilversum and Amsterdam to the Hook of Holland, where, after spending the night on the wooden Customs benches, we embarked for England. Outside Harwich we were ordered to stop, and escorted in by a submarine. It seemed almost too good to be true to find ourselves back once more on English soil after the experiences of the past days. One thing which greatly surprised us was to find that even then—on Tuesday afternoon, August 4th—we were not yet at war with Germany, though we had been subjected to such gross treatment at the hands of the Germans.

What makes the retention of the two machines more vexing still is the fact that Miss Dickinson is attached to the Hants. Red Cross and is needed as a despatch rider. If any reader is willing to loan another mount to Miss Dickinson until the close of the war, or to provide her with means to obtain one, such an offer would be gratefully accepted.—Ed.

CLUB NEWS.

Regent's Park M.C.C.

A run took place from London to Lynn recently combining a flexibility test. There were no secret checks, the prizes being awarded on correct time, general condition, and reliability. The results were as follow: 1, A. C. Robbins (4 L.M.C.), silver cup presented by Mr. John Newell; 2, G. Williams (5 Zenith), gold medal; 3, A. Stafford (7 Matchless sc.), silver medal.

Finsbury Park C. and M.C.C.

A flexibility test consisting of a fast and slow hill-climb in which the same gear ratio had to be used throughout was held recently near Pangbourne. The Touche Challenge Cup and gold medal is awarded to the rider scoring the highest aggregate on the results of this event and a speed-judging test which will be held on August 22nd. *The Motor Cycle* formula was used, $\frac{1{,}000\,W}{C \times T^2}$ for the fast and $\frac{W \times T}{1{,}000\,C}$ for the slow, the highest figure winning in each case. C. W. Cooke (3½ Triumph) proved to be the winner of both climbs in 1m. 18⅕s. and 5m. 24s., giving 0.127 and 0.25 respectively. The fastest time was made by J. Evans (5-6 Bat).

Midland A.C.

The hill-climb which was arranged to take place at Shelsley Walsh has been definitely abandoned owing to the European crisis.

Oldham and District M.C.

A gymkhana was held last week in a field at Nont Sarah's, and included a tug-of-war, which was hotly contested and ended in a tie, as the rope broke. A musical evening followed.

York County M.C.C.

The complete results of the reliability trial to London and back are as follow:

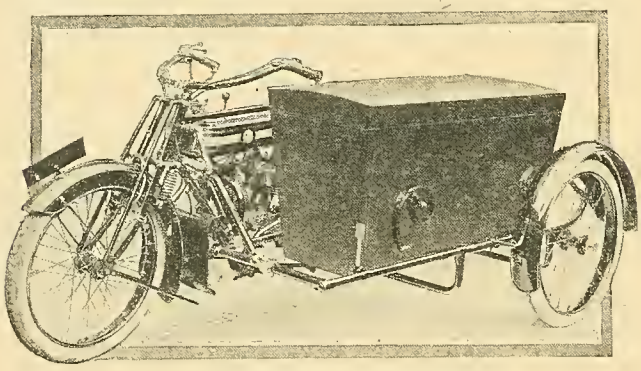
WINNER OF BYROM CUP.—H. H. Charge (3½ Rudge sc.)
WINNER OF SPECIAL GOLD MEDAL.—A. C. Thornton (3½ Rover).
WINNER OF STANDARD GOLD MEDAL.—G. Heminway (4 Triumph sc.)
WINNERS OF SILVER MEDALS.—F W. J. Bell (6 Rex sc.), T. Child (6 A.J.S. sc.), R. T Cawthorne (3½ Triumph sc.), E. Lunn (3½ Triumph sc.), and J. A. Wilkinson (6 Rex sc.)
WINNERS OF BRONZE MEDALS.—A. Waterman (6 Zenith sc.), A. Lunn (3½ Triumph sc.), W. E. Asquith (5 A.J.S. sc.), A. J. Burton (4 Singer sc.), G. R. Hanby (3½ Scott sc.), G. E. Hawkin (3½ Triumph sc.), W. S. Spencer (3½ Triumph sc.), and C. R. Foster.

It will be noticed that nearly every prize was won by a sidecar combination.

The Sidecar as a Commercial Vehicle.

A Cheap Method of delivering Light Goods over Scattered Areas.

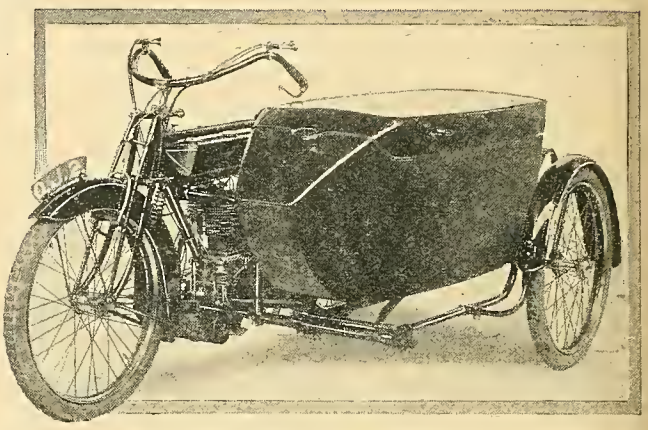
THOSE of our readers who have goods to deliver, and who have suffered by the wholesale commandeering of horses for the Army, would do well to consider the advisability of pressing into service a sidecar outfit for the conveyance and delivery of light goods. To bakers and grocers in particular a sidecar delivery van should appeal. These machines are very light in weight, cheap to run, and their first cost is moderate, and there is the further advantage that immediate delivery can be obtained in most cases. We illustrate three specimens of these outfits from manufacturers who have been quick to realise the immense usefulness of the sidecar delivery van, especially in view of the shortage of horses. Many tradesmen in comfortable circumstances who have received or will receive payment for the horses which have been commandeered for the Army would require to lay out but a little extra to purchase a sidecar vehicle of the type illustrated, and it is certain that such a machine could easily do the work of two horses, and can be tended and driven by any intelligent youth over fourteen years of age.



A Rex-Jap commercial sidecar outfit.

The Rex-Jap Commercial Sidecar Outfit.

We illustrate above an example of how the Premier Motor Co., Ltd., Aston Road, Birmingham, are meeting the demand for light commercial goods delivery work. This is not the only pattern made by the firm, for they have also just delivered several sidecars to Messrs. the Midland Vinegar Co., Ltd., for use by that firm's travellers, which have been specially fitted up to accommodate the personal effects and samples of the travellers using the machines. The chassis is identical with the one illustrated, and is remarkably strong and has four point attachment, fitted with the P.M.C. patent Quickfit couplings, which prevent misalignment of the sidecar under even the severest stresses. 650 × 65 Voiturette tyres are used, and the sidecar wheel runs on a car type spindle. Altogether, these outfits strike an important note in the use of a sidecar for definite commercial purposes, and, although eminently utilitarian, they are beautifully finished. We believe that outfits of this type will rapidly come into their own now that so many tradesmen are left horseless, and it is refreshing to see signs already of many firms preparing to supply the demand that will assuredly arise.



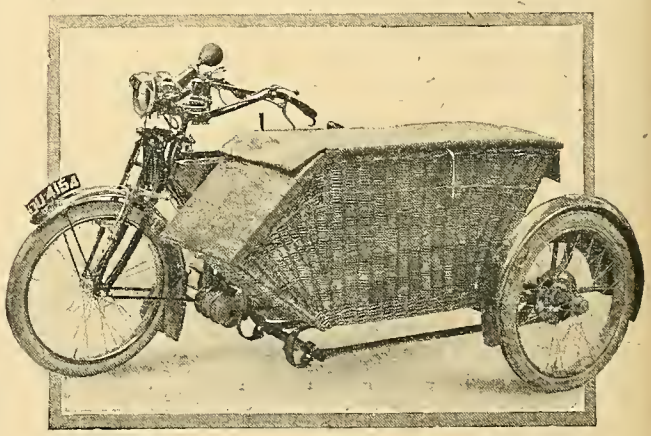
The James-Canoelet delivery sidecar.

The James Motor Cycle Carrier.

The James Cycle Co., Ltd., Greet, Birmingham, have produced a very handsome side carrier for goods delivery. The main portion of the side carriage is a James Canoelet. The upper part of the sides and back has been levelled, and a very neat and well-finished coach-built top has been fitted. This is hinged at the driver's side, and two lifting handles are provided. The body is interchangeable on the chassis with an ordinary touring Canoelet body. The James outfit is highly finished throughout, and presents a very handsome appearance.

The Excelsior Outfit.

Messrs. Bayliss, Thomas and Co., Excelsior Works, Coventry, have also seized the moment to place a soundly constructed and very moderately priced carrier on the market, which is, of course, attached to their well-known Excelsior motor cycles, which have obtained so enviable a reputation for hill-climbing powers. The model we illustrate is one which was produced rather rapidly, and we understand that modifications may be made in future models which will give greater carrying capacity. The carrier is interchangeable with an ordinary sidecar body.



The Excelsior-Millford sidecar carrier.

Six Days of Trials.

English Motor Cyclists' Adventures in France in Time of War.

AFTER the abandonment of the F.I.C.M. Six Days Trials, the British Consul at Grenoble had advised us to get out of the country as quickly as possible, and things to us began to look rather serious. There were four in the party—myself with a Connaught, W. B. Little with a Premier, and R. A. Bishop with a Royal Enfield sidecar and passenger. Our tanks were all nearly empty, but we put our trust in good luck, and started off at 11 a.m. on our journey to the North Coast. The streets in Grenoble were rather quiet, for a lot of the troops had gone away by train in the early morning. Our luck was in all right, for we came across a small garage in a village two miles out of Grenoble where we obtained enough *essence* to fill all the tanks. This eased our minds a little, and we accelerated speed up to forty and forty-five miles; one speedometer jammed at fifty-eight, so we were "travelling some." We kept on at this rate till we reached a small place named Bourgoin, where we had lunch. I rather think we might have got into trouble at this place, for a French soldier ordered us to garage our machines in a shed and not to take them out again, but as he had disappeared when we came out of the hotel, our machines disappeared also, as fast as we could make them, on the road to Lyons. It was nearly 4 p.m. when we neared Lyons, keeping well together all the way. It took us some little time to find the way through the town, but we were soon on the road to Roanne.

A Breakdown delays us.

My old two-stroke was running splendidly, and I kept well ahead, for the road was fairly good though twisty, and well fitted up with guide posts. On reaching the *octroi* at Roanne, about 6.30 p.m., I pulled up to wait for the other two, but as they had not appeared in sight after twenty minutes waiting, I jumped on the machine and rode back to see what was wrong. I found them about twelve miles back at a village called l'Arbresle; the Enfield had developed bearing trouble in the back wheel, and it was impossible to repair it. We tried our best with the tools we had till 10 p.m., and then gave it up. The villagers crowded round us and gave us moral support, which was not worth much, but better than having bricks thrown at us. We stayed the night in l'Arbresle, and in the morning, after a council of war, we left the Enfield at the hotel, and then went back to Lyons to see if we could obtain a spare ball race for the back wheel. Bishop and his luggage rode on my carrier, and Little took the passenger and *his* luggage.

We reached Lyons safely and went to the Motosacoche depot, but found out that we could not get a spare in the whole town. We were in a fix all right. So off we went to see the Consul, for things began to look a wee bit serious, and not one of us had a passport. When we got to the Consul's office, there were about sixty waiting their turn to see him. Two girls fainted in the crush while we were there. However, we got certificates of registration after waiting eight hours and went outside again.

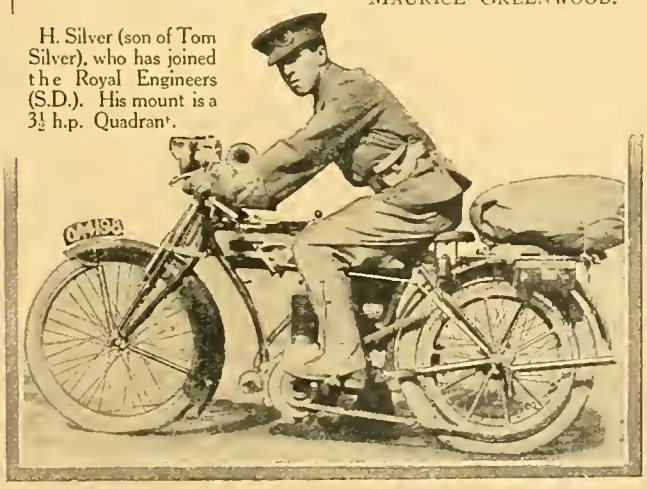
Our Machines are Commandeered.

We had barely got into the street again, when three soldiers came up and informed us that they required our machines to be left with them as they would be required for national service. This put us in a worse plight than before, but there was no help for it, according to the Consul, so we obtained receipts for the two machines and left the receipts in the care of the overworked Consul.

It was hardly a nice situation for us; stranded in a foreign country in a state of war. If they had left us our machines, we should not have felt so helpless, but there we were and we had to make the best of it. We asked the Consul's advice, and he promised to get us on a troop train which was leaving for Paris at noon the following day, Tuesday. He fulfilled his promise, and Tuesday, 12.30, saw us steaming out of Lyons in a crowded troop train at the headlong speed of ten miles per hour towards Paris. We did not worry about the speed as long as we got there. It was 2.30 p.m. on Wednesday when we arrived at Paris.

We had to find the Consul in Paris and see what he could do for us, and after a weary and anxious wait of eleven hours, we boarded the train for Havre, and arrived at that port at 9.30 a.m. on Thursday. The boat left Havre at 11 p.m. the same day, and, after a very crowded crossing with all lights out, we arrived at Southampton about 8 a.m. Friday, glad to get back to Old England. The first thing was a good English breakfast and then home.

MAURICE GREENWOOD.



H. Silver (son of Tom Silver), who has joined the Royal Engineers (S.D.). His mount is a 3½ h.p. Quadrant.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Choice of Medium-powered Engines.

I want to replace my 2 h.p. engine with one of greater power, but am undecided whether to have a 3½ h.p twin, a 2¾ h.p. single, or a two-stroke. I use my machine for taking a passenger on the carrier. I do not want a big heavy engine. I am all in favour of the 2¾ h.p. single, but should very much like your advice as to which engine you consider the most suitable. I shall fit a change-speed gear of some type.—G.A.T.

Since you go in for passenger carrying, we should advise you to obtain a 3½ h.p. twin engine. You would then have a fairly good reserve of power, and you would not have to run your engine all out as you would do with a single cylinder of small capacity. You are quite right to use a variable gear, and such a machine so equipped would take a sidecar and passenger quite comfortably when required. If you only carry a passenger very occasionally the small two-strokes are admirable.

Removing Compression Plate.

I have a 1913 3½ h.p. three-speed single-cylinder machine with coachbuilt sidecar, which I purchased second-hand. Recently I removed the cylinder to remedy an oil leakage between the cylinder and crank case and I found a $\frac{1}{16}$in. plate fitted between the cylinder and crank case. I would like to know for what reason the plate has been fitted in, and whether it would be advisable to remove it in order to obtain more power. The machine has a hub gear and I cannot get the knack of starting on the clutch. Can you advise me?—A.Y.

In all probability the previous owner wished to lower the compression slightly to get slower running or easier starting. It is quite likely it might make a difference in the power developed if you removed the plate. It certainly would not harm the engine in any way to do so. If the clutch is in proper adjustment and satisfactorily lubricated you should be able to start away easily and the drive should be picked up sweetly. You should let the clutch in gently, and, at the same time, open the throttle very slightly. But be content with a slow and gentle start and do not aim at rapid acceleration, for we do not suppose you will ever be able to get the quick acceleration that you do with a car when starting, especially as the machine is a single-cylinder.

Trouble with a Generator.

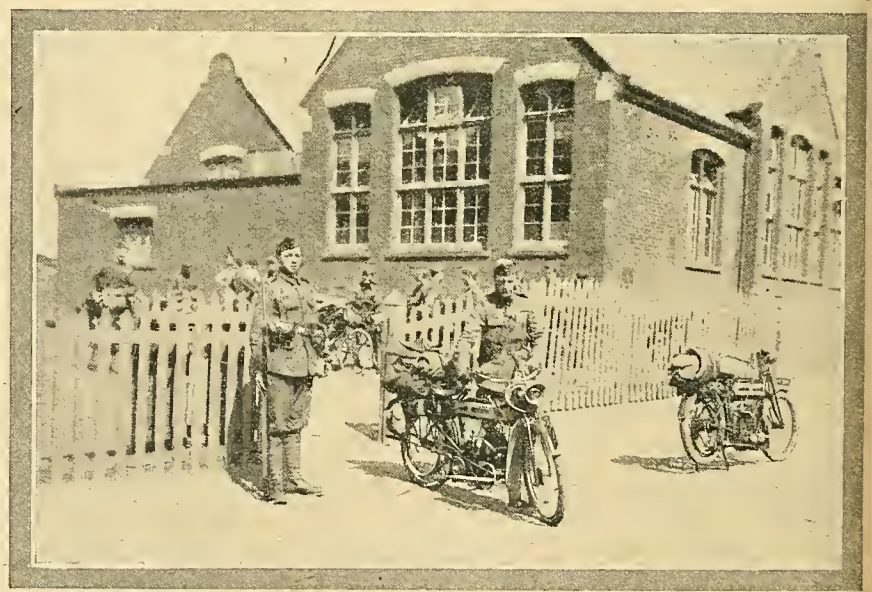
I should be glad if you would advise me on a small point that is rather worrying me. I have a large lamp, and find that after having lit it for about an hour a large quantity of water, together with some carbide dust, collects at the bottom of the container, with the result that when I go over a bump in the road this water is flung up into the carbide container, and the lamp flares up for quite a long period, and forces the water out of the small hole in the filler cap. The outcome of it all is that when I remove the generator at night I find nothing but sodden carbide in it, and the lamp, for which is claimed a six-hour capacity, has lasted two hours.—T.N.

It would seem that there is a leak somewhere in the gaspipe, and that in order to get sufficient gas to go through to the lamps as well you have to use a very large flow of water, which accounts for the carbide being used up quickly. We should advise you to test the joint carefully for any leaks that might occur. If you get a good steady pressure of gas you will find that your lamp will not flare when you pass over rough surfaces. You must also make certain that the rubber gastight ring between the two halves of the generator is fitting perfectly.

Taking a Sidecar to the I.O.M.

I shall be pleased if you will kindly advise me which is the speediest route from Basingstoke to Port Erin, Isle of Man, *viâ* Liverpool, and whether it is worth while shipping my motor cycle and sidecar to the Island for a week. If so, what are the freight charges, and is it necessary for me to detach the sidecar?—A.G.A.

Your best route from Basingstoke would be *viâ* Kingsclere, Newbury, Lambourn Faringdon, Cirencester, Gloucester, Tewkesbury, Worcester, Kidderminster, Bridgnorth, Wellington, Hodnet, Whitchurch, Chester, Birkenhead, ferry to Liverpool, thence to Douglas by the I.O.M. Steam Packet Co.'s steamer, and by motor cycle to Port Erin. We certainly advise you to take your sidecar with you, as it will prove invaluable for sightseeing in the Island. The freight charges are quite moderate, about 5s. for the outfit, but with certain boats it is necessary to detach the sidecar before embarking.



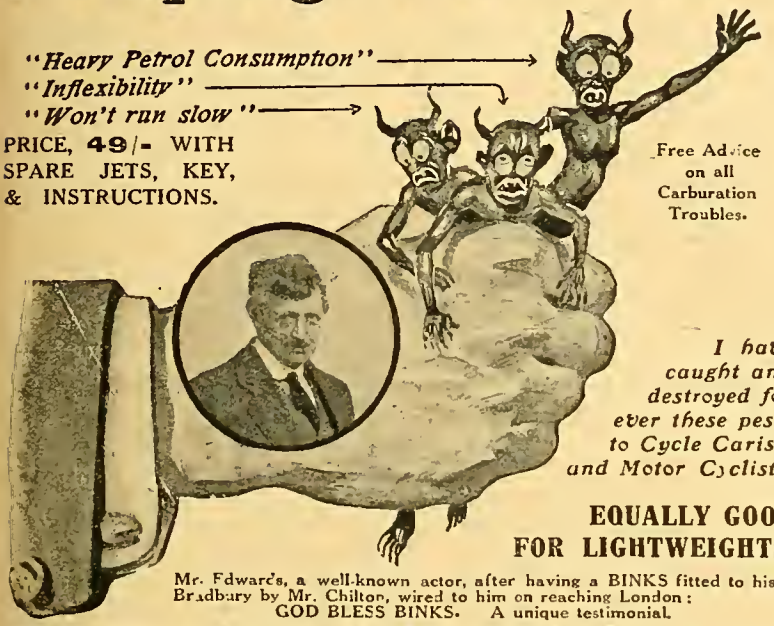
Motor cyclist despatch riders on the East Coast, whose company is using a school and playground as their temporary headquarters.

STARTLING IMPROVEMENT IN CARBURETTERS.

The BINKS 1914 Automatic Jet Damping Pilot Jet Carburetter.

"Heavy Petrol Consumption"
"Inflexibility"
"Won't run slow"

PRICE, **49/-** WITH SPARE JETS, KEY, & INSTRUCTIONS.



Free Advice on all Carburation Troubles.

I have caught and destroyed for ever these pests to Cycle Carists and Motor Cyclists.

EQUALLY GOOD FOR LIGHTWEIGHTS.

Mr. Edwards, a well-known actor, after having a BINKS fitted to his Bradbury by Mr. Chilton, wired to him on reaching London: GOD BLESS BINKS. A unique testimonial.

One lever control

For all ordinary riding especially in Traffic.

Extra air lever

is there if you fancy it.

You can shut throttle and jets off down hill and open air lever and scavenge your engine with

COOL, CLEAN AIR,

and obtain good air brake.

You cannot do this with any other.

The results given by this new and wonderful instrument have to be seen by most to be believed. No other carburetter can approach it for slow running and flexibility and utmost speed, and it is by far the most economical carburetter in the world. Makes any engine tick over dead slow like a steam engine, and pull dead slow in traffic, and won't race when clutch is taken out, when running slow.

The JET DAMPING SYSTEM—The Secret of the extreme economy.
The VARIABLE CHOKE TUBES—The Secret of the marvellous flexibility.

ON 3½ TRIUMPHS

AND ALL SIMILAR MACHINES

150 MILES PER GALLON.

DISPATCH RIDERS

are now fitting these Carburetters to their machines as they enable them to run much quieter. No "bangs" or racing engines, and much greater mileage.

If you wish to distinguish yourself you have a much better chance if your machine has one of these carburetters.

THEY ARE RECOMMENDED BY THE MILITARY AUTHORITIES AS THEY MAKE THE ENGINE START INSTANTLY and RUN FASTER. Both points of VITAL IMPORTANCE IN WAR.

Mr. O'Donovan gets over 81 miles per hour out of his 3½ h.p. single Norton.

On the SCOTT

This instrument practically makes this truly magnificent machine run with steam engine like flexibility, absolutely dead slow when free or in traffic, gives it the *easiest* start, and the extreme speed possible, yet with less petrol consumption than any other, and does not race when clutch is taken out. I have hundreds of wonderful testimonials about my this year's carburetter on Scotts' but the new instrument is a *startling improvement* on this year's, giving far slower running and 25% more mileage. Can be fitted to the Scott, when the old carburetter is removed, by a novice in half an hour, with a spanner only. Absolutely no alteration or work required. To enable you to *TEST* my claims, and compare this instrument with others, I will send you one on a week's approval and *TRIAL*, and if you do not like it I will return your money. The Scott set consists of Carburetter, 49/-, new petrol pipe, connecting stirrup, clamp, bracket, and engine shields, to make all look neat and workmanlike, 15--

READ LETTER IN "THE MOTOR CYCLE" ON AUGUST 21st, 1913, PAGE 1091, FROM R. F. G. KELLY, ESQ.

Testimonial (quite unsolicited) from Rev. O. D. Bruce-Payne.

St. Christopher's, Sandwich, Kent,
23rd September, 1913.

C. Binks, Ltd.

Dear Sirs,—I have just finished 500 miles with your latest pattern carburetter fitted to my Scott. First, with regard to the fitting—if accessibility counts for anything it is admirable. Your carburetter went on without any tool being needed beyond a small spanner. It is the most **delightful** instrument in use. In conjunction with a Scott, traffic, originally a nightmare with a one jet carburetter (automatic), which needed the united control of both hands and both feet, has no terrors, I can safely say, with a Binks two-jet. The extra air lever as a brake is especially useful.

Yours sincerely,
O. D. BRUCE-PAYNE.

Don't be put off by those makers who have contracted to fit cheap carburetters to all their 1914 machines.

Send for Lists and Treatise on Carburation.

C. BINKS, LTD., PHOENIX WORKS, ECCLES, Nr. MANCHESTER.

In answering this advertisement it is desirable to mention "The Motor Cycle." B27

Cams for Speed Work.

With standard timing I can do about 48 m.p.h., geared 4¼ to 1, on my 3½ h.p. single-cylinder. Is there any different valve timing and magneto timing for speed? What timing do you recommend for hill-climbing? If there is a different timing, and do manufacturers supply special cams?—H.A.

For ultra-high speed work it is certainly necessary to have a different valve and ignition timing. As a rule, for high speed work overlap of the valves is necessary. It is impossible for you to alter the timing, of course, unless you have new cams, but in all probability the makers would supply you with them if you wanted them. At the same time, when you have adopted such a timing you will not be able to throttle down, and the machine would be extremely uncomfortable for touring. You had better consult the makers as to the best timing for hill-climbing, as it varies so much with different engines.

Taking Driving Lessons.

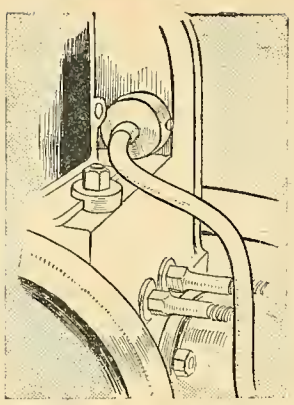
A local motor agent has a Morgan runabout which he uses for his business, trials, etc., and he has offered to give me some driving lessons on this machine, not necessarily with a view to my purchasing a machine, but because I said I should like a few. What would be a reasonable amount to pay for tuition? Four or five miles would have to be covered simply to get to a suitable road, both out and home. Is there much risk of a novice damaging a Morgan, and should I require a driving licence?—P.S.T.

We are afraid we cannot give you any set price for the lessons, and would advise you to try and come to some satisfactory arrangement with the agent. A usual fee for a course of lessons in driving a car is four guineas, but we do not think it would be so much in your case. The agent would certainly have to take the risk of your damaging the machine, but we do not think you could harm it in any way other than by running into anything. You would require a driving licence.

Chancery Lane to the Peak.

Will you kindly advise me which is the best route from Chancery Lane, London, to Bradwell—a village in the Peak District—and also give me an idea of the distance? My mount is a 3½ h.p. three-speed Humber, ridden solo, so that there is not any necessity to go out of my way to avoid hills.—B.J.M.

If you are going from Chancery Lane we should advise you to go through Holborn, Oxford Street, Baker Street, Park Road, to Finchley Road, which follow right through to Barnet, then continue through St. Albans, Dunstable, Fenny Stratford, Stony Stratford, Towcester, Weedon, Daventry, along Watling Street until you reach the turning to Hinckley, then go through Hinckley, Ashby-de-la-Zouch, Derby, Matlock, Baslow, Eyam, Hucklow, Bradwell. The distance would be approximately 150 miles.

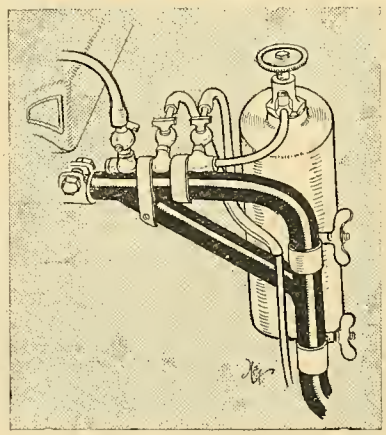


Release valve and pipe from crank case, conducting waste oil away to the ground, as adopted on the 3½ h.p. horizontal twin Brough.

Persistent Overheating.

I have a 3½ h.p. 1912 F.E. single-geared machine which has lately taken to knocking terribly. I have removed the cylinder and cleaned the carbon off, and fitted new rings. The carburetter is perfectly clean, and the bearings seem to be right. I am using a good thick oil, but all the same the engine, crank case, and carburetter get very hot after running about five or six miles. I use a medium gear, and the engine knocks in whatever place I put the magneto lever.—W.S.

We would suggest that you should try a new plug, as the points of the one you have at the present moment are probably burnt away and become so thin that the heat of the exploded charge renders them incandescent and so causes violent pre-ignition. We think you were quite right in fitting new piston rings, as it appears that blowing back is taking place into the crank case; consequently the heating you complain of is the result. You might also verify the timing, which possibly may have slipped.



Method of carrying a D.A. cylinder, noticed on a 6 h.p. Bradbury sidecar, showing arrangement of taps for front, sidecar, and rear lights.

Incorrect Belt Line.

I am building a motor cycle with a 2½in. belt line and 1in. belt. I ordered a new rear wheel with pulley to this belt line, but on receiving it I find the belt line is 2 1/32in.—that is, 5/16in. too much. Should I use this wheel as it is, or have it rebuilt to correct belt line?—H.M.

It will be impossible to run the belt so much out of line with satisfactory results. As you suggest, it would certainly be better if you had the wheel rebuilt in order to suit the position of the pulley of the engine.

Loss of Power and Weak Springs.

Until recently my engine a 2¾ single-cylinder, was running very well, when it quite suddenly lost all power on hills, and now I can seldom get it to do more than about 17 m.p.h. Occasionally it will accelerate up to about 35 m.p.h., but of its own accord it slows down after about two miles. I have tested the petrol level, compression when hot, and all joints for air leaks, but find all in perfect order. I presume the magneto is in order, as I never get a misfire?—J.P.

It will probably be necessary for you to renew the valve springs, as these have probably been in use some time and lost their temper and springiness. We cannot think of any other cause, as you seem to have gone through most of the things and found them to be correct. There is just a chance, however, that you are not getting sufficient lift on the valve, through wear on either the tappets or cams. If adjustment is provided this point can easily be seen to, but if not you will require a collar or thimble on the tappet to provide against the wear, but great care to get the right thickness for adjustment must be observed.

READER'S REPLY

A Trip to France.

My experience will be of interest to "J.L.," who wrote in your July 30th issue *re* a trip to France. In 1911 I went to Paris by Southampton-Havre with a sidecar and passenger. At Paris we were joined by a third person and went to Tours by train with the motor cycle. Two of us came back direct from Tours to Havre by road *viâ* Chartres and Rouen. Now the transport of the motor cycle and sidecar from Paris to Tours in the passenger train only cost us five francs. There were no formalities or previous notice necessary, and we did not even detach the sidecar. I should suggest to "J.L." that he should travel with his cycle on the train from, say, Vernon or Mantes into Paris, as he will find the cycle useful inside Paris itself, where the roads are not very bad. He could similarly travel by train for the first thirty to fifty miles out of Paris again. I have been twice to Paris this year with a car, and can say that the Havre route gives far the pleasantest road journey, and that the road between Vernon and Mantes has been largely repaired. The sea transport of the motor cycle and sidecar detached cost 10s., and the Customs only sixty centimes. These prices, however, may have been altered.—P. AND M. RIDER.

SERVICE SERVICE is ACTIVE SERVICE

In the full sense of the word. It is complete and up-to-date, and everything possible is done to thoroughly satisfy a customer. For instance, when purchasing a **SECOND-HAND MOTOR CYCLE**, we give you a **GUARANTEE** that the machine is overhauled and in **GOOD ORDER.** We can also **ARRANGE** the purchase by our **SYSTEM OF EASY EXTENDED PAYMENTS.** Please look down the following list. We are almost sure you will find a machine to suit, but in case you do not, we hope you will let us know exactly what you require, so that we can send particulars of any further machines we may have come in.

LIST OF SECOND-HAND MACHINES.

Under £20.

568.	1910	2¼ h.p. **MOTO-REVE**	£18 0
582.	1909	3½ h.p. **REX**	£18 0

£20 to £30.

564.	1910	3 h.p. **WANDERER**	£22 10
547.	1913	2¾ h.p. **MOTOSACOCHE,** Hutchinson tyres	£25 0
562.		1¾ h.p. **WANDERER**	£25 0
569.		3 h.p. **WANDERER**	£28 0
587.	1912	2 h.p. **HUMBER,** Dunlop tyres	£28 0

£30 to £40.

601.	1911	3¾ h.p. **SCOTT**	£32 10
586.	1911	3¾ h.p. **SCOTT**	£35 0
712.	1912	3½ h.p. **RUDGE** Multi, Michelin tyres	£36 0
180.	1912	6 h.p. **CLYNO**	£39 18
391.	1913	3½ h.p. **MATCHLESS-J.A.P.,** Hutchinson and Michelin tyres	£40 0
193c.	1912	3½ h.p. **P. & M.**	£40 0
	1912	6 h.p. **CLYNO,** Palmer and Hutchinson tyres	38 Gns.
	1914	2½ h.p. **CONNAUGHT,** Hutchinson tyres	£37 0
632.	1912	6 h.p. **CLYNO,** Continental tyres	£39 18
721.	1911	6 h.p. **ZENITH-J.A.P.**	£36 0
	1912	2¾ h.p. **DOUGLAS,** 2-speed, kick starter	£35 0
	1914	2 h.p. **O.K. "JUNIOR,"** Dunlop studded tyres	£29 0
559.	1911	3½ h.p. **P. & M.,** with "Swan" Sidecar	£40 0
599.	1912	3½ h.p. **TRIUMPH,** Stelastic tyres, 3in. back	£35 0

£40 to £50.

738.	1913	2¾ h.p. **DIAMOND,** Hutchinson tyres	£45 0
505.	1912	6 h.p. **ZENITH** and "Montgomery" Sidecar, Rom and Hutchinson tyres	£47 10
653.	1912	6 h.p. **CLYNO,** with "Millford" Sidecar and accessories, Kempshall tyres	£45 0
527.	1912 (late)	6 h.p. **MATCHLESS-J.A.P.,** with "Matchless" cane Sidecar, Hutchinson studded tyres	£47 10
404.	1912-13	8 h.p. **WILLIAMSON,** with "Forward" coach-built S'car	£50 0
382.	1912	8 h.p. **ZENITH,** with "Millford" Sidecar	£50 0
603.	1912	3¾ h.p. **SCOTT,** Palmer tyres	£38 10

Over £50.

535.	1914	4 h.p. **TRIUMPH,** with "Service" Sidecar, Dunlop tyres	£57 10
269.	1914	5-6 h.p. **RUDGE** Multi, Dunlop tyres	£59 0
533.	1914	4½ h.p. **JAMES,** with "James" Canoelet Sidecar, Dunlops	60 Gns.
927.	1914	6 h.p. **REX** Sidette, Continental tyres	£75 0
513.	1913	6 h.p. **CLYNO,** Kempshall tyres	£57 0
	1912	8 h.p. **CROUCH** Cycle Car, water-cooled, 3-speed and reverse, hood and screen, all lamps, speedometer, and horn, new Stepney road grip tyres	£42 10

Of new **1914** models we have a complete stock, and can give immediate delivery of practically any make. Our allowances on old machines are liberal, and there is every inducement for you to purchase from us Clyno, Connaught, Rex, Premier, O.K., Rudge, Bradbury, James, Enfield, F.N., etc., etc.

CASH, EXTENDED PAYMENT, OR EXCHANGE.

2 EXTRA-SPECIAL BARGAINS.

1914 6 h.p. **BRADBURY,** 3-speed, "Millford" Corvette Sidecar, lamp, horn, and rear light ..... **BOILED ONLY £75**

1913 6 h.p. **CLYNO,** 3 speeds (bought in 1914), No. 6 sidecar, hood, screen, spare wheel and tyre, F.R.S. lamp, horn, speedometer, guaranteed like new £75

MACHINES AND ACCESSORIES SUPPLIED ON SPECIAL TERMS TO MEMBERS OF H.M. FORCES.

THE SERVICE CO., LTD., The Sole Agents for London for CLYNOS as supplied to the War Office,

'Phone—260 Central. **289-292, 293, High Holborn, LONDON, W.C.** Wires—"Admittedly."

SEE THE

"STARS"

if you are OUT for POPULAR Lines.

The Motor of Many Merits.	Car Practice Throughout.	Easy Accessibility to all Parts.
65 GNS.	**IN TWO MODELS** 4¼ h.p. (S.C.) 6 h.p. (Twin)	**75 GNS.**
Chain Drive throughout.	Perfect Transmission.	Teeming with Refinements.

Send for our beautifully descriptive catalogue and advantageous agents' terms, which will leave you wondering why you have not previously CONSULTED THE "STARS."

STAR CYCLE Co., Pountney Street, **WOLVERHAMPTON.**

Proprietors: The Star Engineering Co., Ltd.

London Agents: THE CARETTE CO., 177, Great Portland Street - - - London, W.

Telephone 6317 Meyfair.

Save Expense.

If you feel you cannot afford new tyres just now, get out your old tyre covers and send them to us to be retreaded in the Beldam way.

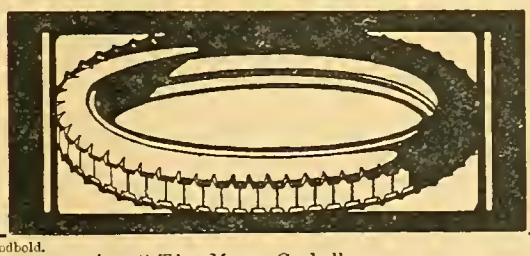
Beldam —Retreads

save you much money, last longer than some new covers. They are famous for the long life and satisfaction they give. On receipt of covers we will quote you. A very satisfied user writes:

"I was very pleased with the last cover you did for me. It outlasted the bike."

C.L.H.

The Beldam Tyre Co., Ltd., Brentford, Middx.



Godbold.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. ooo, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Son: Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 2¾h.p., T.T. roadster, 1913¾, Best and Lloyd, Watford, faultless; £42.—Pool, Moncaprice, Newport, Mon. [6428

A.J.S., late 1913, 6h.p., 3 speeds, kick starter, and coachbuilt sidecar, splendid condition, all accessories; £57.—Riley, Matlock. [X8084

A.J.S., 1913, 2¾h.p., kick starter, 2-speed, fine condition, dispatch riding; sacrifice £29/10.—Clapham, King George St., Greenwich. [X8149

A.J.S., 6h.p., late 1913, with 1914 improvements and Lucas lamp, speedometer, tools, 3-speed clutch, and 2 almost new tyres; £52/10, or best offer; owner going Egypt; trial run.—Phillips' Garage, Aldershot. [8069

6h.p. A.J.S. and Canoelet de Luxe sidecar, only used 600 miles, new 2 months ago, hood, screen, Lucas and electric lamps, fitted up regardless of expense; cost £110, accept 72 gns.; any trial.—John Webber, Cranfurdrise, Maidenhead. [X7950

Alldays.

ALLDAYS, 1913, 3½h.p., 2-speed, free engine, and in good order; £23.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0437

Ariel.

ARIEL, 1913, 3-speed model, kick starter, decompressor little used, capital order throughout; worth £40 easily, price £32/10, cash only.—Laytons, Bicester, Oxon. [X8112

IN PEACE OR WAR

A Motor Cycle and Sidecar should be a part of the equipment of every country or surburban home, and

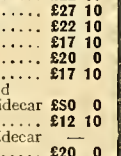
THE PLACE TO PURCHASE IS AT

HAUCHOPE'S

Call and choose the exact machine for Military service, or the most reliable sidecar combination from our great stock of best makes, new and 2nd-hand, at prices that defy competition. Every machine ready for the road and fully guaranteed.

HERE IS A SMALL SELECTION FROM TO-DAY'S LIST. ASK FOR A COPY.

8789.	3½	h.p. 1914 2 speed	**DOUGLAS** and Sidecar	£65 0
8790.	2¼	h.p. 1910 2-speed	**F.N.**	£18 0
8792.	3½	h.p. 1913 3-speed	**ROVER** and Sidecar	£48 0
8793.	3½	h.p. 1912 2-speed	**B.S.A.**	£35 0
8794.	3½	h.p. 1912	**T.T. RUDGE**	£22 10
8795.	2½	h.p. 1914 2-speed	2-stroke **CONNAUGHT**	30 gns.
8762.	6	h.p. 1913 3-speed	**BAT**	£47 10
8765.	2¼	h.p. 1914 2 stroke	**LEVIS**	£27 10
8771.	2¾	h.p. 1911, Model E.	**DOUGLAS** 2-speeds	£28 10
8772.	6	h.p.	**ROVER CAR**	£25 0
8773.	3½	h.p. 1912 2-speed	**SINGER** and sidecar	£38 10
8781.	3½	h.p. 1913	**T.T. RUDGE**	£28 0
8782.	3½	h.p. 1912	**T.T. TRIUMPH**	£25 0
8783.	3½	h.p. 1912, Twin 6-speed	**MATCHLESS**	£25 0
8784.	3½	h.p. 1909	**BRADBURY**	£17 0
8760.	8	h.p. 1913 2-speed chain drive	**MATCHLESS** and Sidecar	£55 0
8759.	2½	h.p. 1914 2-speed	**CLYNO**	£35 0
8758.	7	h.p. 1913 2-speed	**INDIAN** and Millford Sidecar	£53 0
8753.	4	h.p. 1914 3-speed	**TRIUMPH** and Bramble Sidecar	£60 0
8746.	6	h.p. 1913	**A.C** Sociable	£60 0
8744.	2¼	h.p. 1912 2-speed	**SINGER**	£25 0
8739.	4	h.p. 1914 3-speed	**TRIUMPH**	£45 0
8737.	6	h.p. 1912	**ZENITH** and Canoelet	£47 10
8732.	3½	h.p. 1914 2-speed	**P. & M.** and coach-built Sidecar	£69 0
8710.	4	h.p. 1914 3-speed	**TRIUMPH** and Gloria coach-built Sidecar	£63 0
8708.	2⅜	h.p. 1910	**DOUGLAS**	£17 10
8705.	3½	h.p. 1912 F.E.	**RUDGE**	£27 10
8702.	2	h.p. 1912	**MOTO-REVE**	£14 0
8682.	6	h.p. 1913 2-speed	**V.S.-J.A.P.** and Sidecar	£45 0
8671.	7	h.p. 1911 2-speed	**INDIAN** and Sidecar	£35 0
8654.	3½	h.p 1910 standard	**TRIUMPH**	£22 10
8640.	3½	h.p. 1912 F.E.	**RUDGE**	£27 10
8627.	2¾	h.p. 1912 twin	**HUMBER**	£22 10
8592.	3½	h.p. 1908	**QUADRANT**	£17 10
8568.	3½	h.p. 1910	**BRADBURY**	£20 0
8561.	3½	h.p.	**VINDEC** and Sidecar	£17 10
8554.	8	h.p. 1913 2-speed air-cooled	**WILLIAMSON** and Sidecar	£50 0
8551.	2¾	h.p. twin	**FAIRY**	£12 10
8529.		5-6h.p. 4-cylinder	**F.N.** and Sidecar	—
8502.	3½	h.p. 1908	**TRIUMPH**	£20 0
8412.	3½	h.p. 1908	**TRIUMPH**	£20 0
8367.	8	h.p. 1912 3-sp.	**CHATER-LEA** and Sidecar	£55 0
8359.	6	h.p. twin	**BROWN** and Sidecar	£22 10
8352.	3½	h.p. 1909 2-speed	**P. & M.**	£22 10
8338.	3½	h.p. 1910	**BRADBURY**	£22 10
8336.	2¾	h.p.	**F.N.**	£13 10
8335.	3½	h.p. 1909	**TRIUMPH**	£23 10
8323.	3½	h.p. 1912	**LINCOLN-ELK**	£22 10
8320.	3½	h.p. 1911	**ARIEL,** variable gear	£25 0
8306.	3½	h.p. 1907	**TRIUMPH**	£20 0
8277.	6	h.p. 2-speed	**N.S.U.** and Sidecar	£27 10



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AUTO-WHEEL, 1914, few hundred miles [illegible]; £13/10.—Heybourn, Motors, Maidenhead. [25

NEW Auto-Wheel, with or without new 3-speed J[illegible] lady's tricycle; offers wanted.—26, Medora [illegible], Romford. [76

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BAT, 1914, 4½h.p., 2-speed model, perfect for si[illegible]ar or solo work, brand new, but slightly shop-so[illegible]; catalogue price £57/10, cash price £50.—Lay[illegible]s, Bicester, Oxon. [X13

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BRADBURY, standard 1912, F.E., variable; sac[illegible]e nearest £20.—136, Dalmalley Rd., Croydon. [X40

BRADBURY, 6h.p., 3 speeds, shop-soiled only; [illegible]rs wanted.—Turpins 22 and 29, Preston Rd., Brig[illegible]n. [10

BRADBURY, 1911, 4h.p., with latest pattern [illegible]d-bury 2-speed gear, thoroughly overhauled, and [illegible]r-anteed perfect, excellent condition; £24.—Below.

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BRADBURY, 4h.p., late 1912, 2-speed, chain [illegible]e, with Canoelet sidecar, lamp, horn, speedometer, compressor, only run 3,800 miles; £42.—Peplow, [illegible]-bury Rd., Stockport. [X67

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BROUGHS.—Immediate delivery from stock o[illegible]e 500 c.c. horizontal twin 2-speed overhead [illegible]e models.—The West Lancashire Motor Co., South[illegible]. [55

BROUGH, 6h.p., 2-speed, kick starter, [illegible]th Canoelet sidecar, combination brand new; [illegible]st reasonable offer secures.—W. S. Life, 10, Cumber[illegible]d Rd., Southport. [X66

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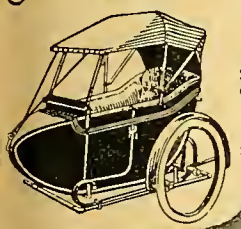

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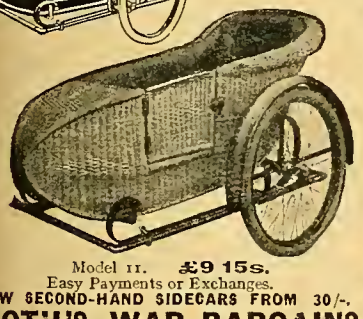

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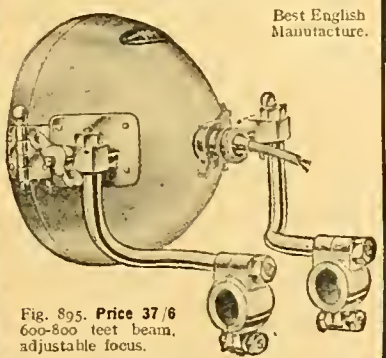

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1914 3½h.p. 3-speed Premier, complete with sidecar, speedometer, and all accessories, as new, not having run 2,000 miles; bargain £50.—Wilkinson, Barmouth, Wales. [6321

1913 3½h.p. 2-speed Premier, handle starting, with lamp and Lucas horn Kempshall tyre on back, Dunlop front, with all tools, etc.; price £28.—Robinsons, Green St., Cambridge. [0515

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REGAL-GREEN, 1913, 4h.p., water-cooled, 3-speed and clutch, splendid order, used solo only; £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0540

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REX Sidette, 1914, 6h.p., 2 speeds, coach body, hardly soiled; £64.—Bastones, 228, Pentonville Rd., King's Cross, London, N. [6412

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REX 5-6h.p. twin, with sidecar, B. and B., new tyres, re-enamelled, engine overhauled at cost of £8; room wanted; take £12.—G.P., 307, High Rd., Kilburn. [6313

REXES.—Reduced prices: New 1912 twin de luxe, £45/10; new 1913 ditto, £53/2/6; new 1913 Sidette, £65.—Motor Exchange, Westgate, Halifax. [0489

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TWIN Rex, 1911, and torpedo sidecar, Bosch mag., free engine, low 15in. frame, 1in. belt, splendid turn-out, absolutely faultless, guaranteed, all accessories, watch, mirror; bargain, £29/10.—17, Bedford Sq., Stepney. [X8107

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REX-J.A.P. 1912 De Luxe Model, 8h.p., 2-speed, coachbuilt sidecar, in very good order; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

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1912 Rover, 3½h.p., 3-speed gear, guaranteed condition, with nearly new 1913 Rover coachbuilt car, all accessories; £38.—Turner, c/o Guy, Reyaolds, Weymouth. [X8158

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ROVER, very fine 3½h.p., 1913½, 3 speeds, genuine Rover coachbuilt sidecar, speedometer, F.R.S. lamp and generator, mirror, etc., grand order; £45, cost £85.—Smith, 45, Wherstead Rd., Ipswich. [X8141

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3½h.p. Rudge Multi, slightly shop-soiled; £55/10.—Cordingley, Haslingden. Tel.: 102. [X7815

3½h.p. Rudge, 1912, free engine, and sidecar, perfect condition; bargain, £30.—Wright, Newsagent, Arlesey, Beds. [X8058

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RUDGE Multi, 3½h.p., 1913 model, complete with sidecar, lamp, horn, tools, etc., as new; exchange; £47/10.—Cordingley, Haslingden. Tel.: 102. [X7818

3½h.p. Rudge, 1911¾, clutch model, and sidecar, perfect order, spare tube and valves; £26 quick sale.—Groves, Selsea Lodge, Herne Bay. [X8061

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1913 Rudge Multi and Sidecar, lamps, and all accessories, in first-class order, little used, complete; £42.—Apply, Owen, 19, Battersea Rise, S.W. [6403

RUDGE Multi, 1914, 5-6h.p., 3-speed hub gear; £40; in excellent condition; any trial; done about 1,000 miles.—Exeter Motor Cycle and Light Car Co., Ltd., 28, Tavistock Rd., Plymouth. [0571

RUDGE Multi, 1914, 5-6h.p., 3-speed hub gear; £40; in excellent condition; any trial; done about 1,000 miles.—Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter. [0566

1913¾ 5-6h.p. Rudge Multi, Millford sidecar, grand condition, 3 lamps, 3 generators, speedometer, horn, 2 spare tyres, other spares, new belt; bargain, £60.—Apply, Slee and Pike's, P.H., 121, Borough High St., London Bridge. [X8010

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SCOTT, 1914, slightly soiled; offers wanted.—Laytons, Bicester, Oxon. [X8119

LATE 1913 Scott, with 1914 fitments, perfect; bargain, £45.—A. J. Young, Newmarket. [5922

1911 Scott, thorough order, free engine, 2 speeds, kick starter; £24, offers.—36, Cambridge Rd., Chiswick. [6383

SCOTT, late 1910, good condition throughout; £21, or exchange Douglas.—72, Vallentin Rd., Walthamstow. [6418

3¾h.p. Scott, 1910, 2-speed kick starter, with sidecar, excellent order; bargain, £20.—Ralph, Highgate Cottage, Lostock. [X8083

3¾h.p. Scott, 1911, 2 speeds, kick starter, with sidecar; a real bargain, £30.—Cordingley, Haslingden. Tel.: 102. [X7819

SCOTT 1913 2-stroke, in really new condition, not done 70 miles; £40 cash.—Premier Motor Co., Ltd., Aston Rd., Birmingham [0472

SCOTT, 1912, with sidecar, perfect condition; must realise at once, accept £18.—Turner's Motor Works, Curzon Rd., West Ealing. [6427

SCOTT Motor Cycle and sidecar, 2 speeds, speedometer, head lamp, splendid order; £45 to quick buyer.—Freeman, Oakes, Devonshire St., Sheffield. [X7089

Singer.

SINCER Ligbtweight; £12; examination invited while engine down.—Growcott, Brades, Janson Rd., Southampton. [6399

SINGER, 2½h.p., 1912½, overhauled, re-plated, and enamelled by Singer Co., all as new; bargain, £25.—Hartwell's Garage, Chipping Norton. [6335

SINGER, 4½h.p., 2-speed counter-shaft gear, kick start and clutch, complete with smart sidecar, for £70.—Colmore Depot, 31, Colmore Row, Birmingham. [X8025

Triumph.

TRIUMPHS.—Premier Motor Co., Aston Rd., Birmingham. [0559

TRIUMPH, 1911, speedometer, perfect; £20.—L.P., 34, Nella Rd., Fulham Palace Rd. [6379

TRIUMPH, late 1912, good condition, speedometer, etc.; £37.—19, New Bond St., Leicester. [X8060

1914 Triumphs.—Early delivery from The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0428

1909 Triumph and Wicker Sidecar, 2 speeds, complete; £27.—Cross, Agent, Rotherham. [X8103

TRIUMPH, 1914, 3-speed, Millford sidecar, all accessories; £48.—53, Manor Rd., Richmond. [6396

TRIUMPH, 1912 pattern, in spleadid condition; £30.—Eardley Bolas House, near Wellington, Shropshire. [X7949

1909 Triumph, 2 speeds, very smart machine, magnificent order; £25.—Purcells, 78, Charlotte St., Fitzroy Sq., W. [6334

TRIUMPH, 1914, 4h.p., 3-speed model; instant delivery; price £60; exchanges entertained.—Laytons, Bicester, Oxon. [X8121

TRIUMPH, 1910, fine condition, Mabon clutch, lamp, horn, sidecar; £22.—72, Vallentin Rd., Walthamstow. [6419

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1914 2¼h.p. 2-stroke Junior Triumph, used one demonstration run only; £38.—Parker and Son, St. ..es, Hunts. [0535

1910 Triumph, perfect condition; £20; any trial.—260, Coldharbour Lane, Brixton, S.W. 'Phone: ..rixton 2042. [0476

TRIUMPH, 1912 3½h.p., free engine, equal to new; £33 cash.—The Premier Motor Co., Ltd., ..ston Rd., Birmingham. [0473

TRIUMPH, 2¼h.p., 2-stroke lightweight, in stock, immediate delivery; £42 cash, or exchange.—Stour ..rcle Depot, Stourbridge. [X8059

TRIUMPH, 1912, clutch model, lamp, Palmer cords, speedometer, spares, and tools; £35.—..9, Horsell Rd., Holloway. [6425

TRIUMPH, with sidecar, 1912½, 3½h.p., free engine, perfect condition, new tyre; £35.—Foster, Nithsdale Av., Market Harborough. [X7952

TRIUMPH, 1909, 3½h.p., clutch, overhauled, very sound machine, lamp, horn, rock-bottom cash price ..17/10.—Laytons, Bicester, Oxon. [X8120

3½h.p. Triumph, standard, 1910 model, in splendid running order; bargain, £21 to clear.—Turvey and ..o., The Motor House, Sunderland. [X6815

1913¾ Triumph, 3½h.p., 3-speed, new last Oct.; cost £60, bargain for £40; another 1912½ ditto, £24. ..Hartwell's Garage, Chipping Norton. [6336

TRIUMPH, 1910, 3½h.p., standard model, semi T.T. bars, 1913 Binks carburetter, and Philipson pulley, guaranteed perfect order; £18.—Below.

TRIUMPH, 1913, 3½h.p., free engine model, in splendid order, semi T.T. bars, in splendid order; £35. ..Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0461

3½h.p. Triumph, 1910, free engine clutch model, speedometer, lamp, horn; bargain, £28, in grand ..rder.—Turvey and Co., The Motor House, Sunderland. [X6820

TRIUMPH, 1914, 4h.p., and coachbuilt sidecar and screen, complete with lamps, horn, speedometer, ..tc.; 60 gns.—Baker St. Garage, Handsworth, Birmingham. [X7762

3½h.p. Triumph, late 1911 clutch model, thoroughly overhauled; expert examination; complete; £30. ..argain.—Address, Wyatt, Shakespeare Garage, Stratford-on-Avon. [X8002

TRIUMPH, 1914, 4h.p., with coachbuilt sidecar and all accessories, only run 500 miles, good as new; ..ost £80, sell 60 gns. cash.—Calf, Acacia, Hayes End, ..Middlesex. [X8053

TRIUMPH, 1909, recently overhauled by makers and re-enamelled, rear exhaust, new tyres, lamp ..et, many spares; £20.—Smith, Milverton, Riches St., ..Wolverhampton. [X8082

1914 4h.p. 3-speed Triumph, as new, with Lucas lamp and horn, spare belt, plug, and valve; ..ll-health only cause for selling; £48.—Starkey, 29, ..Elsee Rd., Rugby. [6381

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2½h.p. 2-stroke Triumph, new at beginning of last May, in splendid running order, plating and ..amelling perfect; bargain, £37, or near offer.—Box ..No. 6,566, *The Motor Cycle* Offices, Coventry. [X7737

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TRUMP-J.A.P., 1912, 4h.p., new condition, Pedley and Hutchinson tyres, new belt, lamp, horn, mirror, and ..ools; absolute bargain, £20.—James, Kineon Pottery, ..Kerkstone. [X8163

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5-6h.p. Vindec, 2 speeds, free engine, twin Peugeot engine, Montgomery sidecar, Bosch mag.; £29; particulars, stamp.—Iliff, 7, Talygarw Terrace, Pontyclun, ..Glamorgan. [X8088

V.S.

V.S., 5-6h.p., 2-speed, pedal starter, Dunlops, also sidecar, in splendid running order, spares; offers.—..1, Mill Rd., Merton Rd., Wimbledon. [6337

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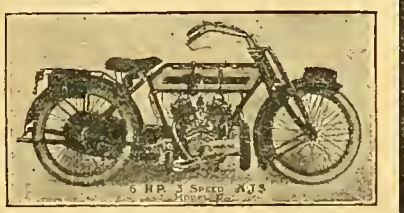

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ZENITH-GRADUA, 1914, 3¾h.p., water-cooled Green engine, sporting model, Canoelet sidecar, finished in red, T.T. bars, tools, accessories, etc., practically new, very fast; £48.—Below.

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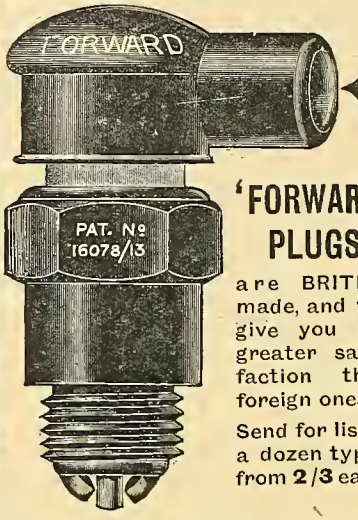

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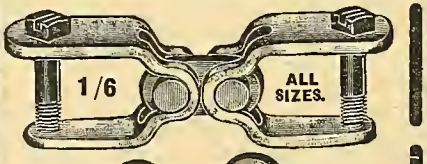

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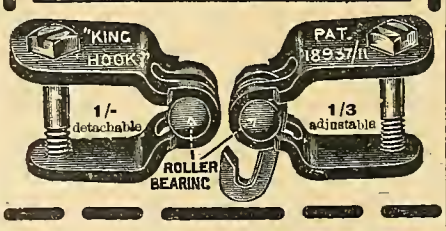

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1914 Gloria Sidecar, soiled only, not driven 100 miles; cash price £11/10.—Guy, Reynolds, Weymouth. [X8160

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HATER-LEA 12 gn. Art Cane Sidecar, re-enamelled, overhauled, light; nearest £5.—18, Woodbine Cres-t, Stockport. [X8041

(DECAR, torpedo wicker, Chater chassis and fittings, new cover-all apron, done 800; £6.—Morris, 38, na Rd., Bristol. [6328

7ICKER Sidecar, torpedo, side door, new condition, suitable for 3½h.p. cycle; £3/15.—Harris, 6, rch Rd., Rosherville, Gravesend. [6327

ASTONES for Sidecars.—Latest torpedo models from £5/18: bodies from 36/-; cigar pattern bodies, 17/6.—228, Pentonville Rd., King's Cross, London, N. [6411

914 Milliford, Montgomery, Fitsu, Watsonian, Ivy, and other makes in stock, to fit any machine, m Elce and Co., 15, Bishopsgate Av., Camomile St., C. [0409

ROSVENOR Sidecars, lightweight cigar shape model, specially suitable for Douglas machines, £8; coach-lt models from £10; catalogue free.—Grosvenor Motor , Bradford St. West, Bolton. [X8068

.M.C. Sidecars from £5/17/6 to £10/10; write for catalogue fully illustrating the various models and ent P.M.C. quick fit couplings.—The Premier Motor . Ltd., Aston Rd., Birmingham. [0154

WING to the War, we are clearing out all our coach-built sidecars at prices from £5 second-hand, to new; several wicker ones at £2/10.—Oakleigh Side-Co., Ltd., 65a, Rosendale Rd., West Dulwich. [6373

OYAL Leicester Sidecars are admitted by all to be first-class finish and remarkable value; best ing designs on the market; light bodies for low er machines a speciality; make no purchase without ing cars; several shop-soiled sidecars offered cheap.—kes, and Holt, Ltd., Belgrave Rd., Leicester. [0190

BODIES.

EW Coachbuilt Sidecar Bodies, suit 3½h.p., at whole-sale prices; £3/10.—Pothoes, Allen Bros., Every St., lson. [X8016

AVE you had our illustrations of sidecar bodies? If not, write at once for them.—Alvic and Co., terfall Rd., Tooting, S.W. [6421

CYCLE CARS.

912 Wall Cycle Car; what offers? lightweight taken part exchange.—Cooper, Chemist, Hulesowen. [X8086

.C. Light Car, slightly shop-soiled; list £175, sell £150.—Cordingley, Haslingden. Tel.: 102. [X7833

ORGAN Runabouts; immediate delivery 1914 models; sporting model just arrived.—Moss, em. [X8092

.C. Sociable, 6b.p., 1913, perfect order, all spares; £40, cost £107.—Hutchinson, Fosse Rd., Syston, icester. [X8030

LLDAYS Midget, 8h.p., water-cooled twin, 1913, all spares and accessories.—P. J. Evans, John Bright Birmingham. [6369

UMBERETTE, 8h.p., 3 speeds, 1913 model, complete, all necessories; £75.—P. J. Evans, John ight St., Birmingham. [6371

ABELLA Latest Cycle Car, 8-10h.p. J.A.P., water-cooled, mag., hood, screen, beauty; £55; easy pay-nts.—1, Ebner St., Wandsworth. [X8047

.W.K., 8h.p., 4 speeds, 1913, excellent order, com plete with hood, screen, and accessories; £95.—P. Evans, John Bright St., Birmingham. [6370

ALIFAX.—1914 Lagonda, £150; G.W.K., £150; Victor, £115; Calthorpe. All new from stock; changes.—Motor Exchange, Westgate, Halifax. [0488

EDELIA Cycle Car, late racing model, complete, hood screen, lamps, tools, etc.; £32; exchange good tor cycle; trial.—Roughton, Wolverton, Bucks. [6338

TANDARD Morgan, April, 1914, hood, screen, lamps, spares, speedometer, side door, fully uipped; cost £110, accept £85.—Bassett, Doncaster. [X8063

TOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38. The Premier Motor Co., Ltd., Aston Rd., Bir ngham. [0527

ELIVERY from stock, A.C., 10h.p., 4-cyl., £175; other models 7 days; Swift, 7h.p., £140; ex-anges; special cash terms.—Cordingley, sole North ncashire agent, Haslingden. Tel.: 102. [X7834

912 (October) A.C. Sociable, with dickey seat, front wheel brakes, screen, 3 lamps, large buck tyre d tools, only done about 4,000 miles, absolutely as d as new; cost over £100, clear £52/10.—Cordingley, slingden. Tel.: 102. [X7812

NE A.C. Pattern Cycle Car, 4½-6h.p. water-cooled engine, wants dash and mudguards, new, £30; e Cronch Carette, complete, £55; call and inspect.—rgan and Maxwell, The General Motories, 80, High ., Streatham, London. [X8154

CARS FOR SALE.

h.p. Rover Car, perfect running order; £25.—Rey, 378, Euston Rd., London. [6241

INGER 10h.p. Light Car, suede grey, dynamo, etc.; £204/15.—Cordingley, Haslingden. Tel.: 102. [X7836

INE More Landaulet, £65, splendid condition; exchange considered.—Henshaw, Wheelwright, Stock-t. [X8124

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GUARANTEED NOT TO PULL THROUGH.

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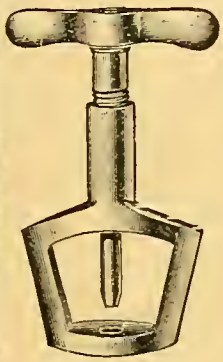

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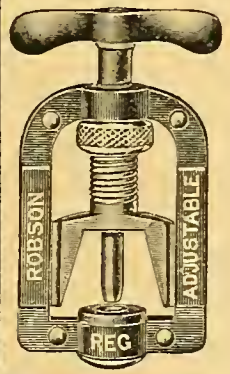

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Two Sizes—

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275/7, Coventry Road,

BIRMINGHAM.

CARS FOR SALE.

8h.p. Rover, late 1910, cost £275, dual ignition, detachable wheels; £45; Triumph part.—Martin, 86, Hervey St., Ipswich. [X8150

DE DION, 8h.p., genuine, 2 speeds and reverse, chassis perfect, body shabby, make good light trade vehicle; a gift, £12/10.—45, Wherstead Rd., Ipswich. [X8140

10-12b.p. Clyde, mag., 2 new tyres, 2-seat. body, screen, etc., just recently overhauled; £35; exchange for motor cycle considered.—Longman, 46, Hillcrest Rd., Acton. [6361

16h.p. Darracq, 4-cyl., mag., screen, lamps, with flat lurry top, to carry 18 cwt., £45; 6½h.p. Regal, single-cyl., 2-seat., green, guaranteed perfect, £10/10; 8b.p. Vulcan, 2-seat., dickey seat., 2-cyl., mag., black leather hood, screen, lamps, £45; the above cars can be seen and tried at Cordingleys, Haslingden. Tel.: 102. [6431

ENGINES.

3½h.p. M.M.C., new bushes, piston, timing, plates, spares; 25/-.—Ellis, 16, Cliffe Rd., Croydon. [6353

7-9h.p. Peugeot, silencer, inlet, engine plates, platform, fit Chater; £5/10.—115, Tuam Rd., Plumstead. [6395

BASTONES.—New Rex, 1913, 6h.p. twin engine, with Bosch mag., £16/15; new Blumfield 3½h.p. single, less mag., £8/15.—228, Pentonville Rd., King's Cross, London, N. [6407

IGNITION APPLIANCES.

PARKER and Rice, Magneto Specialists.—Experts on all magnetos, Bosch, Eisemann, etc.

PARKER and Rice.—Re-winding, re-magnetising, overhauling, etc.; repairs executed with expedition, and unapproachable workmanship; low quotations.

IMPORTANT.—Parker and Rice give 12 months' written guarantee with each repair.

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24 Hours Magneto Repair Service.—All makes of magnetos, coils, or accumulators repaired by experienced mechanics, and returned within 24 hours as efficient as new. Spares for all makes stocked.—Simms Motor Units, Ltd., 191, Wardour St., London, W. [0539

MAGNETO Repairs of every description, any make; armature winding a speciality, guaranteed 12 months. We are late from leading manufacturers, and, having a large stock of spare parts, and our staff being English, we are still able to give same guarantee at half their prices in 24 hours. New and second-hand magnetos in stock.—The Magneto Repairing and Winding Co., 158, Seymour St., Euston Rd., London. 'Phone: Museum 1158. [6417

MAGNETO Repairs of every description; we are specialists in this work. Bosch magneto repairs a speciality; re-winding, re-magnetising. All repairs guaranteed. Avoid incompetent tinkerers. All spare parts actually stocked. Catalogue. Large stock of second-hand magnetos. Coils and accumulators repaired. Northern representative for the Eisemann Magneto Co. Send for illustrated booklet.—J. H. Rawbaken, Magneto Specialist, 7, Peter St., Manchester. 'Phone: 6111 City. [0404

BELTS.

FINEST Value.—Leather belts, 1/3 per foot.—Exeldo Co., Haworth, Keighley, Yorks. [6094

ELITE.—Wood-Milne belts, rubber and canvas, 1½in. 1/6 per ft., ¾in. 11d. per ft., ⅝in. 10d. per ft.

ELITE.—Special clearance line of Lyso belts, fully guaranteed by the manufacturers (Avon India Rubber Co.), 7ft. 6in.×⅞in., 7/- each; 7ft. 4½in., to suit Triumphs, 6/9; only a few left.

ELITE.—Continental belts, rubber and canvas, 1in. 1/6 per ft. (list price 2/2), ⅞in. 1/2 (list price 1/11), ¾in. 1/- (list price 1/7), ⅝in. 10d. per ft. (list price 1/5).

ELITE.—New 1914 John Bull belts, ¾in. 1/6, ⅞in. 1/9½, 1in. 2/1, 1⅛in. 2/7; allowance up to 3/- for old belts.

ELITE.—Service pattern leather belting, ⅞in. 10½d. ft., 1in. 1/- ft.

ELITE Rubber Co., 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phone: Brixton 2042. [9069

BASTONES.—Best quality leather and chrome belting, ⅝ 11d., ¾ 1/1, ⅞ 1/2, 1in. 1/4, 1⅛in. 1/6 per foot.—228, Pentonville Rd., King's Cross, London, N. [6409

TYRES.

26×2¼ John Bull Cover, done 150; 22/6.—43, Ocean bridge Rd., Cardiff. [X8023

ROBBIALAC

A NEW MOTOR BIKE FOR 1914

may not be a possibility, indeed, may not be a necessity.

MOTOR CYCLES ARE SELDOM AS OLD AS THEY LOOK. WHY NOT SPEND A SHILLING OR TWO ON

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THE GREAT ENAMEL,

AND MAKE YOUR MACHINE

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IT GIVES A GRAND SURFACE — STANDS PETROL, GREASE, or MUD, WEATHER and WEAR.

All Standard Colours.

PRICES:

1/-, 1/6, 3/-, 6/-, 10/6, and 20/- Tins.

Of all Cycle and Motor Dealers.

Sole Manufacturers:

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LONDON, E.

TYRES.

BASTONE'S.—Hutchinson 1913 T.T. rubber-studded covers, 26×2½, fit 2¼ rims, 24/-; Passenger, 26×2 20/-, 26×2½ 28/-.

BASTONES.—Peter-Union make covers, 26×2 12/-, 26×2¼ 15/-, 26×2½ 17/6, 28×2 15/-.

BASTONES.—Michelin 1914 covers, beaded edge, 26×1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18/6, 28×2 16/6; wired edge, 26×1¾ 11/6, 26×2 13/9, 26×2¼ 15/-, 26×2½ 16/-, 28×2 14/9; Michelin tubes in stock.

BASTONES.—Guaranteed red tubes, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.

BASTONES, 228, Pentonville Rd., King's Cross, London, N. 'Phone: 2481 North. [6410

ELITE Rubber Co., 260, Coldharbour Lane, Brixton, S.W. 'Phone: Brixton 2042.—We have the follow'ng special clearance lines in motor cycle covers, belts, tubes, etc., and are offering same at prices equal to 33⅓ to 50% off the manufacturers' retail list price. All goods willingly sent on 7 days' approval against cash. These goods are all perfectly new, and in the event of any article proving unsatisfactory we are quite prepared to reasonably meet our customers by way of replacement. All goods sent carriage forward unless postage sent with order.

ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Send for price list, together with free sample of Elite Sticktight patches.

ELITE.—Kempshall clearance heavy grooved covers, 750×75 or 28×3, to suit 1914 Indians, perfectly new and fully guaranteed; 37/6.

ELITE.—Kempshall clearance covers, heavy non-skid, 26×2¼ 37/6 (list price 45/-), 26×2½ 40/- (list price 50/-), 650×65 45/- (list price 67/6).

ELITE.—Kempshall clearance covers, heavy anti-skid, 26×2¼, 24/6 (list price 32/6); 28×3 at 35/- (list price 57/6).

ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 28/6.

ELITE.—Avon 3-ribbed covers, special heavy, 650×65, 24/- (list price 34/-); Clincher fluted pattern, 22/6; Heoley steel-studded, 40/-.

ELITE.—Heavy Three Spires covers, 26×2¼, B.E., 15/- (list price 27/6).

ELITE.—Midland heavy ribbed and studded covers, special clearance line guaranteed for 3,000 miles, 26×2¼ 25/- (list price 37/6), 26×2½ 27/6 (list price 40/-).

ELITE.—Hutchinson Brooklands, 1913 stock, 26×2 12/-, T.T. 26×2½ 16/6 (list price 33/6).

ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2½ 22/6 (list price 41/3), 26×3 to fit 2½ rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 26×2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

ELITE.—Hutchinson small car covers, 650×75, to suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Continental T.T. covers, 26×2¼ 19/6 (list price 28/-).

ELITE.—Michelin clearance covers, beaded edge 26×2 light 8/9, 26×2½ 13/9; Trideet, 26×2¼ 22/-, 26×2½ 24/-; Standard, 26×2¼ 22/6, 26×2½ 24/6.

ELITE.—Clearance Michelin covers, wired on, Semelle 26×2½ 32/-, Standard 26×2½ 26/-, 26×2¼ 24/6

ELITE.—Clincher heavy rubber studded covers, 26×2¼ 17/6 (list price 34/-).

ELITE.—Dunlop heavy rubber studded covers, 26×2¼ 17/6 (list price 30/-), old 1913 stock.

ELITE.—Special heavy rubber studded covers, suitable for back wheel of 3½h.p. machines; 15/-.

ELITE.—Clincher 700×80 covers, plain tread 21/6, heavy grooved 25/-; Clincher tubes, 700×80, 6/6, suit 650×65 rims.

ELITE.—Clincher extra heavy tubes, best quality, 26×2¼ 6/6.

ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26× 3 7/6, butted 1/3 extra.

ELITE offer 15% allowance off retail list price for old covers (above clearance lines excepted); all makes in stock.

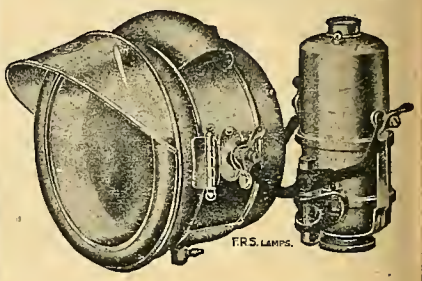
ELITE.—Motor cycle covers re-treaded by special process; treads guaranteed not to come loose; special heavy 15/-, heavy 12/6, medium 10/-; sections on application.

ELITE.—It is impossible for us to advertise all the special lines which we have in stock; therefore, if there is anything you require which is not mentioned in our advertisement, we shall be pleased to quote you upon receipt of a postcard.

ELITE Rubber Co., 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phone: Brixton 2042. [9072

F.R.S.

LAMPS AND GENERATORS, HOLD WORLDS RECORDS.



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Coupled with the F.R.S. Lamps is now known all over the world. **NO OTHER MAKE** can compare with it. It is dearer no doubt, but isn't it worth it? The best is always cheapest, and you positively **RIDE IN DAYLIGHT** through the night.

Lens.	Beam.	Price.
6 in.	1,200 ft.	72/6 and 78/6
5½ in.	1,000 ft.	62/6 and 68/6
4¾ in.	800 ft.	52/8 and 58/6

READ THIS.

To get the best you must pay well. We have made our name with quality alone, and we claim that our lamp is up to

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THE B. A. BELT

is proved to be

THE STRONGEST BELT ON THE MARKET.

It is estimated to last as long as **FOUR Rubber Belts.**

Extracts from Testimonials.

"I made the fastest time of the day in the Derbyshire and N. Stafford Automobile Club. It was a very wet day and most of the other competitors suffered from Belt-slip. The B.A. Belt was simply perfect, never slipping at all."

"I climbed Carr Bank, Oakamoor, Gradient 1 in 3 Bat 6 h.p and heavy sidecar. The first time with 7 people on, the second time with 10 people on but I had to drop, the third time we went clean up with 10 PEOPLE on. The B.A. Belt never gave any trouble."

⅞" 2/3; 1" 2/6; 1⅛" 2/9; per ft. including fastener.

Basilica Mfg. Co., Ltd., Hencroft Works, Leek.

Stocked in London: E. & A. Bastone, 228, Pentonville Rd., N. Maudes' Motor Mart, Gt. Portland St., W. H. Taylor & Co., 21, Store St., Tottenham Court Rd., W. Etc., etc.

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ESTABLISHED IN 1903
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FIVE HUNDRED AND NINETY-SIXTH CONSECUTIVE ISSUE.

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An index to advertisements will be found on the page facing the back cover.

Hub and Counter-shaft Gears.

NOW that the most strenuous and important annual trials in Great Britain are over, it is interesting to reopen the rather old controversy of "Hub *v.* Counter-shaft Gears" and endeavour to point to lessons in the light of the most recent knowledge of this much discussed subject. Without a doubt, the counter-shaft gear is steadily growing in public favour, and, as far as one can see at the moment, is the gear of the future. Its advantages are that it is much more simple in construction and has infinitely fewer parts to become deranged and require attention. These parts can also be made larger and more accessible than in the case of the hub gear. It allows of better weight distribution, and brings the kick-starter into a more convenient position. It dispenses with the long gear and clutch control rods, allows of larger diameter clutches, and involves a two step drive either by chain and belt, or by chain throughout. The rear wheel, being free of complication, is lighter and can be readily dropped out of the frame for tyre repairs. All these points are of some importance, and are well worthy of consideration, but we must not forget what the hub gear has done for the motor cycle movement.

Firstly, in conjunction with the influence of *The Motor Cycle*, it was, years ago, the means of bringing the variably geared machine into public favour, and, up till recent times, has been almost the only satisfactory three-speed gear capable of being fitted to existing pattern motor cycles.

Secondly, it is extremely neat and compact, and has given extraordinarily good results considering its size and weight; and, thirdly, it is probably the quietest form of motor cycle gear in existence, excluding, of course, the variable pulley type; and, fourthly, changing gear, up or down, at any speed is a matter of the greatest ease. The hub gear is considerably lighter than most three-speed counter-shaft boxes, and for this reason it is bound to remain with us for a certain type of motor cycle; but, unfortunately, this weight is in the wrong place, and even an expert will take considerably longer to change a tyre if a hub gear be fitted. It has one other disadvantage which, though slight, carries considerable weight with most motor cyclists, who are almost invariably their own mechanics, and that is, that it renders the back wheel very difficult to clean.

What the Hub Gear has Done.

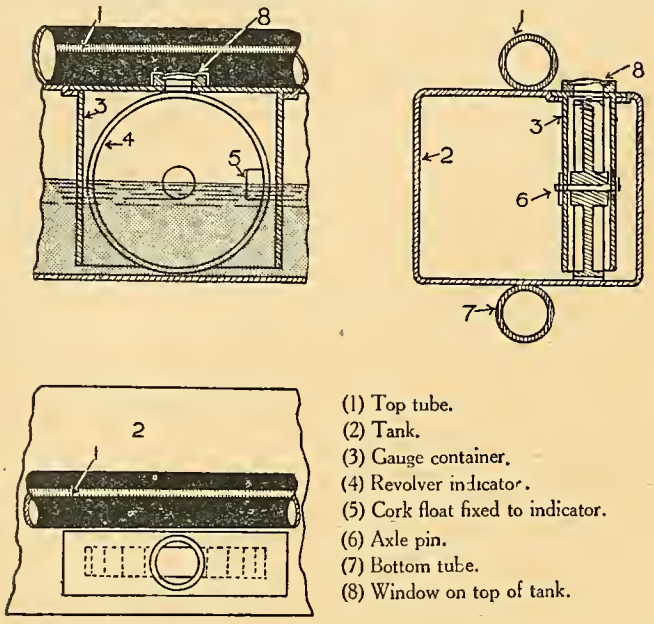
UNDOUBTEDLY, motor cyclists have to thank the three-speed hub gear for the impetus it gave to the motor cycle movement. Three or four years ago, two-speed counter-shaft gears existed in plenty, but the striking successes of three-speed hub gears in the T.T. races and trials of 1911 set every designer plotting out a multiplication of speeds, and now three or four-speed gears, no matter whether of the hub or counter-shaft type, promise to come into popular favour in 1915. Everything points to a multiplication of gear ratios, for the big trials have demonstrated in no unmistakable manner that at least three speeds are necessary for a 20 m.p.h. average over difficult courses, and we have the striking success of three-speed mounts in the A.C.U. Six Days Trial (the most severe trial ever run) still fresh in our memories.

The great and still growing popularity of the sidecar is undoubtedly primarily due to the hub gear. Thousands of owners, unable to afford a new turn-out, have, at moderate cost, been able to convert their old single-speed mounts into satisfactory passenger-carrying machines, and to this fact alone the hub gear will always lay many motor cyclists under an eternal debt of obligation.

No one can say what the future will bring, but probably the combined engine and gear unit will be the next development, for, in spite of certain manufacturing difficulties, it has many advantages from the rider's point of view

A Novel Petrol Gauge.

COMPLAINTS are not infrequently made about "petrol gauges that don't gauge," but the latest I have tested is apparently proof against all the weaknesses which have worried me in the past. It cannot suffer accidental damage or leak. It is always instantaneously legible from the saddle, and its readings are extraordinarily accurate. My enthusiasm about it is tempered only by a single anxiety, for its design rather complicates the question of fitting, and may render tank makers somewhat loth to adopt it. The sketches make its principles perfectly clear. A very light ring of metal is hung on a spindle suitably supported by vertical carrier arms inside the tank. The ring is of such a diameter that it just clears the top and the bottom of the tank, in which it is set longitudinally. At a point of the circumference of the ring a cork float is suspended; this cork float falls with the level of the petrol, as the spirit is drawn off, and so causes the ring to revolve. As the ring revolves, its face shows through a small transparent window mounted in the top of the tank, and the face of the ring is painted with indications of the petrol level, either in fractions of a gallon, or "three-quarters," "half," "empty," and the like. The gauge functions with extraordinarily fine accuracy, and its sole defect consists in the difficulty of fitting; for either the gauge must be inserted before the main seams of the tank are closed, or, alternatively, a longitudinal slot must be cut in the tank for its insertion. The length of such a slot must be about equal to the depth of the tank, and would, therefore, range from 4in. to 6in., according to the size of the tank. Enquiries should be addressed to Mr. Forrest Baird 15, East Park Avenue, Hull. ROAD RIDER.



(1) Top tube.
(2) Tank.
(3) Gauge container.
(4) Revolver indicator.
(5) Cork float fixed to indicator.
(6) Axle pin.
(7) Bottom tube.
(8) Window on top of tank.

The float rises or falls as the level of the liquid varies, thus causing indicator to revolve. Graduations are marked on the periphery of the indicator, and are seen through the window of the tank.

350 c.c. Sidecar Records Broken.

ATTACKS were made recently on the 350 c.c. sidecar records by H. Alan Rhodes and T. B. Haddock, both driving a 2¾ h.p. A.J.S. and N.S.C. sidecar with 10 stone passengers. The former opened proceedings by attacking the 350 c.c. sidecar flying kilometre, flying mile, and flying five miles records, all of which fell fairly easily. The results of his efforts will be seen by comparing the old and new records which are as follows:

	New Record.	Previous Record.
	H. A. Rhodes (2¾ single-cyl. A.J.S. sc.)	A. C. Starace (2¾ twin-cyl. N.S.U. sc.)
Flying km. ..	42⅘s. = 52.27 m.p.h.	43⅘s. = 51.07 m.p.h.
Flying mile ...	1m. 11s. = 50.70 m.p.h.	1m. 12⅖s. = 49.72 m.p.h.
Flying 5 miles	6m. 26⅘s. = 46.60 m.p.h.	7m. 2⅖s. = 42.57 m.p.h.

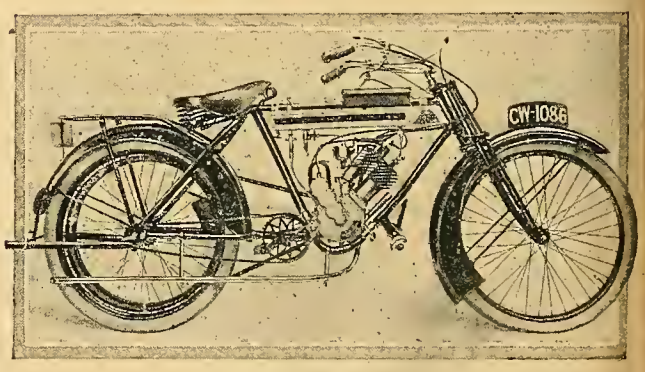
The next attempt was that of T. B. Haddock on the one hour 350 c.c. sidecar record, riding the identical machine used by Rhodes. *En route* he beat the standing ten miles record in this class, and almost up to the end of the hour was lapping regularly at an average of 42½ m.p.h., when he unluckily suffered from trouble through the petrol pipe bursting, which reduced the average to 41.43 m.p.h. for the sixty minutes. This beat the previous record by nearly a mile, as will be seen from the following table:

	New Record. T. B. Haddock (2¾ single-cyl. A.J.S. sc.) m.p.h.	Previous Record. 10 miles.—A. C. Starace (2¾ twin-cyl. N.S.U. sc.) 1 hour.—H. V. Colver (2¾ twin-cyl. Enfield sc.) m.p.h.
Standing 10 miles	14m. 6s. = 42.55	14m. 20s. = 41.82
1 hour	41 miles 757 yds. = 41.43	40 miles 988 yds. = 40.56

The A.J.S. machine was fitted, as stated above, with N.S.C. sidecar, and H. A. Rhodes used Avon tyres, Pratt's spirit, Castrol oil, U.H. magneto, and an Amac carburetter, while T. B. Haddock exchanged the Amac for a Senspray and used Chemico oil.

A WELL-DESIGNED LIGHTWEIGHT.

A remarkably cheap but well-finished lightweight is being marketed by the Moto-Rêve Co., Ltd., Alperton, Middlesex, known as the Alp. A 2 h.p. four-stroke engine of 62 × 85 mm. bore and stroke, 257 c.c., with overhead inlet valve, supplies the driving power through a Wata-Wata belt. 26in. × 2in. Hutchinsons, Druid forks, and magneto ignition are used, and the general outfit of the little machine, which scales 106 lb., is quite excellent.



The Alp lightweight motor bicycle.

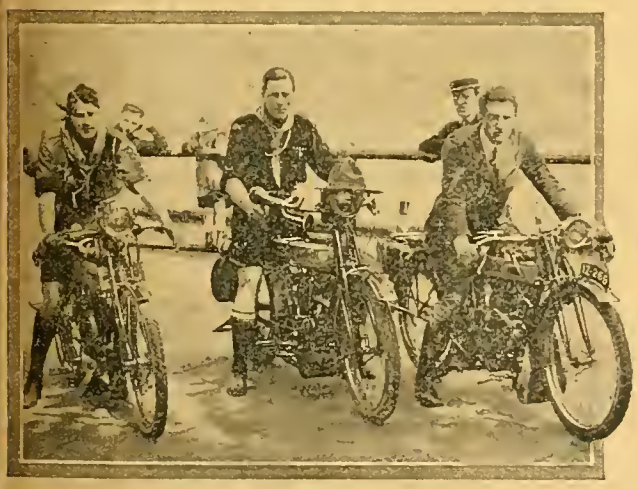
OCCASIONAL COMMENTS
by "IXION"

Stop when Challenged!

I am not very keen on night riding, though dissolved acetylene has rendered me far more disposed towards ourneys in darkness than I used to be. Anyhow, he last fortnight has made me particularly wary in wo respects; I always carry my licence with me, and, when challenged, I perform lightning stops, which would gain my brakes a 100% award from friend Loughborough in any A.C.U. test. My first experience came soon after the outbreak of war. I was peacefully scrapping at my normal night pace of—[Illegal matter deleted.—ED.]—up a little hill leading out of a neighbouring village when I fancied I beheld the village idiot dancing the cancan just under my front tyre. Fortunately my lamp was burning well, and I recognised the village policeman, further perceiving that he had something hard and shiny in his hand! I do not know how much fact underlies this spy mania, but without question it is well to stop promptly at night when anybody from a Boy Scout to an apparently inebriated tramp challenges us.

The Sporting Craze.

I read some very scathing remarks on the craze for all that smacks of Brooklands, beginning with the leather racing helmet and terminating with the streamline two-seater and cigar tail type of cycle car body. The scribe in question resurrected contemptuous memories of the early cycling days when G. P. Mills was the most famous man in England, and all the dashing youth of the day might be seen pedalling furiously abaft two handles curled downwards like a ram's horns. The prophet in question regarded all our speed poses and practices as a species of mild insanity, indicative of extreme youth, morally identifiable with swank and hypocrisy of the worst type, etc., etc., I wonder! The most enthusiastic devotee of the racing cap in my acquaintance swears by its *comfort;* and the most devoted adherent of the cycle car *type sportive* treasures it for the fast climbing which its bantam-weight body renders possible. I am not sure that we are either as bad or as silly as some of our critics imagine. Anyhow, I am all agog for a new type of cycle car body, which is reported to be made of starched canvas, and to weigh no more than an 880 × 135 mm. inner tube; but I am interested because I know my tiny engines feel every ounce of weight uphill—not because I want Miss Gladys Smithers lounging on the front at Eastbourne, to mistake me for Kenelm Lee Guinness or "Big Benz" Hornsted.



THE SPECIAL CONSTABULARY FORCE.

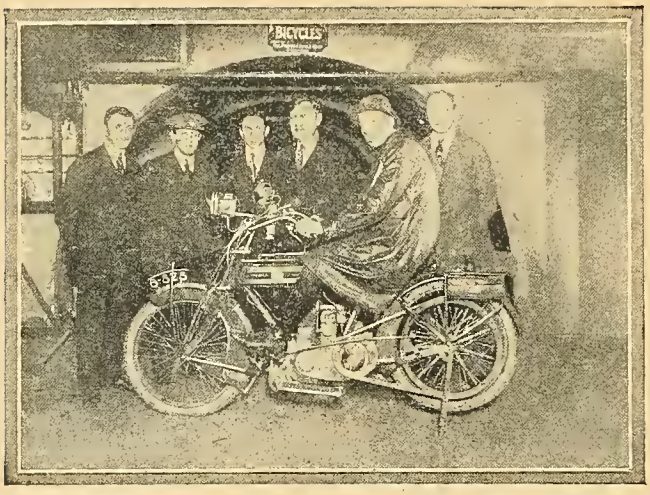
The two Scoutmasters on the left of the picture have been doing excellent work ever since the new force has been started. During the first few days they answered all queries and carried out their duties with tact, civility, and promptitude. The machines are (left to right) a Triumph, a Rudge, and a Douglas.

The Price of Petrol.

As I write the Shell and Pratt people have announced their intention of maintaining the usual prices, but the unfortunate provincial distributers are in some cases unable to replenish their supplies, as the goods trains are disorganised, and the heavy motor lorries have mostly been commandeered for military purposes. Once more the motor cyclist scores. In a cross-country provincial run I made a point of asking the price of petrol at every centre, and was quoted prices ranging from 4s. to 10s. a gallon, the exact figure being determined simply and solely by each agent's stock. In many cases the vendor insisted on verifying the amount in my tank, and expressed himself unable to supply more than the minimum quantity essential to carry me to the next town. I must make a 600 mile journey next week, and I had intended to tackle it on a cycle car, which runs 35 m.p.g., but now I shall take a motor bicycle instead, and do 110 m.p.g. There is plenty of petrol in the country, and one cannot refrain from congratulating the big suppliers for their foresight.

Dissolved Acetylene—its One Defect.

My last note on these handy cylinders provoked a few letters, with which I hasten to deal. The sole defect of the system is that one may occasionally have to sacrifice a few pennyworth of gas, as a cylinder may be just short of being exhausted when the user is starting on a long night ride, for which he may desire to have a stock of several cubic feet; for no allowance is made on any residuum in the cylinder when it is exchanged. The motor cycle size holds six cubic feet of gas, which is accurately measured, and will supply one standard head lamp burner of the normal ¼ft. size (*i.e.*, passing a quarter of a cubic foot per hour) for twenty-four hours, or two such burners for twelve hours. The cylinders never fail till their time is up, and the gauge provided with them is a



MOTOR CYCLE COMPETITION ONE DAY, WAR THE NEXT.

This illustration shows Mr. Veringa, a Dutch motor cyclist, who rode from Amsterdam to Brussels and back in competition for the Premier Cup in 15 hrs. 11 min. on his 3½ h.p. Premier. The day after he had achieved this run, he was called up as a military motor cyclist to the Dutch Army. He passed through Tirlemont, Louvain, and Liége, scenes a few days later of fierce fighting. The second figure from the left is Mr. A. Citroen, hon. sec. of the Dutch M.C.C.

reliable index of the contents. The price works out at 1¼d. per burner per hour, which is just fractionally more expensive than lump carbide used in a generator. But the infinitesimal extravagance is really an economy, for no time is spent in cleaning, no mishaps ever happen by the roadside, no burners are ever fouled or choked, and no lenses are ever damaged by tangent spirts of flame. Beware of fitting the cylinder and connecting tube in such positions that the rider may accidentally pinch the tube and suddenly plunge himself into Cimmerian darkness at high speed. I fastened my first cylinder (two years ago) to the saddle-pillar tube, and ran a light rubber pipe along the tank top to the head lamp. It slipped off the tank top one dark night, and at the next corner my famous "leaning out knee grip" pinched the pipe flat and put the light out—Gee whizz!

The Luxurious Twin—Some Protests.

I am seldom accused of fulsome pandering to the trade, but my panegyric of the modern high-powered twin bicycle de luxe, as compared with costly and comfortable touring cars, evoked quite a little volley of protests. My judgment felt so impeached that I repeated my tests, and respected my correspondents sufficiently to take a high-powered twin and a very select and comfortable car twice over the same stretch of rather indifferent road. As the result of the renewed tests I am perfectly game to stick to my guns. The big twin bicycle was unquestionably more immune from road vibration and more silent at a speed of from twenty to twenty-five miles an hour. When the pace was increased to thirty or thirty-five miles an hour, the cycle engine made more noise than the car engine, but did not communicate more vibration to my person, while the bicycle remained the more comfortable mount of the two. I can only suppose that my indignant correspondents either lack experience of a first-rate bicycle, or that their ideas of a good car on poorish roads are garnered from the pages of a catalogue rather than from actual contact with its cushions. My remarks were perfectly *bonâ-fide*, and I am ready to stick to them in the teeth of all and sundry. Here is another remark which may excite some pugnacious readers. I would rather drive a 500 c.c. single motor bicycle 200 or 300 miles in the day than the best car ever made. On the other hand, I admit it is less fatiguing to be an idle passenger in a first-rate car for that distance than to drive a motor cycle over it.

An Alternative Storm Kit.

One of our readers—a well-known long distance rider—sends us an account of his own bad weather kit, as a counterblast to "Road Rider's" recommendations (page 178, issue of August 6th). It consists of the following:

1. Hutchinson waders.
2. Fox's spiral puttees.
3. Moffat's oilskin poncho.
4. Continental riding gloves.
5. Leather racing helmet.

A practised eye will perceive at once that this outfit will cost more than twice as much as "Road Rider's," and will be infinitely more difficult to put on and take off. In other words, it is probably a better outfit than "Road Rider's" for the athletic nut who makes longish non-stop runs, puts up at hotels, glories in his freakish appearance, and does not mind what he pays for his outfit. But the athletic nut is really rather a rare bird, and the rank and file of motor cyclists desire a cheap outfit, which will keep them reasonably dry, and which can readily be removed and replaced after a short business or other call. I attended a discussion on motor cycling garments at the quarters of a provincial club not so very long ago, and this quite typical club did not appear to contain a single member who used the full costly "nut-kit" as described above; on the other hand, if the B.M.C.R.C. held a winter symposium on kit, I expect a good 75% of its membership would vote for the nut-kit. Even in a six days trial, a stormy day brings out very few of the above garments, simply because they are bulky and awkward to get into and out of. They form an admirable equipment for the home base, to use a topical term; but they are comparatively uncommon because of their cost, the labour required to put them on, and the fact that they are so heavy and hot when the storm is over. Any winter rider who can afford two separate kits should certainly have a nut-kit in reserve for his worst rides. I append my personal protest that I dislike the leather racing helmet; I had one specially made for me, which fits splendidly; but it is weighty, and does not protect the eyes.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and all that are notified to us are inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

MOTORS AND MOBILISATION.

Some Sidelights on their Many-sided Utility in Time of War.

BY OUR EAST COAST CORRESPONDENT.

THIS is the first European war in which the motor has figured largely in the operations. In our own country thousands of cars and cycles have been pressed into the service of the military authorities, and their usefulness in a hundred different ways makes some of us wonder how the Army managed in the days when the horse was the quickest means of road travel. For conveying messages, for the rapid transport of men and material, for enabling officers to flit from point to point at almost express speed, the car and the motor cycle have been invaluable, and have proved that, in addition to recreation and trade, there is a third and perhaps greater avenue in which their usefulness may be invoked for the national good.

Military Motoring on the East Coast.

I have just returned from a business trip along the East Coast. In the circumstances of the present war this is one of the most acute danger points in England. It is not for me to say how it is guarded, to say where this battalion is encamped or the other, or even to give any general picture of the enormous activity which prevails along the entire seaboard of the eastern coast, but I may be permitted to say that in this vast scheme of mobilisation, when almost an entire nation has sprung to arms, not the least important feature of it is the part played by the motor. Thousands of motors, from the taxi of uncertain age to the latest Rolls-Royce, have been pressed into service, and high roads and by-lanes, big cities and sleepy coast towns, have throbbed and hummed with the constant passage of cars and cycles—first a messenger scorching along in soulful glee at the suspension of the speed limit, then a car load of stern-faced general officers, then another carrying an armed picket to some point, then a heavy rumbling waggon heaped high with army stores. The drivers seemed thoroughly to have enjoyed their experiences, and when the war is over they will have some rare tales to unfold

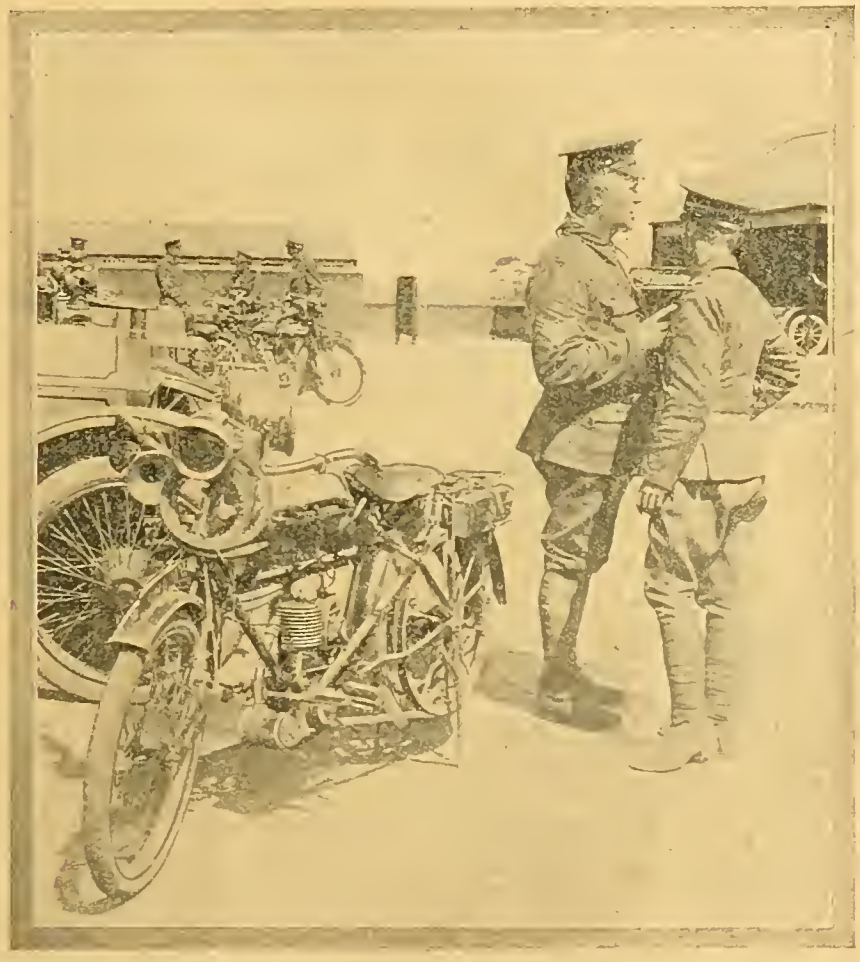
The Rough with the Smooth

The work is harassing, but it has its compensations—the halt in a peaceful country town, the hold-up in some village school where the youngsters have been released and now stand on the pavement in wide-eyed wonder at the things they but dimly understand, the refreshing sleep in the open air waiting for a general staff officer to indite his despatch reply to the letter he has just received. Sometimes there are interludes at the seaside, and time for a bathe, and then again there have been chats in the village inn where the yokels gather round and look upon the riders as though they had come straight from the fighting at the front. Everywhere we have been received with kindness, for now the nation is at war all who are even remotely connected with it are heroes in the public eye. Kindly women in the villages give us food, press parcels of vegetables upon us as we leave, and, in some cases, they have been known to take car drivers into village inns and pay for the best meal the house could provide.

Rigid Censorship of the Roads.

On the road the surveillance is rigid. Every pass is closely scrutinised, and, if there is the least doubt, the police hold the rider up whilst they telephone the town of origin and satisfy themselves. Then the pass is stamped and the messenger drives forward. The utility of the motor cycle was exemplified once when an adjutant received a telegram demanding a reply immediately from the colonel The colonel could not be found. He was some miles away. But the driver of a sidecar was sent after him and had him on the spot in half an hour. The services of motor cyclists have been requisitioned in another way, too—they have been told off to keep an eye open for any aircraft, and, as far as possible, not to let them out of observation. The military keep a close watch on all cars. Sentries guard the main approaches into important towns, and every car and cycle is stopped. In one case, where the call to "halt" was not obeyed with the needed alacrity, the front wheel of a Douglas came into contact with a bayonet, and when the rider protested the sentry laconically replied, "I suppose you have a foot brake!"

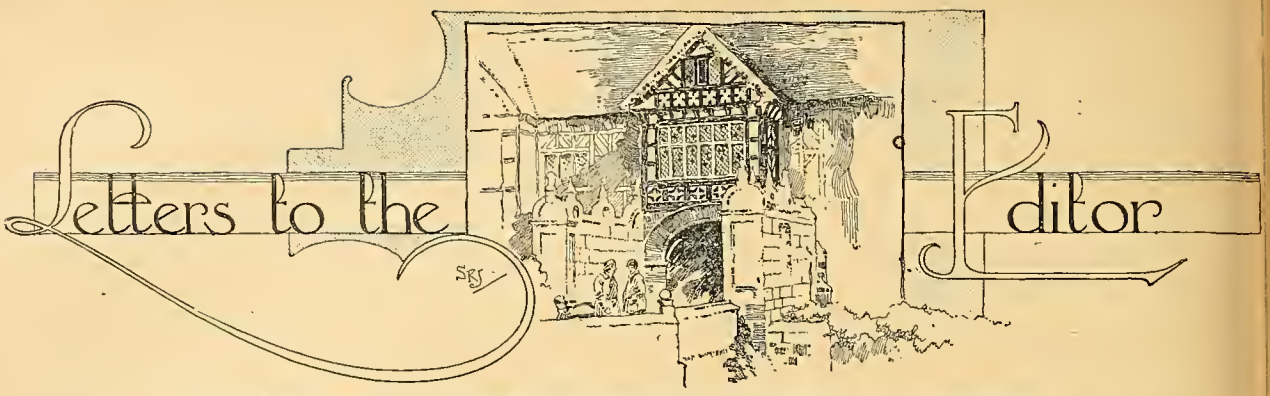
Of course, we all trust and believe that there will never be any sterner work for these riders and drivers to carry out, but whether that may come or not, there is little doubt that the value of the internal combustion engine in time of war has been fully proved, and motor cycles in particular have shown themselves singularly adapted for speed work on our narrow roads.



A despatch rider receiving instruction The machine in the foreground is a 2¾ h.p. New Hudson

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Suggestion.

Sir,—Now that so many patriotic motorists are, I believe, running their motor cycles all the week in the service of their country, may I make a suggestion? Many who at present have to serve by standing and waiting can get away for the week-ends, and such men might give those who are at it all the week valuable relief and rest, if not now, possibly when the stress becomes greater. To the week-enders, too, open-air on work like this would be invigorating, and the training would be invaluable for further emergency.

REST AND BE THANKFUL.

A Freak Climb.

Sir,—I beg to inform you that I have climbed the freak hill near Todmorden, known as Naze Road, on a 6 h.p. Bradbury with sidecar and an eleven stone passenger, and I am informed that I am the first to accomplish this feat. I passed the white farm house and climbed for another quarter of a mile or thereabouts. I must say that, had I known the hill, I should not have attempted the climb, and have no intention of repeating it. After reaching the top I crossed the moor for a distance of about four miles and dropped down into Wardle. I had to lift the machine over boulders and cross two marshes. In passing a disused pit we overturned, fortunately without suffering any damage, and the machine stood the knocking about excellently. W.G.

The Price of Petrol.

Sir,—I think the following may be of interest to you and your readers.

I happened to be in Bournemouth on the occasion of my holiday on Tuesday, 4th inst., and was almost stranded for want of petrol. I called at at least a dozen garages to try and get some. In many places I was told that none had arrived, and in those places where they apparently had some the price asked was nothing short of extortionate, in spite of the fact that in the papers it was stated by one large petrol company that the price of petrol to the retailers had not risen.

Under the circumstances I think I was particularly fortunate in obtaining petrol of Messrs. A. G. H. Alsford, Palmerston Road, at usual prices. M. DEFATCH.

Retreading Tyres.

Sir,—I have read letters in your columns on the above subject, and I would like very much to say that I have had the same gratifying experience with the retreads carried out by Beldams, Ltd., but I think I can go one better, my machine being a 6 h.p. A.J.S. with tandem Montgomery sidecar, and the mileage the retread has done is nearly 4,000 and it is still good. I have yet to record a puncture. The tyre is on the front wheel and is a 650×65 Hutchinson. The cost was, if I remember correctly, 13s.

When one takes into consideration that few new tyres go much farther, and the great difference in cost between the two, I think one can safely say, "Vote for a Beldam retread and a light tyre bill." And this is not my first experience with retreads by this firm, having had two other covers done by the same process.

May I add the usual disclaimer? A.C.R.

Military Machines and Riders.

Sir,—I am an admirer and rider of a well-known opposed twin lightweight cycle. While in Bristol recently I saw a number of these new machines apparently taken over by the War Office, and ridden by members of the cyclist corps.

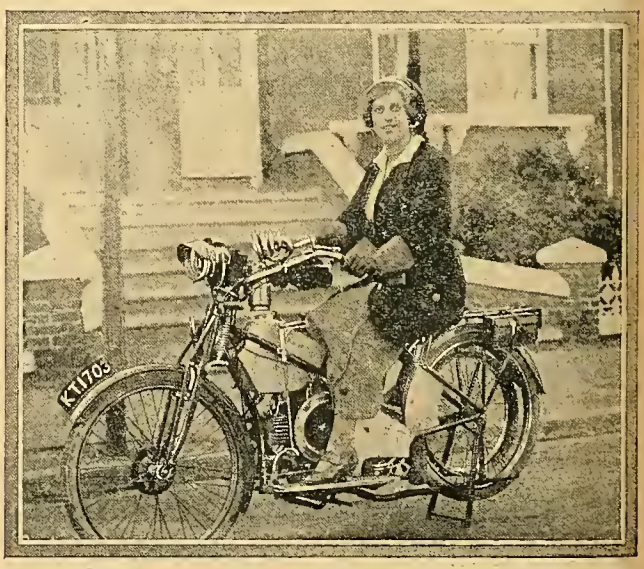
We are all looking forward to seeing our sporting little mounts being made practicable use of in this war, and, given proper care and decent riders, we feel sure this will be the case. My object in writing is to say that it seemed to me this body of cyclists knew very little about the machine in their control—their technical knowledge was very small indeed. The way in which they started off made one's heart ache for the little machine; they had no idea of the use of the clutch or how to change their gears, and would very soon ruin any machine. I hope these riders will realise this is not a joy ride, and that it is up to them speedily to acquire a knowledge of their machines, so that the whole corps shall be a credit to themselves and the country, and be of that use which we think they can be.

A WELLWISHER.

Petrol Consumption of Small Twins.

Sir,—I notice in *The Motor Cycle* that "Ixion" says that small twins are very heavy spirit consumers. I should like to tell you that I have a lady's 2¾ h.p. Douglas, and a short time ago I did 130 miles on a tankful (which holds just under a gallon) of benzole, and with petrol I obtain 120 miles to a tankful. I enclose photograph of myself and machine.

(MRS.) DORIS ROOTS.



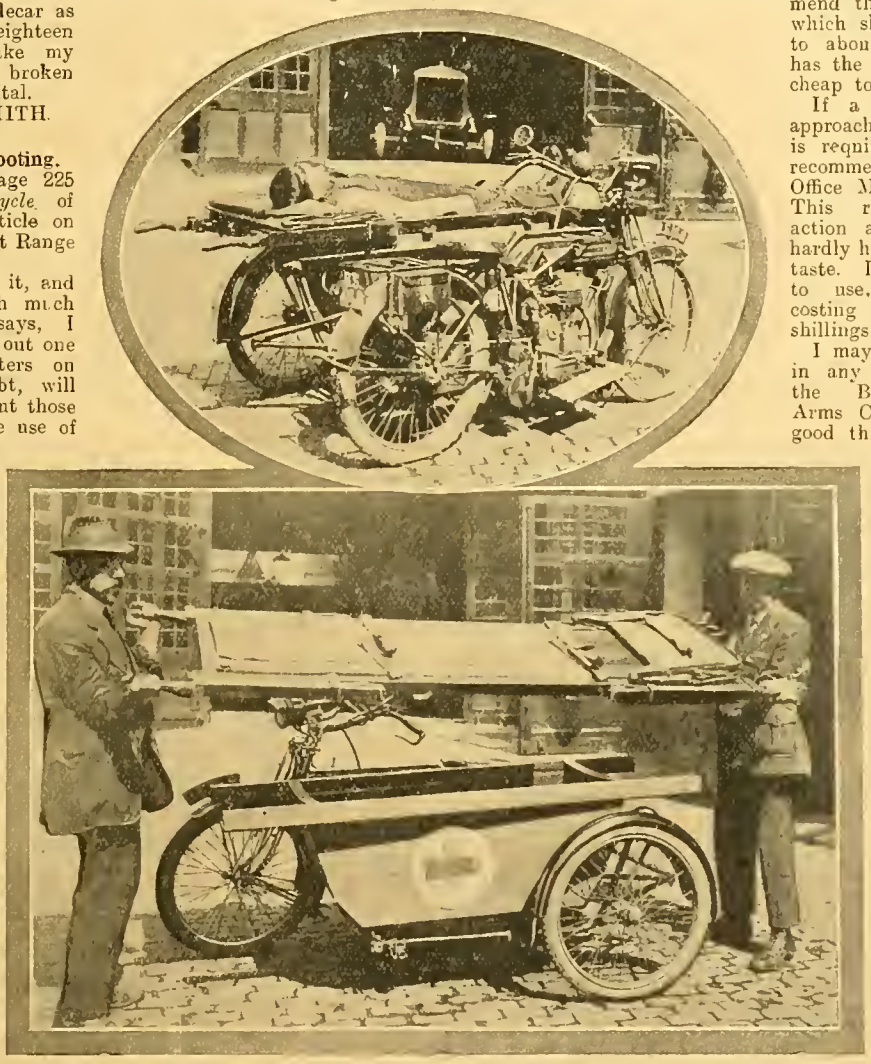
Mrs. D. Roots on her 2¾ h.p. Lady's Douglas.

A Motor Cycle Ambulance.

Sir,—I am sending herewith two photographs showing how I have converted my James sidecar machine into an ambulance. The body is for carrying surgical appliances, first-aid requisites, etc., or can be used as a sidecar for a passenger. The runners are made to take the Army regulation size stretcher, which is much shorter than that used in the illustration.

An ambulance waggon takes four horses and two men, and carries four men lying down, and if they do forty miles in one day it would be good work. Four motor cycle ambulances could cover two hundred miles each in one day, thereby doing about five times the work. The idea originated when I used my sidecar as an ambulance eighteen months ago to take my little girl, who had broken her leg, to the hospital.

B. OLDHAM SMITH.



A motor cycle ambulance waggon made by a reader. See letter from B. Oldham Smith

Teaching Rifle Shooting.

Sir,—I see on page 225 of *The Motor Cycle* of August 13th an article on "The Value of Short Range Rifle Practice."

I was glad to see it, and while I agree with much that the writer says, I would like to point out one or two little matters on which he, no doubt, will make no mistake, but those inexperienced in the use of high-class firearms may be deceived.

It has been my lot to act as instructor in musketry for the past few months to some 200 men. Many of these men are first-class shots with the airgun, yet I invariably find that an airgun man makes the very poorest attempt with a rifle.

They all have their own ideas of aiming and pulling the trigger, and no amount of talking will persuade them that a rifle is quite different from an airgun.

For instance, it is not nice to be asked by a man when he first goes to the butts, "Do you take a fine sight with this gun?" especially after one has spent weeks repeating the old tale with regard to aiming, "The tip of the fore sight to be level with and in the centre of the V of the back sight and in line with six o'clock on the bull's eye." I quite admit that all airgun men know what the sights are for, but that is about all. I have only met one who can understand that it is possible to take exactly the same sight with two different rifles and make good shooting with both.

To any person starting with airguns, I would suggest that the guns be rifled, fitted with military sights—not apertures or bead or other fancy sights—just the plain V back sight and a blade or barleycorn fore sight. Undo the trigger tension screw so as to give a heavy pull off of, say, 3 lb. or 4 lb.

My chief difficulty has always been to prevent airgun men used to the hair trigger employed in the "match" airgun from pulling off to the right when using a rifle with a heavier pull, such as the service rifle or the War Office Miniature.

A most useful instrument is an aim corrector. By means of it the instructor is able to tell exactly how the recruit is aiming.

To me twenty-five yards seems a very long range for an ordinary airgun if good and consistent shooting is to be done. I would suggest ten to fifteen yards as the longest, and even that is a long range.

For those who care to spend the money I would recommend the B.S.A. air rifle, which shoots very well up to about fifty yards, and has the advantage of being cheap to use.

If a gun more nearly approaching the service rifle is required, then I would recommend the B.S.A. War Office Miniature, .22 bore. This rifle has military action and sights, but is hardly heavy enough for my taste. It is not expensive to use, the ammunition costing only about twelve shillings per 1,000.

I may say that I am not in any way interested in the Birmingham Small Arms Co., but I know a good thing when I see it, and I do not think any better rifles are to be had for the price than those I mention.

I should apologise for writing such a letter to a motor cycling paper, but I think it wise to hand on my bitter experiences to one who is doing his best and who possibly has not had quite the same opportunities of learning.

HENRY HILL BROWNRIGG.

Sir,—I can, from my own experience, corroborate "Road Rider's" statement with reference to the value of practice with small rifles. When I was a youngster I spent most of my pocket money upon rook rifle cartridges, instead of wasting it on cigarettes, and spent a fair amount of time shooting at any kind of mark that presented itself, *e.g.*, rabbits, gulls and cormorants on the cliff, stones on the hillsides, and card targets with a little .350 Holland and Holland rifle. Then on going up to Oxford I joined the 'Varsity corps, and well remember my first attempt on the range. The first shot was below the target, and the sight was accordingly raised. The next was an outer low. Again the sight was raised, and the last five found the bull; this was at 500 yards. I do not for a moment suggest that this was remarkable, but I do think that it would have been beyond the power of anyone to whom any kind of rifle was entirely strange.

Later, I spent a good deal of time during one Easter

vacation practising at card targets with the same little rifle, and my first two shoots on returning to Oxford totalled 101 at 200, 500, and 600 yards out of 105, and 88 at 800 and 900 yards out of 100 This was immediately after the reduction in size of the targets, I think in 1890, and the shooting was done with a Martini.

I do not wish to advertise myself, and will, therefore, simply sign myself LIEUTENANT.

A Suggestion for Manufacturers.

Sir,—I think it would be a good idea for advertisers to give the addresses of their foreign and colonial agents. There are many accessories and machines which seem common enough in England, yet one never knows where one can procure them out here. We have no paper dealing with motor cycle matters, and I am sure if firms advertising in your paper would give the addresses of their foreign and colonial agents it would be greatly appreciated.

Inglewood, Victoria. AUSTRALIAN.

Colonial Roads.

Sir,—I note a few remarks contained in a letter from a correspondent "Eldon," in your issue of 7th May, inferring that Colonial writers do not know what bad roads are unless they have sampled the Bath Road through Brentford.

Now, as a Colonial motor cyclist of several years' experience, I would like to ask "Eldon" how he would like to have to traverse a main "road" for 150 miles without a yard of metal, chiefly through volcanic country composed of light pumice sand from three to twelve inches deep, and where the road is not sand it is composed of clay hillocks with potholes up to six feet deep. These latter are caused by the road breaking through into subterranean dry water courses, which mostly are unmarked, unless some earlier motorist in endeavouring to dodge disaster has ended up in the manuka scrub and has been thoughtful enough to insert a stake or a small manuka tree as a warning to others.

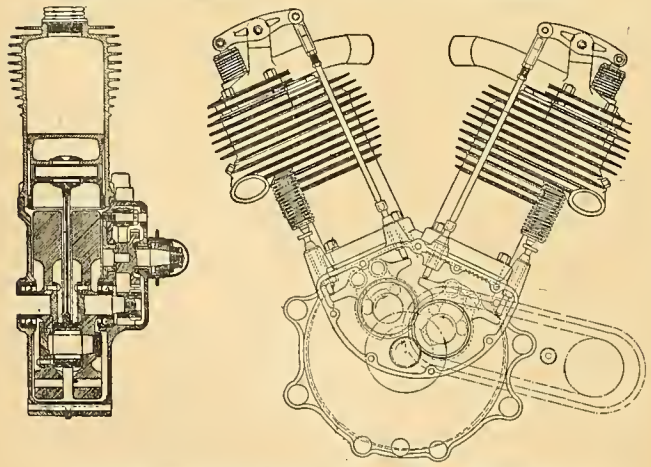
I would like to take "Eldon" on a "joy ride" from, say, Te Aroha to Napier *via* Lake Taupo on a nice dark night over the greater part of the road I mention, and if he brings the motor cycle that has broken nineteen spokes in four months I can guarantee he will break nineteen spokes every four minutes. For this reason he would require to take about ten spare wheels.

"Eldon's" mention of the broken spokes proves that he is either a very bad rider or has a very poor mount, and if the latter it proves what an amount of good a trial under Colonial conditions will do, in pointing out the weak parts of some of the machines that are expected to stand Colonial conditions.

I may mention that until lately I was continually on roads such as I have mentioned, riding a 3½ three-speed Singer, which, for the eight months I have used it, has not broken a single spoke, the only cost being two new fork springs, broken through getting into potholes in the dark.

In conclusion, I will add the usual disclaimer.

Hawera, New Zealand L. S. BARRELL.

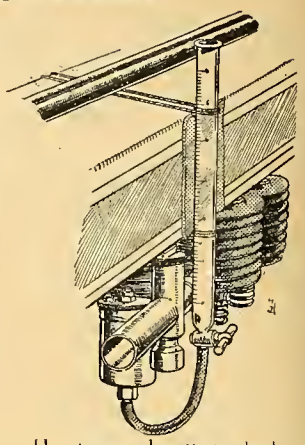


Sectional drawing of the new 7 h.p twin-cylinder Rudge, showing features of design This machine was described in our issue of July 2nd page 23

Petrol Measuring at Hill-climbs.

Sir,—In a recent issue of your paper I notice some interesting remarks on petrol measuring. In cases where it is required to measure the consumption for a small distance, such as a hill-climb, it is convenient to use a small glass burette. This can be tied on to each machine and a rubber pipe put through to the carburetter, which is flooded, the burette reading taken and then taken again at the end of the measured distance. With a little care quite sufficient accuracy is obtainable to render the results both interesting and valuable.

A. M. LOW, A.C.G.I.,
D.Sc., etc., etc.



How to use a burette to check petrol consumption.

T.T. Bars and Knee Grips.

Sir,—What's your opinion of T.T. bars, knee grips, etc., for ordinary riding—saying a man takes up motor cycling as he would horse riding or driving—as a means of getting about (only more so), and to see the country and do business visits. A young man of my acquaintance had a T.T. machine. It wasn't fast enough; he could only do fifty-five on the flat. His riding was ostensibly week-ends and holidays, but incidentally round the houses every evening and up and down suburban roads. The doctor has ordered him not to ride. He is now a wandering imbecile. Every motor he can get up against and driver he can speak to it's, "Ha! nice motor cycle, but you want low T.T. bars and some good knee grips, etc." "Youth will be served," but how is it you never see racehorses on the road galloping for all they are worth with their owners up? There is a place, etc. OLIVER JONES.

Magneto Eccentricity.

Sir,—The phenomenon of the magneto being switched off at full retard referred to recently is perhaps due to the magneto being equipped similarly to magnetos on 1912 Douglases, where this object is deliberately aimed at A slip of spring steel is fastened to the switch terminal on the contact breaker casing, so that when the casing is rotated to the "full retard" position the spring makes contact with the magneto body and shorts the current. This gives the additional method of stopping the engine by magneto switch, with the advantage that the switch cannot be closed with the magneto at full advance—a state of matters to be avoided, because if you slow down by switching off the engine continues pumping gas through it till the burnt inert gases are thoroughly scavenged out of the compression space and the cylinder is as full as possible of explosive mixture, which, exploded at full advance and a low speed, unduly strains the engine, and may produce a violent backfire or even blow off the cylinder. This danger is more pronounced when the engine is hot, because the heated charge burns so instantaneously as to produce an excessive initial pressure against a rising piston. After the piston has begun to descend the pressure falls rapidly with the expanding gas, and as with a reduction of pressure the rate of combustion also falls, the percussive effects of the explosion are much less on an ignition at full retard than on an ignition at full advance. Again, at low speeds the magneto gives a feebler spark at full retard than at full advance, and a feeble spark has a very distinct effect in setting up a slower combustion than that set up by a powerful spark. For these reasons it is obviously desirable that the magneto switch should only be used at full retard N.S.M.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street London, E.C.

Home from the War Zone.

Experiences of One of the Last Englishmen to Leave Stuttgart.

LAST week we received a call from Mr. C. W. Graham, an English motor cyclist not unknown to some of our readers, as he competed in occasional open competitions last year in the Midlands. Last January he went over to Stuttgart to a famous motor accessory works in which, up to the time of making a hurried departure recently, he was practising engineering. Mr. Graham was one of the last Englishmen out of Germany, and had reluctantly to leave his practically new Triumph motor bicycle, which was confiscated by the German authorities; but it was only by a stroke of bad luck that he was deprived of possession of his mount at the very last moment. Having regular employment in Stuttgart, he did not quit Germany on the proclamation of war, as tourists had done, though he was gradually deprived of his friends, who were called to the colours.

Ten of twelve personal friends left him to join the ranks. He told us that the news circulated in Germany was all favourable to the Kaiser's army, and the general public believed it faithfully. Indeed, Mr. Graham was not aware of the true state of affairs until he reached Switzerland on the way home, there to learn that the capture of Liège was a fable and other tales of successes woefully misleading. Mr. Graham told us of the change of attitude of the Germans on learning that England had declared war. Originally confident of the issue, German feelings changed to seriousness and anxiety when they learned of the British proclamation.

A Motor Bicycle as "Hand Luggage."

Mr. Graham's Triumph, which he had been using regularly right up to the time of his departure, carried the letters "G.B.," yet rider and machine had been unmolested in the neighbourhood of Stuttgart. Gradually, however, the authorities became more stringent, and Mr. Graham was advised by his personal friends to hide his machine to prevent the Germans commandeering it.

It was not until after the German Army had been completely mobilised that he was ordered to leave, accommodation being provided for an English party of about fifteen to travel *viâ* Friedrichshafen. No luggage was allowed, but Mr. Graham managed to get on the best side of two railway officials to book his motor bicycle to Switzerland as "hand luggage," and it was only by ill-luck that this ruse failed. The machine was actually being wheeled on to the boat on Lake Constance when the sharp eye of a German Army Officer caught it, and he came running to the boat side yelling out instructions to the porters to bring the machine back again.

Slow but Sure Travelling.

Incidentally, it may be mentioned that the journey from Stuttgart to Friedrichshafen (a distance of ninety-five miles) took fourteen and a half hours, which hurtling speed, it may be imagined, was enough to bore a motor cyclist to tears.

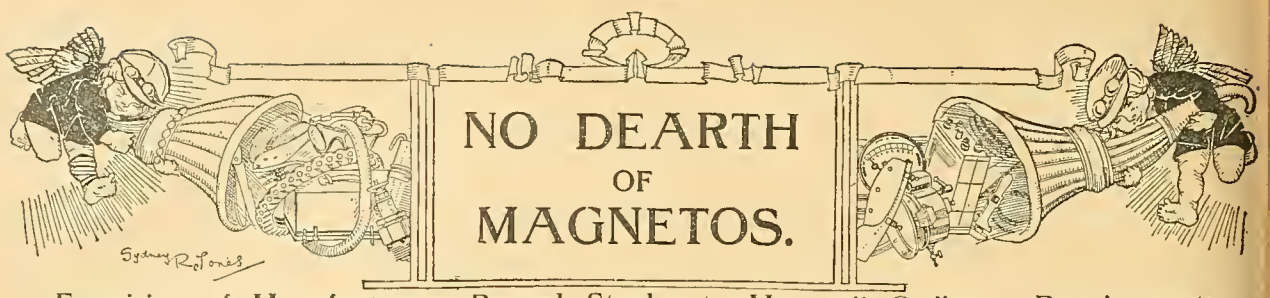
Mr. Graham saw a good deal of the German military motor cyclists (or rather what there was of them), and describes their numbers as very much inferior to the English riders, and also mentions that the equipment and condition of the machines are in no way equal to the British mounts. N.S.U.'s and Wanderers are mostly used.

Unlike many other English tourists, and particularly the two lady motor cyclists whose adventures in Germany were described in our last issue, Mr. Graham has nothing to complain of the treatment meted out to him, as every official he encountered acted civilly. He attributed this to the different temperament and manner of the inhabitants of Southern Germany from those of the North.

German Factories at a Standstill.

The factories in Germany are, of course, mostly at a standstill. In the leading factories of Stuttgart, where the greater part of the European magnetos are produced, within four days of the declaration of war only twenty-five per cent. of the workmen remained. Some factories, indeed, had only one-eighth of the usual number of men left. Motor works are practically at a standstill, no exports being possible. Every car in the leading motor works was commandeered by the Government, the Mercédès stock being taken over, though sufficient workmen were excused from the mobilisation to complete a batch of chassis which were in the course of construction. The complete vehicles will, of course, later be taken over by the German Army.

The machines used by despatch riders vary in age very considerably. Sergeant Jenner (late Royal Engineers) has a mount which was originally a Triumph with Fafnir engine—produced about 1904. Many alterations have been made to it, such as the fitting of Druid forks, a magneto, and a 2¾ gallon petrol tank.



NO DEARTH OF MAGNETOS.

Enquiries of Manufacturers Reveal Stocks to Meet all Ordinary Requirements.

IT has been rumoured in different quarters that a shortage of magnetos, due to the fact that we are dependent on Stuttgart for the majority of such machines used on English mounts, may seriously interfere with the motor cycle trade. In order to settle definitely whether such a rumour was founded on fact we made it our duty last week to enquire of the leading motor cycle manufacturers in the country as to the stocks they hold and their prospects of obtaining further supplies. In practically all cases we were assured that the different firms had sufficient magneto machines for their immediate requirements, some firms, indeed, having a stock large enough to last for some months even under normal demands.

Not satisfied with enquiries of manufacturers we addressed a letter, of which we reproduce a copy, to the different sources of supply, and we also append the replies received from the different magneto manufacturers and agencies. From these it will be seen that, so far from there being any real dearth of magnetos, each firm is still in a position to execute orders received, one firm indeed having such a large stock that its fear is that it will not be able to dispose of it for lack of demand.

It must be added, too, that there are two English firms now producing magnetos (the B.T.H. and the Thomson-Bennett), and from movements which are taking place in the City of Coventry, the centre of the motor industry, it is probable that in the near future other manufacturers will take up the manufacture of this important accessory, many thousand pounds worth of which have been regularly imported from Germany every month during the last decade.

Letter from "The Motor Cycle."

Sirs,—I am informed that the motor cycle business (especially that portion devoted to the satisfying of immediate demands from the Colonies and Overseas Dominions) is being interfered with by the alleged shortage of magnetos.

For the benefit of manufacturers and readers in general, would you kindly give me your view of the matter for publication, and outline any source of immediate and future supply of magneto machines you may have?

Yours faithfully,
THE EDITOR.

The Bosch Magneto Co., Ltd.

The Editor *The Motor Cycle.*

Sir,—We suggest that you send a representative here to see our stock of magnetos. In our opinion, we have enough stock here to last the motor cycle trade twelve months under the present conditions. Our fear at the present moment is not so much of running short of stock as inability to dispose of it for lack of demand.

THE BOSCH MAGNETO CO., LTD.

[At the request of the Bosch Co. we recently inspected the stock of magnetos held at 224, Tottenham Court Road, W.C., over which we were shown by Mr. J. A. Stevens, the secretary. After our visit we felt confidently assured that the company is by no means short of these indispensable motor cycle adjuncts. Considerably over 7,000 of all types were to be seen in the building, and in case of a shortage the company is making arrangements for manufacturing Bosch magnetos in England.—ED.]

S. Wolf and Co., Ltd. (Makers of the U.H. Magneto).

The Editor *The Motor Cycle.*

Sir,—We are keeping our regular customers well supplied with magnetos for immediate requirements. There will undoubtedly be a shortage, due to the fact that the most popular magnetos are manufactured in Germany, but we have every reason to believe that this difficulty will soon be overcome.

S. WOLF AND CO., LTD.,
Gordon Richards.

The Eisemann Magneto Co.

The Editor *The Motor Cycle.*

Sir,—As you are no doubt aware, it is impossible for us to import German made magnetos to this country at the moment for reasons which it is not necessary to narrate.

It may, however, be of interest to you to know that we have already made arrangements with our American House in Brooklyn to supply us with magnetos during the present crisis. Up to the moment of writing we have only been able to make arrangements for those of crying necessity, namely, of the four-cylinder type. We hope, however, shortly to be able to inform you that we have made arrangements for magnetos suitable for other types of road vehicles, including motor cycles.

Further, for your guidance, we may say that up to the moment of writing we have been able to supply all requirements coming to us from the trade in the United Kingdom, and we are still able to supply for various types of vehicles and motor cycles from our stock in London. For how long, of course, we cannot say. It depends on the demand. We can only say that up to the present moment there has been no refusal of supplies from this address to enquiries.

STANLEY J. WATSON.

Splitdorf Electrical Company.

The Editor *The Motor Cycle.*

Sir,—We quite agree that the immediate demand for magnetos has been greatly interfered with by the European War.

With regard to our view on the matter, we have been in constant communication with our home factory in America regarding deliveries of standard magnetos for this country. Of course, our home factory could not anticipate this immediate demand for such huge quantities of our magnetos, but they have buckled to and have cabled us that they can promise to supply us at the rate of 100 daily two weeks after receiving orders for all standard magnetos. Our EU and EV types of magnetos are absolutely standard and are interchangeable with all the other well-known makes.

We have been inundated with enquiries from most of the manufacturers of motor cycles and cars in this country. Should any of the firms with whom we are not yet in communication desire to see or examine any of our motor cycle magneto models, we shall be very pleased to forward them for their inspection, but owing to the phenomenal demand, our stock on hand in England at the present is getting rather short, but our home factory have informed us they are despatching a large consignment to us as soon as they can be shipped, and we feel sure that our people will do everything they can to make a shortage in our English friends' supplies impossible.

ANOTHER BRITISH SUCCESS

BROOKLANDS

—August 14, 1914.—

MR. BERT HADDOCK, RIDING A 350 c.c. A.J.S. and SIDECAR, ACCOMPLISHED THE FOLLOWING:—

10 MILES STANDING START, 14 MIN. 6 SEC. - 42.55 M.P.H.

1 HOUR, 41 M. 757 YDS. - 41.43 M.P.H.

BEATING PREVIOUS RECORDS

USING THE

NEW "CHEMICO" MOTOR CYCLE OIL.

Quarts .. 1/9
½ Galls .. 2/9

Galls. .. 5/-
5 Gall. Drums
3/9 per Gall.

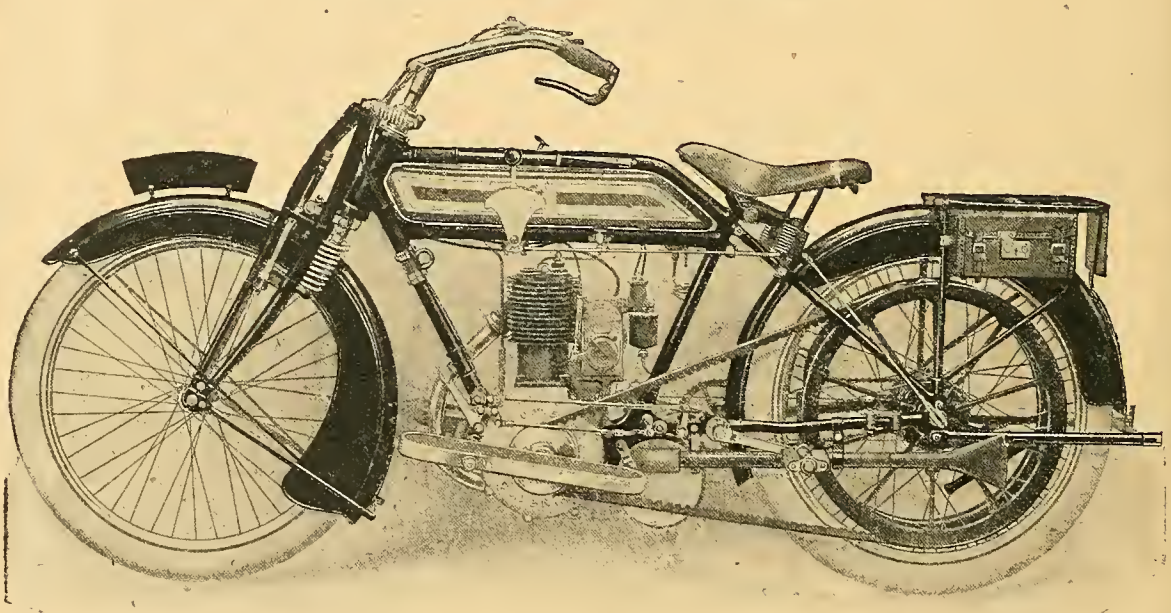
REMEMBER, IF YOUR DEALER CANNOT SUPPLY, WE WILL, AND PAY CARRIAGE.

THE COUNTY CHEMICAL CO., LTD.,
CHEMICO WORKS,
BIRMINGHAM.

THE

3½ h.p. ROVER

THREE-SPEED MODEL.



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THE BEST, CHEAPEST, AND MOST COMFORTABLE MEANS OF TRANSPORT.

THE ROVER COMPANY, LIMITED,
Meteor Works, COVENTRY.

No Dearth of Magnetos.—

We were in rather a difficult position when this war broke out, as we did not wish it to be thought that we were trying to take advantage of the war to further our own interests, and we think it is for this reason that there is still in the minds of manufacturers some anxiety as to their magneto supplies for the coming season.

A few manufacturers require a specially made magneto to suit their motor cycles, and it will, of course, be up to them if they delay ordering very long, as even with our large factories in the States, we cannot guarantee to make magnetos with special specifications at a moment's notice.

SPLITDORF ELECTRICAL COMPANY.
H. O. Reed, p.p. Manager.

Thomson-Bennett, Ltd.

The Editor *The Motor Cycle*.

Sir,—With regard to magneto supplies: as we believe you know, we have been manufacturing magnetos for the past seven years, and therefore have a unique experience as far as this country goes.

At the time war was declared we were the only house with a British-made magneto on the market. We have repeatedly urged the British trade to face the question, and we have sent you a copy of a letter written by us last year, which will show you that the present position has been foreseen by us.

Owing to the lack of support we have received from the motor industry proper, we have turned our attention in other directions, and at the present time have a large business in magnetos with other users of internal combustion engines for marine, stationary, and agricultural work.

On the day following the declaration of war, we made arrangements for the increase of certain tools and moulds to enable us to increase our output very largely.

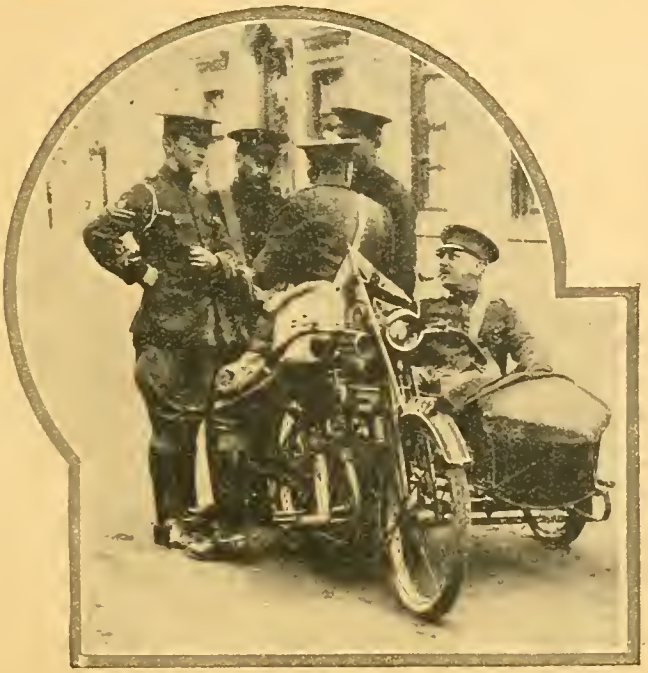
At the request of the motor car and cycle manufacturers we are specialising in a few models which they have specified as the ones they will require, and this will enable us, in a few weeks, very much to increase our output. If we have support from the motor manufacturers at once, we can expand very rapidly.

So far we have been able to keep all our friends going, and the arrangements we have made will enable us to do so in the future, provided we know at once.

What the trade should guard against is sitting down and waiting for something to turn up. Now is the time to move, while there are stocks on hand.

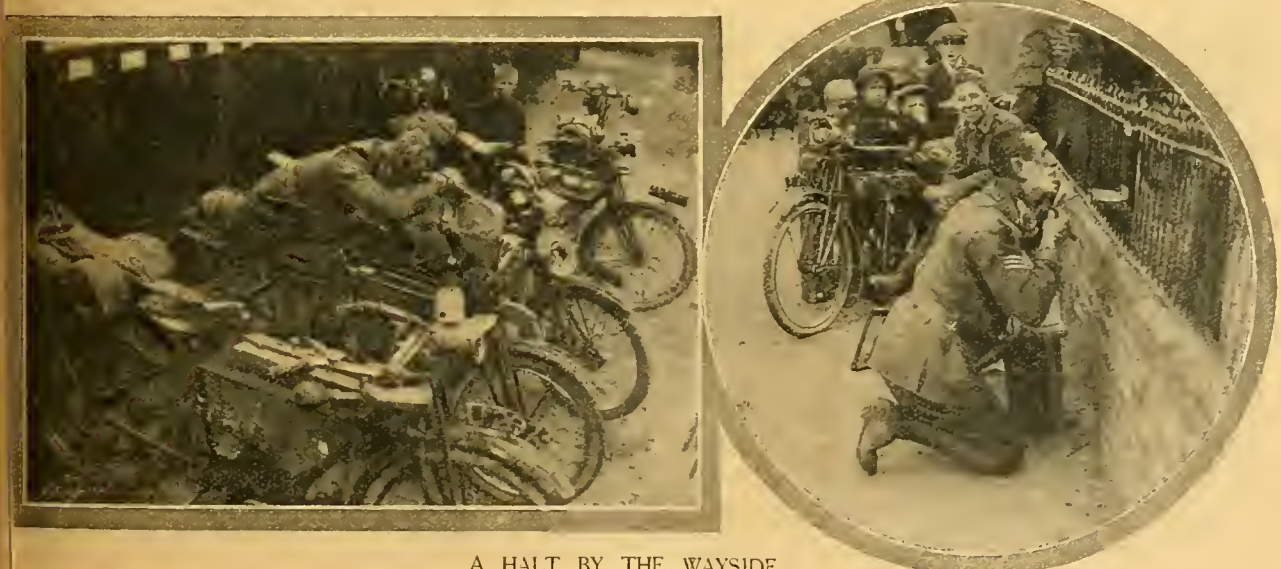
We make a full range of machines for one, two, and four-cylinder engines. These are not experimental models, but have been on the market for years.

THOMSON-BENNETT, LTD.
Peter F. Bennett, Managing Director.



A council of war.

Naturally the views of the various motor cycle manufacturers on whom we called varied somewhat, but in no single instance did we find an immediate shortage in the way of magnetos. All have sufficient supplies for a month or two, and several stated that their present stock is large enough to last for a long time to come without replenishments, and others have their contracts being carried out as usual. At the same time, arrangements are being made to replace German magnetos with machines of both British and American manufacture. One firm was rejoicing in the fact that a clerical error in dating an order had brought in a large supply of magnetos just before the war broke out.



A HALT BY THE WAYSIDE.

Late to "bed" and early to rise is the new order of things for motor cyclist despatch riders who are assisting in the defence of our coast. On the right, one of the motor cyclist section is seen attending to his toilet.

A Sturmey-Archer Countershaft Gear.

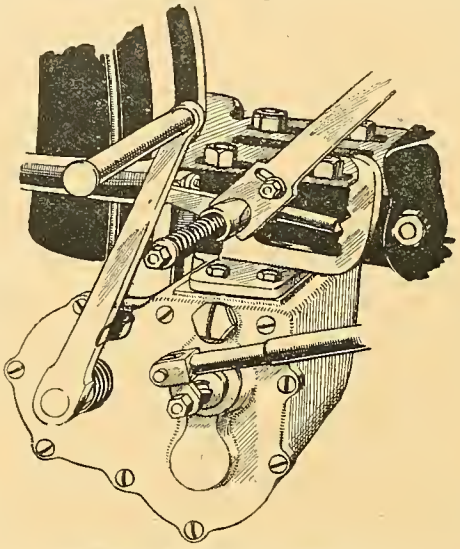
Sliding Dog Gear, giving Three Ratios; Enclosed Kick-starter; Cork Clutch. First Trials give Great Promise.

FOR some time past Messrs. Sturmey-Archer Gears, Ltd., Nottingham, have had their new countershaft gear box on test both in their own factory and in the hands of various well-known motor cycle manufacturers. From all sides we hear excellent reports of its behaviour, and particularly of the wonderful way in which it is possible to change speed quietly without the use of either exhaust lifter or clutch. The gears are in constant mesh, and the change is effected by sliding dogs which lock the required pinion to the shaft.

In outside appearance the box is very neat, and it is light and well made. The enclosed type kick starter is mounted on the off side, and on the near side lies the 8in. driving pulley with the chain wheel and clutch on the outside. The clutch has five plates, two of which are fitted with cork inserts, and the pressure is obtained from a series of comparatively small springs.

A Remarkably Sweet Clutch.

The illustrations herewith show the gear fitted to a 3½ h.p. Rover, on which the gear has given great satisfaction. In this case the clutch is controlled from the handle-bar, and the change speed lever is mounted on a quadrant attached to the gear box itself. Users of the gear inform us that the clutch is particularly sweet in action, and a restart can be effected on any hill which the power permits to be climbed on the run. The Sturmey-Archer Company have had such long experience with gears that it was reasonable to expect a neat and excellent production from their works, and, marching with the times, they have adopted the bottom bracket type for their latest model. It must not be imagined that the new counter-shaft gear is merely the hub gear modified to suit a different position, for its action is quite distinct, and, with certain important modifications, follows the lines of the usual three-speed sliding gear box.

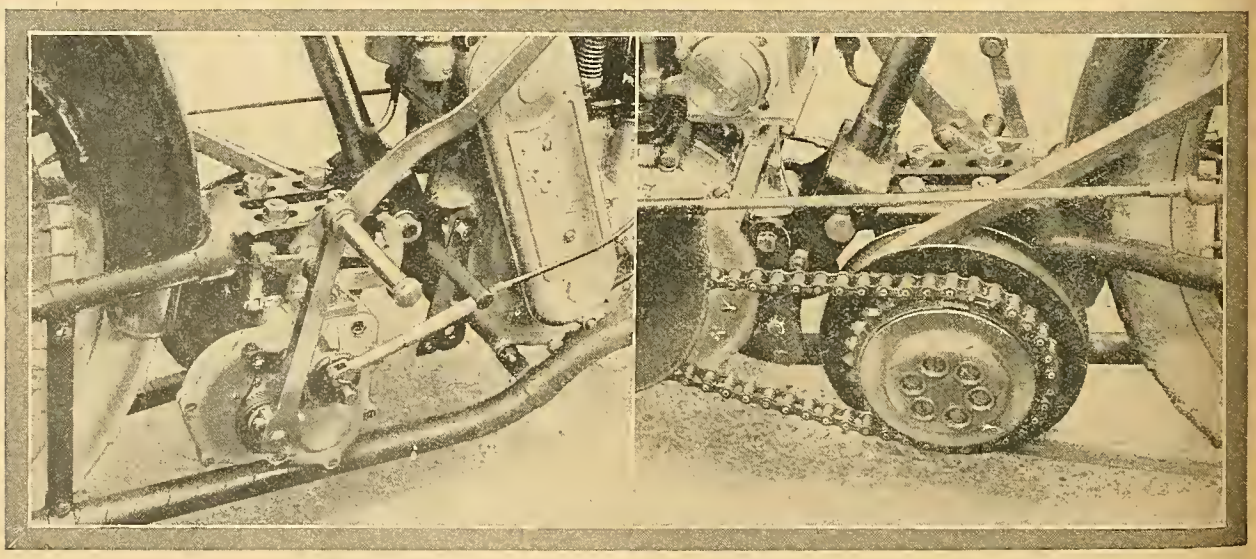


Showing details of the new Sturmey-Archer sliding gear and its method of attachment to the bottom bracket.

The kick starter is entirely enclosed, and is arranged so as to be conveniently placed for starting purposes. The lightness, fool-proofness, and simplicity of the box combine to make it a most taking proposition, which is sure to create a large demand in the near future.

The Hub or the Countershaft Type.

It must not be imagined that Messrs. Sturmey-Archer Gears, Ltd., intend to forsake the hub gear. On the contrary, they will place both types of gear on the market with equal confidence, realising that each has its own sphere in which it is pre-eminently useful. The hub gear is always likely to have its adherents, if only because of its adaptability to belt drive, and, despite the immense advance of chain transmission, we do not believe that belts are moribund, for we doubt if chains can ever provide quite such a sweet and elastic drive as does a belt. But the advent of this gear is particularly interesting, coming, as it does, from a firm which up to the present has exerted all its power in favour of epicyclic hub gears.

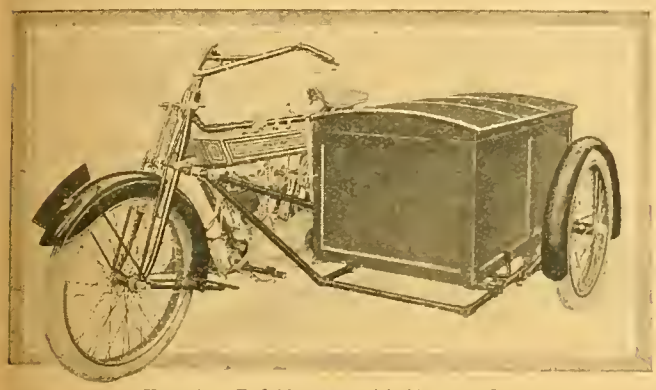


Both sides of the new Sturmey-Archer three-speed countershaft gear, with which is incorporated kick-starter mechanism

THE SIDECAR FOR BUSINESS PURPOSES.

LAST week we referred to the possibility of tradesmen replacing their horse-drawn conveyances with sidecar outfits for delivering light goods, and illustrated several of these handy little vehicles, which are so eminently suitable for the purpose.

We show herewith a tradesman's box of large dimensions attached to the well-known 6 h.p. Royal Enfield sidecar machine. Many of these commercial models



The 6 h.p. Enfield commercial sidecar outfit

have been supplied to tradesmen at home and abroad including a supply for the New Zealand postal authorities. Such a machine is perhaps not quite so roomy as a horse-drawn van, but it can cover at least three times as much ground. Transmission troubles are almost unknown on the Enfield machine with its chain drive and reliable two-speed gear

THE A.C.U. AND COMPETITIONS.

Clubs advised to "carry on" as usual wherever possible.

IN the weekly notes issued by the Auto Cycle Union, the governing body reiterates the editorial advice given in the leaderette in last week's issue of *The Motor Cycle* to follow the Chancellor's motto "Carry on." In speaking on the question of the holding of competitions at the present time, the A.C.U. circular says:

"Upon the outbreak of hostilities several clubs which had arranged to hold open competitions in the near future notified the Auto Cycle Union of their intention to postpone or abandon them. The Union is of opinion that, whilst, of course, local circumstances and conditions must necessarily be taken into consideration, yet where at all possible the Government's appeal to "carry on" will best be supported by the club's carrying out their fixtures as originally intended. Steady continuance of motor cycle competitions throughout the country cannot fail, to some extent, to have a stimulating effect on both sport and pastime, and consequently—which is of far greater importance—the motor cycle industry generally. It is, of course, to be expected that the huge entry lists to which clubs have became accustomed of late will considerably be reduced, but even assuming that the lists suffer to the extent of some 50%, even then such competitions would be well worth promoting under the circumstances.

"It is, of course, important that clubs should bear in mind as far as possible the question of expense, and so arrange their competitions as to enable prospective entrants to take part at the minimum of cost.

"Communications on this matter have been sent to all club secretaries throughout the country, and also to manufacturers, asking that, as far as within their resources, they will give their support to club and open competitions as hitherto."

The Motor Cycle will do all in its power to support the carrying out of the above advice.

THE EXPORT OF MOTOR CYCLES.

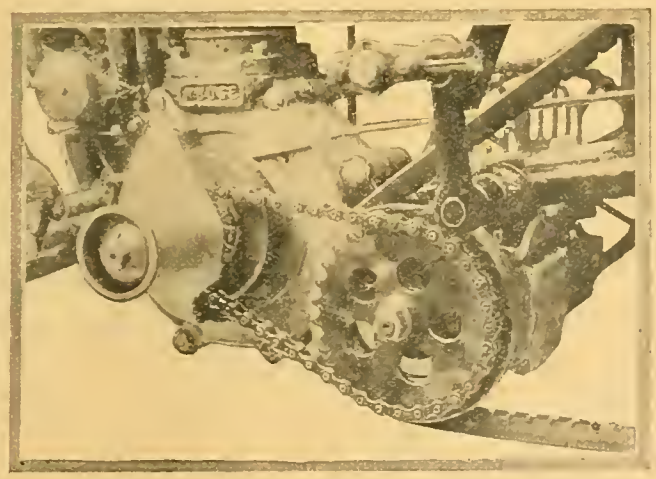
A CERTAIN amount of misconception exists in some quarters as to whether it is lawful to export motor cycles at the present time. A short time ago it was illegal to export any car over 8 h.p., but now all restrictions on both motor cycles and pleasure cars have been removed, and these may be freely sold to any friendly country.

It is also interesting to note that the rate of insurance has now been considerably reduced, and although, of course, much higher than during times of peace this renders the outlook much brighter, in so far as the export of motor cycles, parts, and accessories to the British Dominions, Colonies, and other places overseas is concerned.

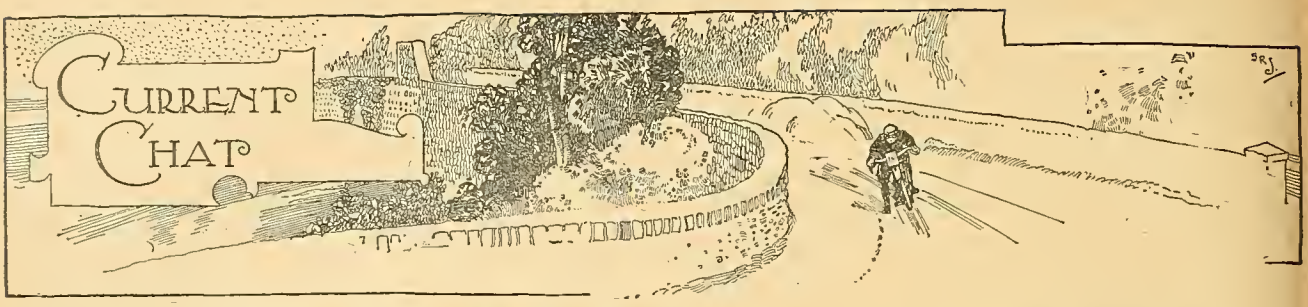
ALBION COUNTER-SHAFT GEAR BOX.

A Two-speed Gear made to fit Rudge Motor Cycles.

RIDERS of Rudge clutch models may be glad to hear of a two-speed gear made especially to suit their machines, and which can be fitted without alteration. The gear is a larger model of the Albion light gear box which has been much used this year on lightweights. The clutch and pedal-starting device can both be retained and the pulley also left in place, so that direct belt drive can be returned to at any time. The pulley on the gear box is 6½in. in diameter, and the sprockets which can be fitted give a high gear of 5 or 5½ to 1. The low gear reduction is 45%, *i.e.*, 9 or 10 to 1. Counter-shaft gears certainly seem to be making great headway.



The new Albion two-speed gear fitted to a Rudge



TIMES TO LIGHT LAMPS

Aug.	28	... ...	7.55 p.m.
,,	30	... ...	7.51 p.m.
Sept.	1	... ...	7.46 p.m.
,,	2	... ...	7.44 p.m.

Big Supplies of Fuel.

A full cargo of 70,000 barrels (2,800,000 gallons) of Pratt's motor spirit arrived in the Thames last week from America.

The Registration of Auto-wheels.

We have received from Mr. J. H. Weller the correspondence which took place between himself and the London County Council with reference to the transfer of registration of an Auto-wheel. The conclusion arrived at by the L.C.C. was that the Auto-wheel only should be registered quite irrespective of the cycle to which it was attached. Thus, in the event of an Auto-wheel being bought second-hand with or without a bicycle the registration can be transferred to the new owner on payment of 1s.

Brooklands Becoming Normal.

Though the Brooklands flying ground has been taken over by the Military Authorities the track is still open, and there is a great deal of interesting flying going on at the present time. We recently saw Major F. Lindsay Lloyd, R.E., who requested us to publish this information. Readers will be interested to hear that Major Lloyd has taken up his old work and is now with the Mechanical Transport Department of the War Office. Before his retirement, Major Lloyd was the first secretary of the Mechanical Transport Committee. It is hoped by the track authorities that the next B.M.C.R.C. meeting will be duly brought off to a successful issue.

A Harsh Ruling.

The importance of motor cyclists giving their full names when purchasing a new machine was exemplified in a case heard on Tuesday at Exeter, where Henry Hargrave Sullivan Hippesley, of Sparsholt, Wantage, Berks, was fined 10s. and costs for using an unregistered motor cycle. Mr. Hippesley purchased the machine of the Exeter Motor Cycle Co., who arranged that all the necessary formalities should be complied with, but they neglected to take their client's full name, and registration could not be effected. Letters sent to Wantage had no effect, because the owner was travelling He was stopped on Monday at Plymouth, and, to his surprise, was told his motor cycle had not been registered. An application by Mr. Hippesley's solicitor that the conviction should not be recorded on the licence was refused by the magistrates.

A Freak Finger Post.

One of the most curious wayfarers' guides in England is the one at Bromley, Kent, on the London-Hastings Road. It is a signpost surmounted by a striking biplane in miniature whilst on the three principal arms are models of a racing car, a monoplane, and a motor bicycle, under which appears the words, "To Brooklands." A common grievance against the ordinary guide post is that it only directs the traveller to the next village. This complaint cannot be urged against the Bromley post, which indicates the way to Jofin-o'-Groat's, Land's End, and Paris!

A Petrol Fire.

We have received information that 650 tins of petrol drawn in a steam lorry caught alight near Guildford the other day. Surely the transport of motor spirit in a steam vehicle is not the height of wisdom! Secondly, after the conflagration a number of fire engines played thousands of gallons of water on the fire. It is not surprising, therefore, that the road was full of water and flames, and that a river of fire was washed down the hill. Surely at this epoch of the motor industry the fire brigade authorities should have learnt that water is of no avail with a petrol fire, and that the only remedy is either sand or a chemical extinguisher.

SPECIAL FEATURES.

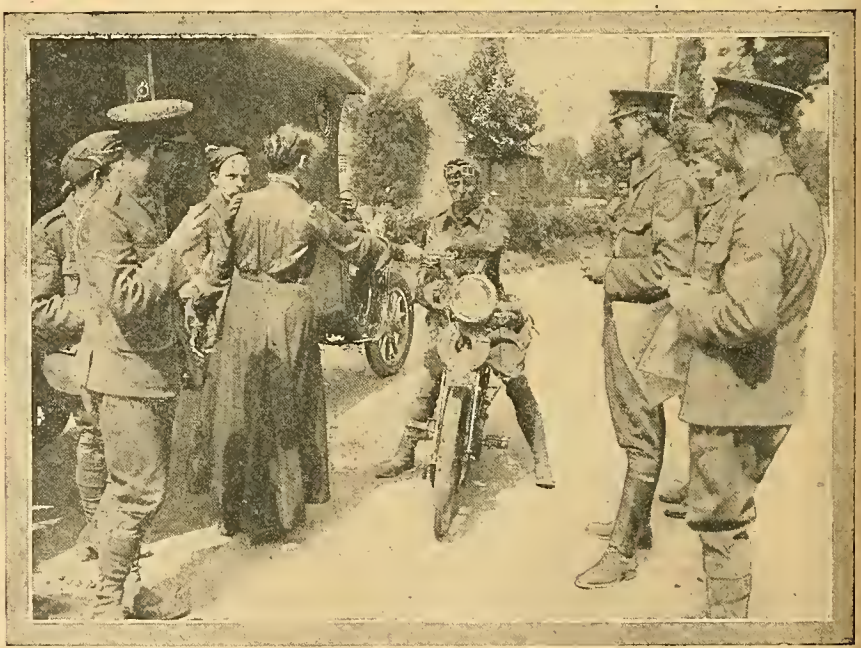
TWO NEW COUNTER-SHAFT GEARS.
HOME FROM THE WAR ZONE.
THE SUPPLY OF MAGNETOS.

The Popular Union Jack.

During a journey by motor cycle last week-end in the Midlands we encountered many motor vehicles of all types, and noticed that 90% proudly floated the Union Jack, the sizes varying from miniature flags on motor cycles to large sized flags flapping in the breeze on cars.

A Sidecar Trial in New Zealand.

A severe sidecar reliability trial was held in the south island of New Zealand on the occasion of the King's birthday. Three hills of five miles long were included, and in some places the gradients reached 1 in 4, while rough surfaces and hairpin bends were common. On the homeward journey three inches of snow were found on the hill tops. Unfortunately, some discussion as to the winner occurred, and the original winner was disqualified. A. B. L. Smith, on a Clyno sidecar outfit, proved the winner, with a score of 999 out of a possible 1,000. He was the only competitor out of twenty-seven to accomplish a non-stop run throughout, which conclusively proves the arduous nature of the course.



AN EAST COAST SCENE. "Tommy" is in favour in all the towns and villages.

Meetings Cancelled.

The Public Schools M.C.C. has deemed it advisable to cancel all fixtures for the present, but it is hoped to hold a trial later when the European crisis becomes less acute.

The Anglo-Dutch Trial.

As was anticipated, the Dutch Motor Cycle Club has now notified the Auto Cycle Union that, owing to the war, the Anglo-Dutch Trial fixed to take place in Holland in September must necessarily be abandoned.

N.W.A.A. Social Meet.

On Saturday last about 250 members met at Delamere and spent the afternoon in the famous Cheshire forest. A prize was offered for the best attendance before 3 p.m., but most clubs did not compete. The best figures were Oldham 28, Liverpool Amateur 18, Mersey 15, Hyde 12, and Chester 9.

The International Cycle Car Race.

The Auto Cycle Union has, up to the present, intentionally refrained from making any announcement with regard to the holding of the International Cycle Car Race fixed to take place in the Isle of Man on Thursday, the 2nd September next. An official announcement will, however, be made to-morrow (Friday) after the meeting of the Competitions Committee of the Union.

The Country at its Best.

Those fortunate persons who possess sidecar outfits have been particularly lucky the last few week-ends. Glorious weather has made travel along our country lanes a perfect feast of colour to the eye. Seldom has such a splendid harvest been seen, and the fruit is on the trees in abundance. Added to this there has lately been a marked decrease of motor car traffic on the roads, due, no doubt, partly to mobilisation and partly to the fear of petrol prices soaring. Luckily, the latter scare has subsided, but after all it only serves to accentuate the cheapness of the sidecar as a family conveyance. We say "family" advisedly, because we met sidecar after sidecar last week-end in the Midlands with three and sometimes four up. We must say we are all against this overloading, and it is a great testimony to the general excellence of sidecar construction that accidents through breakage occur so seldom. The chief danger is the possible fracture of the front support of the sidecar, which, in cases where more than normal loads are carried, should be duplicated.

A.A. and M.U. Notes.

Until further notice, the head office of the A.A., Fanum House, Whitcomb Street, London, W., will be open day and night, including Sunday, for any urgent messages, telegrams (Fanum, London), or telephone calls (300 Regent).

This will also apply to the principal provincial branch offices at Manchester (5489 City), Leeds (2027 Central), Birmingham (973 Central), Exeter (1000 Exeter), and Glasgow (7199 Central).

WARNING TO DEVON TOURISTS.—Members touring in the Tavistock-Launceston district should note that a new quarry has been opened a short distance from the Tavistock side of Greystone Bridge. It is approached round a bend, and the district surveyor has promptly erected warning notices. Greystone is roughly about nine and a half miles from Tavistock and about four miles from Launceston.

A.A. PATROLS AND ROAD OBSTRUCTIONS.—The road patrols of the Automobile Association have instructions always to dismount from their cycles and remove large stones or other obstructions which they may find on their beats. In mining districts, where trucks loaded with stones are constantly passing over the roads, the A.A. patrols frequently find and remove large stones which would easily capsize motor cars and motor cycles. The road patrol stationed on the Exeter-Penzance Road recently reported that this evil was getting worse in his district, and the secretary at once communicated with the owners of the trucks from which the stones complained of had been dropped. The company have since informed the Association that they are glad to have their attention drawn to any inconvenience caused to the public, and that an instruction has been issued to their employees that this trouble must not be caused.

A ROAD IMPROVEMENT.—The Automobile Association learns that the very dangerous corner hitherto existing at Markyate (at the junction of the London-Coventry and Luton Roads) is to be removed. The Luton Road is very narrow, and is concealed from the view of motorists using the Coventry Road by a 10ft. brick wall, situated at right angles at one corner. This wall is now being taken down, and will be re-erected with an easy bend, which will round off the corner and enable motorists coming from the London direction to see cars approaching the main road.

A Military Model.

We are informed by Messrs. Quadrant Motors, that they are specialising on a military model 4½ h.p. single-cylinder motor cycle, several of which have already been supplied to the War Office. The Quadrant factory is very fully employed at the present time and actually working overtime.

Important Hill-climb on Saturday.

Other clubs will no doubt follow the lead of the Coventry and Warwickshire M.C. in continuing arrangements for its annual open hill-climb next Saturday, the 29th inst. Upwards of a hundred entries have been received so that the event will be an important one. The venue is Style Cop, Rugeley, Staffs., a popular spot for hill-climbing events.

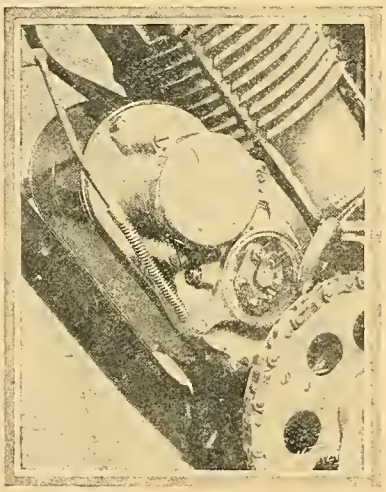
J. F. Sirett (on left), who has competed in several Tourist Trophy Races, along with a comrade, leaving Manchester for their new camp at Littleborough. Their machines are an Indian and a Douglas.

The Splitdorf Dynamo and Magneto.

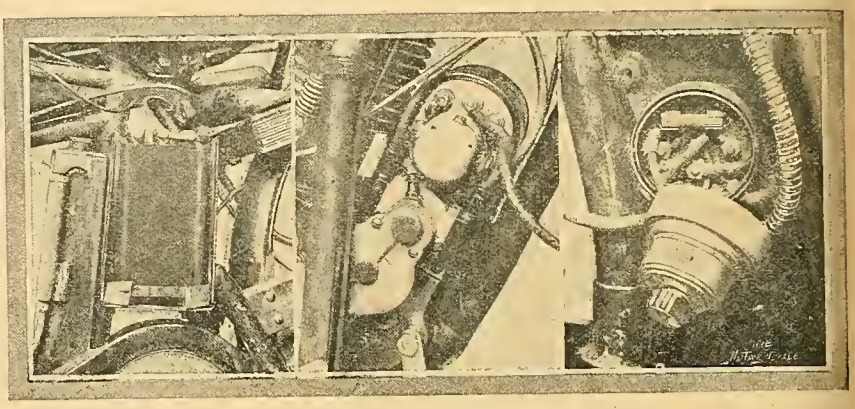
A COMBINED MACHINE FOR LIGHTING AND IGNITION PURPOSES.

OF late we have become accustomed to the dynamo lighting set, and as has already been forecasted in *The Motor Cycle*, electric lighting by means of a dynamo carried on the machine is to be one of the features of 1915 sidecar design. The possibility of combining the dynamo and magneto, so forming one compact instrument for ignition and lighting, was discussed in a recent article in these columns, and subsequently we learned of the new Splitdorf dynamo-magneto, which we are now enabled to describe and illustrate for the first time. This compact and well-designed instrument will most likely be adopted by several important firms.

To combine a lighting dynamo with the magneto is, of course, ideal, especially when carried out with the simplicity with which the Splitdorf unit is designed.



The Splitdorf dynamo-magneto, showing the cover removed from contact breaker of the magneto.



(1) The Elba accumulator which is fitted behind the seat tube. (2) Showing position of Splitdorf dynamo-magneto and drive. (3) The Splitdorf switch and fuse box. The switch itself is contained in the cover, and is operated by the middle handle shown on the outside.

There are two armatures placed one above the other, the upper one being that of the generator. The magnets used are not permanent, but are excited in the first case from current stored in the accumulators. To start the engine a few revolutions are obtained from the kick starter, and in doing so a small contact is put into action by means of a centrifugal governor. This allows current from the battery to pass to the shunt coils of the dynamo from which more current is generated, and the magneto magnets then become excited. The magneto works in the usual way, as the armature and contact breaker are quite orthodox. The whole unit is extremely compact, and when viewed externally differs but little from the ordinary magneto, but it is somewhat taller. Accessibility has been looked after throughout, and removal of a small cover at the top lays open the connection terminals for inspection. The brushes of both armatures are also easy to get at, and a small regulating coil is utilised for dissipating excess current, so that it is impossible for the batteries to become overcharged.

The switch is one of the bayonet-jointed type, and for every notch engaged one lamp is put into action. It should be mentioned here that a small pilot lamp is used in the head light for town work. An ammeter is attached to the top tube, which can be viewed comfortably from the saddle. The dial is divided into two portions which denote the rate of charging or discharging respectively. The battery, which is known as the Elba, and is manufactured by the Willard Storage Battery Company, is stowed away neatly behind the seat tube.

The present lighting set, which is the only one in England, has been tested some 2,500 miles, and during that time has given no trouble whatsoever. The engine starts easily even when the battery is so run down that there is not sufficient current to operate the small pilot bulb in the head light.

Coventry Open Hill-climb on Saturday.

Magnificent Entry. How to Get to the Hill.

THE Coventry and Warwickshire Motor Club has received upwards of a hundred entries for its hill-climbing competition on Saturday next—splendid support to the committee's adoption of the "Carry on" motto. The entries include many of the leading hill-climbing experts. As regards the venue, originally it was arranged to hold the climb at Portway Hill, near Stroud, but at a committee meeting on Monday evening the venue decided upon was Style Cop, Rugeley, and a member of the committee spent the whole of Tuesday making the necessary arrangements in the locality. The competition will start at 1.30 p.m. prompt, and competitors will be weighed at the top of the hill immediately after each climb. Two Messrs. F. T. Bidlake and A. G. Reynolds.

An Easily Reached Hill.

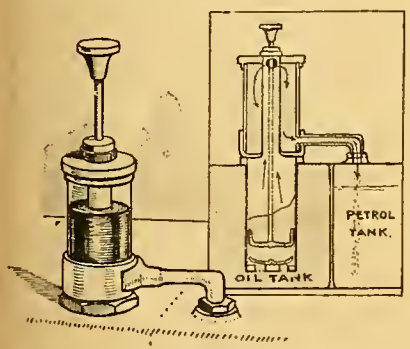
Style Cop is a very convenient rendezvous for Midland riders. It lies about two miles from Rugeley on the Wolverhampton side, and is easily reached from all sides. From Birmingham, riders should go through Sutton Coldfield, Lichfield, straight past the cathedral to Rugeley, about twenty-four miles, while Coventry riders should proceed to Stonebridge (where turn right), Lichfield, and Rugeley, thirty-four miles. From Stoke, Style Cop is about twenty-six miles through Stone, Stafford, and Rugeley, and it is equally easily reached from Derby through Burton-on-Trent, and from Shrewsbury through Newport, Stafford, and Rugeley. There should, in consequence, be a big muster of spectators at the Coventry and Warwickshire open climb next Saturday at Style Cop.

A HURRIED MOVE.

Many of our readers are aware that Brooklands has been turned into a military flying ground, and has lately been given over entirely to the forces of the Crown. The result of this has been that the works of Messrs. A.B.C. Road Motors (1914), Limited, have been taken over by the military authorities, and this company, therefore, has had to move rather earlier than expected into its new works at Hersham, near Walton-on-Thames. This will entail a considerable dislocation of business, but once installed the company will be able to make more rapid deliveries than previously. It is interesting to note that Mr. R. L. Charteris, managing director of the company, who is on the Special Reserve, has been mobilised with the Royal Flying Corps.

THE LUBRICATION OF TWO-STROKE ENGINES.

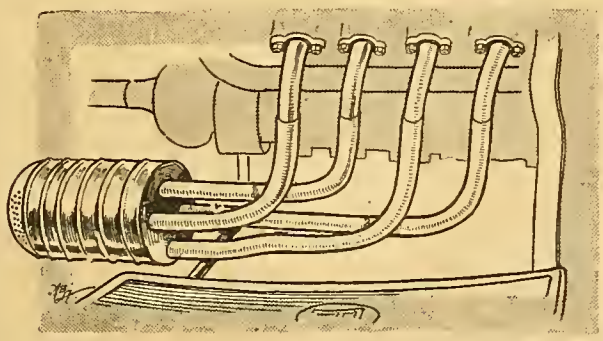
One of the greatest impediments to the success of the ultra lightweight movement is the unmistakable crudeness that is affected by some designers. Simplicity we know is necessary, but when obtained at the expense of reliability it becomes unpardonable. On two-stroke machines it is quite safe to say that a large percentage of such failures can be traced to inefficient lubrication systems. Of ceurse, by far the most popular form of introducing lubricant in this particular type of power unit is that of mixing oil with the fuel which, so far as the cylinder is concerned, has proved itself more or less satisfactory. To prepare the mixture in the first place is often tiresome, as only small quantities can be added at a time, or there is a risk of the oil going straight to the carburetter and choking up everything. There is a device, however, produced by A. C. Davison, 163, Arlington Road, Camden Town, N.W., in which this trouble is reduced considerably. It consists of a pump barrel surrounded by a cup, out of which is a small duct leading into the petrol tank. Oil is drawn into the barrel, and on the return stroke, instead of being pushed back, it finds its way to the upper side of the pump plunger washer, as there is a non-return valve to the oil tank. Thence it flows into the upper chamber through a hole in the central barrel and so runs slowly into the tank through a small tube.



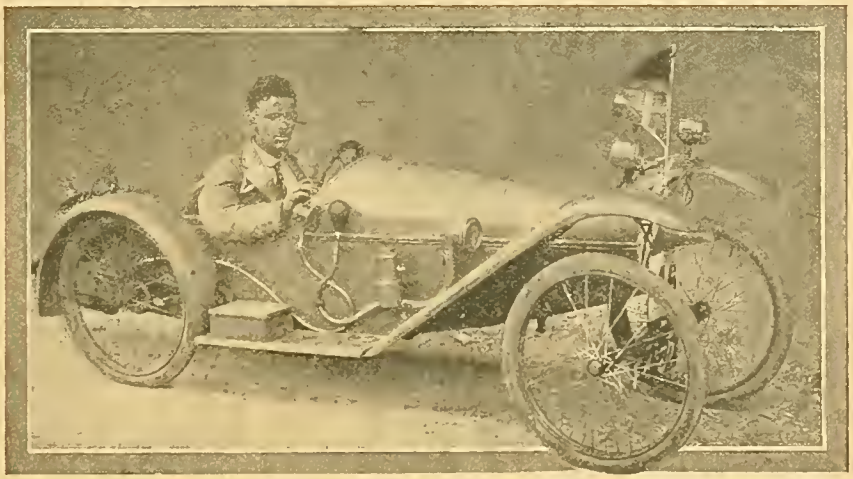
Davison's lubricator for two-stroke machines.

THE SILENCE QUESTION.

We illustrate herewith a method of attaching a silencer to a four-cylinder F.N. machine. The silencer in question is made by J. C. Lyell, 113, Great Portland Street, W., and is known as the Clair. It is arranged in such a way that cups can be added or taken away if necessary by simply unscrewing the central bolt. The job was designed and completed by Purcells, Ltd., of Charlotte Street, W.



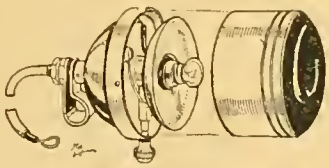
A neat arrangement of attaching a Clair silencer to a four-cylinder F.N. Note the separate exhaust pipes for each cylinder



A 5 h.p. Carden cycle car, a vehicle of racy construction which has been termed the "motor cigar." The engine and gear are arranged at the rear. W E. Humphries, the driver seen in the illustration, is acting as a despatch rider with the Army.

A MAGNETO LIT TAIL LAMP.

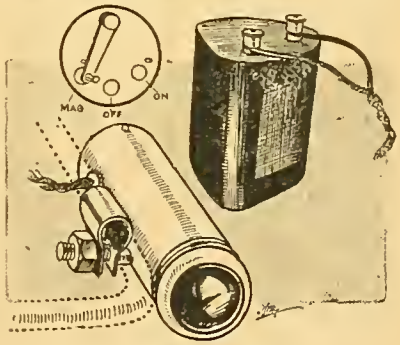
The accompanying illustration shows the "Magnetob" rear lamp, sold by Messrs. H. Taylor and Co., 21a, Store Street, Tottenham Court Road, W.C. The lamp consists of a switch, separate coil winding, reflector and bulb, and is connected to the earth terminal of the magneto by the armoured cable shown. Many of our readers do not appear to be aware that all magnetos may be had with an earth terminal on the contact breaker cover if so specified, and a contact breaker cover fitted with this terminal may be obtained from the magneto manufacturers. To switch on the current the small knob is pulled out. To fit the device it is only necessary to attach the lamp in the required position, carefully uncoil the armoured wire, and run it direct to the magneto. It is important that the lamp should only be fitted to magnetos running at half the speed of the engine.



The novel "Magnetob" lamp.

ANOTHER REAR LAMP.

An electric rear lamp which derives its current from the magneto has just been put on the market by the Krisco Patents Syndicate, Church St., Walton-on-Thames. A small clip is used for attaching this device, which is shaped like an ordinary torch, to the carrier. When standing still a small battery can be used, and is put into action by means of a switch attached to the rear of the lamp.



The Krisco electric lamp.

REAR LIGHTS FOR SIDECARS.

Two examples of rear lights for sidecar combinations are supplied by Messrs. Bransom, Kent, and Company, Limited, 40, Great Eastern Street, E.C. Both the models are of solid construction, and can be attached with very little trouble. We illustrate one herewith, which is designed to be attached to the sidecar mudguard.

The B.K. rear light

The London Volunteer Defence Force.

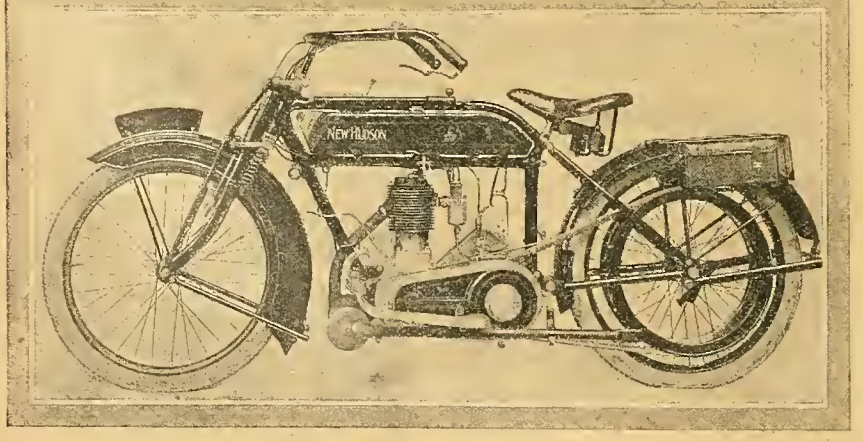
On page 251 of last week's issue we made a reference to the London Volunteer Defence Force. The hon. sec. of the above has received the following official communication from the War Office: "Keep your committee together for future possible action. Deprecate further forward movement for the present." The committee feel that when Lord Kitchener's new army is complete official consent will be granted for them to go on with their work of training those whom necessity keeps at home.

Stepney Wheel Directors and the War.

The Stepney Spare Motor Wheel, Ltd., Stepney Works, Llanelly, S. Wales, have, we hear, decided to pay 30s. a week to all employees going on active service. Two of the directors, Messrs. T. M. and Walter Davies, have also offered their country residence, Sharcombe Park, Somerset, with forty acres of ground, for use as a hospital.

The Military Model New Hudson.

This new military model from the New Hudson factory, Birmingham, to which we made allusion in last week's issue, and which we now illustrate, is notable for a new design of frame. The point of this is that it allows the complete power plant, consisting of engine, gear box, and magneto, to be removed and replaced as a single unit when so desired for purposes of repair. The further advantage of this plan is that perfect alignment of the engine and gear box can be achieved on the bench before assembling the unit into the frame. The engine is, of course, the well-known 85×88 mm. bore and stroke single-cylinder New Hudson, and the whole machine presents an uncommonly workmanlike appearance.



The New Hudson military service model.

A Motor Cycle Agency Capture.

Messrs. Robertsons' Motor Agency had an exciting experience the other day. A German called at their depot in Great Portland Street, W., and first asked for a Harley-Davidson catalogue. On one being shown to him he said that what he really wanted was an instruction book. When he got this he said he would like a key for a Harley-Davidson tool-box, a question which aroused a certain amount of suspicion. On being asked why he wanted it he replied that it was to open the tool-box on a friend's machine who had lost his. Somebody then said, "Please give us the name of your friend," which he did, giving the name of a foreign customer whom the staff knew well, and whom they thoroughly trusted. He was then asked to come inside, but said he could not as he had an appointment elsewhere. A little muscular persuasion resulted in his entering the shop, and as soon as he got inside he started struggling and eventually succeeded in escaping into the street, but was rapidly hauled back and kept in custody until the police arrived. He then confessed that he had stolen the machine from the customer whose name he gave as reference, and was recognised by the police as a man who had been wanted for some time in connection with motor cycle thefts. Irrespective of the offence he had committed he was liable to prosecution for riding a motor bicycle, as motor bicycles are, of course, forbidden to persons of German nationality. The police were exceedingly grateful to Messrs. Robertsons for the prompt action they had taken, and regarded the capture of the ex-German waiter as an important one.

The motor cycle section of the East Lancashire Divisional Signal Service. The machines include an Indian, Rudge, two Bradburys and an Ariel.

A Busy Week-end.

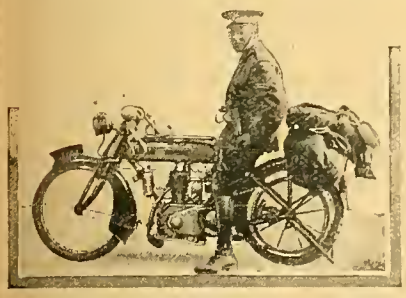
The Triumph and Rudge works were busily occupied over the week-end on urgent Government orders. The goods in execution of these orders were ready on Sunday evening, though the orders were only received on the morning of the previous day.

British Machines at the Front.

Despite the vigorous censorship scraps of news from those on military service at the front continue to leak through, and news has been received from the well-known French rider Gabriel that he is serving as a motor cycle despatch rider with the French Army on his Triumph, with which he expresses the greatest satisfaction. It is significant of the excellence of the British motor cycles that many of our best-known makes are employed by the French War Office.

Premiers in the Army.

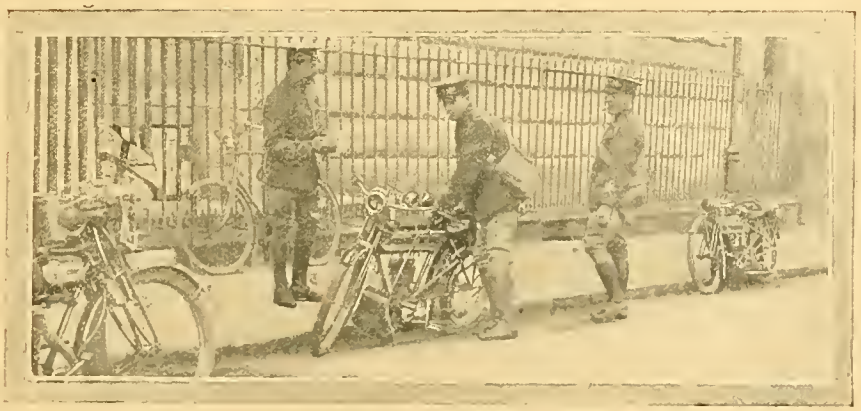
A number of 3½ h.p. Premier counter-shaft three-speed machines has been supplied to the War Office for use with the Expeditionary Force, and two machines for Lord Lonsdale's Colonial Corps. Our photograph is of Corporal G. Drew, attached to 1st Signal Squadron Royal Engineers, 1st Cavalry Division, Expeditionary Force.



Corporal Guy Drew (Royal Engineers), who is attached to the Seventh Lancers. His mount is a 3½ h.p. counter-shaft geared Premier.

A Rumour Contradicted.

A rumour has gained some currency through a statement having appeared in certain journals that the Birmingham Small Arms Co., Ltd., had received an order for 3,000 motor cycles from the War Office. This report was not published by *The Motor Cycle*, and we are asked by the B.S.A. Co., Ltd., to state that the report is not true. The order was for a supply of special B.S.A. military pattern pedal cycles.



Members of the motor cyclist section of the Warwickshire Yeomanry preparing to leave headquarters.

The London Motor Cycle Reserve Committee.

Captain Stafford's duties have been completed and he has delegated the selection of motor cyclists on the "waiting list" to Lieutenant H. B. C. Pollard, secretary of the London Motor Cycle Reserve, Fulham House, Putney Bridge, S.W. At the present time applicants are being graded according to their suitability, and a register of these has been made, divided into suitable and unsuitable, with a medium class for men who have unsuitable machines. Shortly the Committee will be in possession of full particulars of each volunteer, who will be called upon as needed. Enthusiasts anxious to get on the formal "waiting list" for the next batch of Special Reserve R.E. are advised to parade with their machines for inspection between 12.30 and 3.30 p.m. or at 6 p.m. Civilian motor cyclists are urgently warned to avoid the wearing of semi-military kit, to the labelling of their machines O.H.M.S. without written authority from an officer or police inspector, and to halt instantly when summoned to do so by pickets. Infraction of these rules will be most severely dealt with.

On the enlistment form the applicant is required to state his name and address, qualifications, whether he has had previous military experience, or if he has knowledge of foreign languages, particulars of the machine, date of manufacture, gear, and engine number. The form concludes with the following note:

"Recruits are desired to enlist in the R.E. Special Motor Cyclist Reserve, which may involve service abroad. Those limiting themselves to the possibilities of Home Service should mention their districts."

The Type of Machine Required.

The only machines suitable are 3½ h.p. single-cylinder machines, of well-tried and approved make. They must have variable gears and 26in. wheels. Horizontally opposed twins of 2¾ h.p. and 3½ h.p. are the twin-cylinder type favoured. Applicants with machines outside this category should still fill in this form, as it is useful in compiling a register of motor cyclists ready to serve. Having completed this form, motor cyclists will be asked to attend, at their own expense (paragraph 7, War Office Order, June 19th, 1913), at Fulham House, Putney Bridge, where they and their machines can be inspected and official waiting list forms filled up.

It should be borne in mind that desirable applicants should have satisfactory physique to endure the rigours of a campaign, machines in perfect condition, and, wherever possible, previous service or military training. Only a limited number of motor cyclist vacancies are open, and applicants not eligible are reminded that they can render satisfactory discharge of the duty that they owe their country by joining the ordinary Forces of the Crown and shouldering a rifle. Non-acceptance as a military motor cyclist does not relieve the individual of his responsibility towards his country. He should enlist in some other branch of the Service.

WITH THE SCOTTISH HORSE.

Lieut. Black (in sidecar), of the Scottish Horse Regiment, receiving a telegram. This officer says it would be impossible for him to do half the amount of work he has to do without the use of the motor cycle and sidecar. These are the only motor cyclists attached to the Forces who wear the Athol bonnet

PETROL AND OIL TINS AS TABLES.

Motor cyclists of the Royal Engineers, signal section. The rider with the chunk of bread is G. E. Cuffe, a well-known competition rider.

Northern Despatch Riders.

The Northern Cyclist Battalion are stationed on the Durham and Northumberland coast, and the motor cyclists attached to that body are busy despatch riding and on patrol work.

Sidecars and Government.

So far very few sidecars have been pressed into service by the Government, which is surprising in view of the small amount of room they take up on the road, their speed on the level and uphill compared with low-powered cars, and their economy in petrol consumption compared with an ordinary two-seater.

Bristol War Committee.

The Bristol Motor Cyclists' War Committee has been formed with Rev. P. W. Bischoff as secretary.

A Corps for Bridgwater.

A very enthusiastic meeting of motor cyclists was held in Bridgwater last week with a view to forming the Bridgwater Motor Cycle Corps for local defence and other service. Influential support has been given and an appeal has been issued locally for funds. The headquarters of the Corps are the huge garage of the Bridgwater Motor Co., Ltd. There is no doubt that such local corps can be of good service, although at the present time any but official action is not encouraged by the authorities, but still the riders are fitting themselves for duty if wanted.

TWO CYCLE CARISTS' ADVENTURES.

An Exciting Trip from Grenoble to Havre under War Conditions.

THE last we saw of Mr. Chater-Lea was at nine o'clock in the morning at Grenoble on the memorable Sunday on which France declared war with Germany. He, in company with other English drivers who had entered for the International Six Days Trial, had been told by the British Consul that there was little likelihood of his having any trouble in getting through to England, and he therefore decided to see the Lautaret and Galibier Passes. At the Consulate Mr. Lea met C. Pressland, the driver of a Crouch Carette, and they both decided to take the Galibier together, and after doing so they descended and made for the Lautaret summit, where they met a Danish professor and his wife who were in a terrible state owing to all vehicular traffic other than military being stopped on the pass, so Pressland took one and Chater-Lea the other and brought them back safely to Grenoble the next day. The tunnels on the passes were in very bad condition owing to damp and wet, and passing was exceedingly difficult owing to the number of troops on the road, and so bad was the condition of the latter that Mr. Lea assures us that anyone on a motor bicycle would have had to dismount.

A Petrol Difficulty.

Next morning a start was made for Aix-les-Bains, where on the road round the Lac de Bourget Mr. Chater-Lea began to realise the seriousness of the situation. Every crossing was, of course, guarded. A genuine difficulty was experienced in getting petrol, and thinking that probably it would be easier to obtain in the country, they refused to pay the exorbitant prices

The Crouch and Chater-Lea cycle cars on the Galibier.

demanded, but at the next village, when he stopped at a grocer's shop and asked the woman behind the counter to sell him some, she absolutely refused, but finally the daughter persuaded her mother to sell one can only, and that to be shared between the two cars. The man, who overheard the conversation, flew into a passion and said he had undertaken to sell no petrol, and nothing would persuade him to do so, but fortunately the *Maire*, who had come along, recognised that it was a case of two Englishmen in dire distress, and the one can was allowed to be sold. France was under martial law, and no one was allowed to be on the roads after 6 p.m.; consequently they had to stop at Culoz, a little station on the main P.L.M. line. Here Mr. Lea, who was the only member of the party who could speak French, went to the *Maire* and asked him to give him a *laisser-passer*. This was made out for W. Chater-Lea and his family in two cars to be free to pass from Culoz on their way to England.

An Unpleasant Experience.

The next village they came to was quite a small one, and all the population appeared to be in the street, and they were forced into the *Mairie*, where their papers had to be shown. This was an unpleasant experience, but nothing in comparison with what was to follow. Pressland and Sanders, his companion, thought they knew the road to Virieu-le-Grand, but at one turning they mistook the way, and here a car containing an officer and some soldiers passed by them. Pressland went back to look for the road and Chater-Lea waited As the car passed it

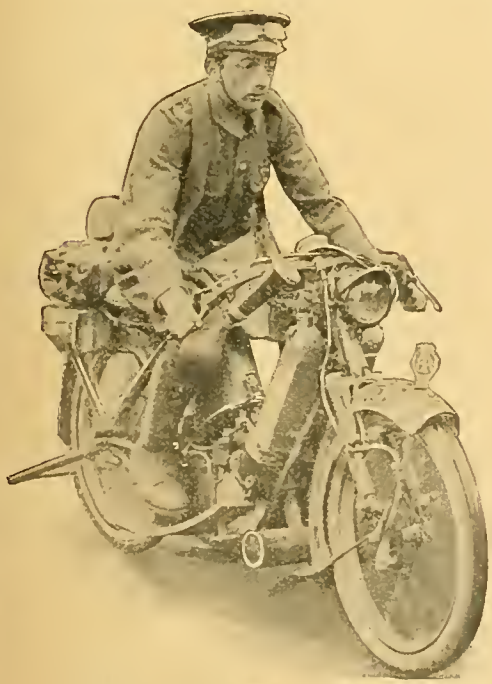
The 'Tourist Trophy'

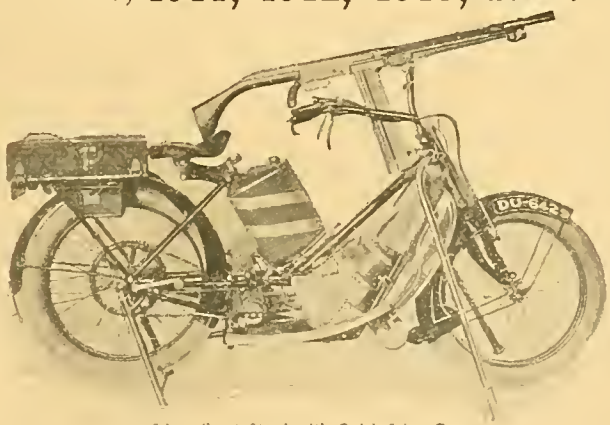
SCOTT

and The War.

WHY is it that so many motor cyclists volunteering for despatch carrying and other military work are purchasing Scotts? Because they have assured themselves of the reliability, speed, and all-round excellence of the Scott. As their safety and the success of their efforts, which mean so much in modern warfare, depend almost entirely upon the general efficiency of the machine, their choice speaks volumes for the Scott two-stroke.

N.B.—The Scott motor cycle, in addition to winning the Tourist Trophy, **has on four successive occasions made fastest lap times** *i.e.*, **1911, 1912, 1913, 1914.**





3½ h.p. Scott fitted with Quick-firing Gun.

THE SCOTT ENGINEERING Co., Ltd., Saltaire, Shipley.

Agents for London and South—GODFREY & APPLEBEE, Ltd., 87, Great Portland Street, London, W.

THE WONDERFUL SUNBEAM TRANSMISSION

The 3½ h.p. Sunbeam

is the most suitable and reliable motor bicycle for the war

because of the power of its engine, and its ideal system of transmission.

Soldiers and Despatch Riders will be supplied on Demand.

— No Waiting. —

JOHN MARSTON, LTD., 11, Sunbeamland, Wolverhampton.

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BRIGHTON - -	94, WESTERN ROAD, HOVE.	MANCHESTER - -	131, DEANSGATE.
BOURNEMOUTH -	8, HOLDENHURST ROAD.	LIVERPOOL - - -	68, RENSHAW STREET.
CHELTENHAM -	BATH HOUSE, BATH STREET.	BIRMINGHAM - -	EASY ROW.
		EDINBURGH - -	37, GEORGE STREET.

The mount supplied to the War Office—

the Quadrant 4½ h.p. solo — is identical in all essential details with the machine we offer you.
"There's no query about Quadrants," and the confidence of the War Office is further proof of that.
Distinguished by absolute reliability, the

QUADRANT

is an ideal mount for "active service," and under war conditions will emerge from the severest tests triumphantly.
Note these details —
4½ h.p. Armstrong 3-speed Gear and Free Engine — Dunlop Tyres and Belt — Bosch Magneto — Senspray Carburettor — Quadrant Spring Forks —
And these prices —

SOLO 45 Gns. – COMBINATION 55 Gns.

And then — let us send you full descriptive Folder.

QUADRANT WORKS, Lawley St., Birmingham. London Depot: 78, Great Queen St., Kingsway.

QUADRANT

HALT!

was remarked that its occupants scrutinised the Chater-Lea very carefully. A few minutes after it passed again, going in the reverse direction. Chater-Lea came back and found Pressland had been arrested. His passenger had been turned out and put in the car, and a soldier was sitting beside him holding a revolver in a threatening position. Matters looked truly serious, and, of course, Chater-Lea stopped. While he was not looking, and conversing with the officer, a soldier roughly pulled Mrs. Chater-Lea out of the small car and put her into the big one carrying the soldiers. Chater-Lea was told to take the wheel again, and had an armed soldier sitting at his side. Both small cars, in front of the big one, then drove to Virieu. Evidently both had been mistaken for Germans, and an hour and a half was taken up in searching the cars, the luggage, and the occupants, but, of course, nothing incriminating was found, but Pressland was made to open his camera, and the films were torn up and scattered to the winds. Fresh passes were then issued, and they were told to make their way to Bourg and report themselves to the *Prefecture*. If they missed the way they were to go on as best they could, but whatever happened they were strictly enjoined not to turn back. On the road from Mâcon to Charolles, which leads to Nevers, the Crouch suffered tyre troubles. An officer in a car stopped and said that there must be no loitering on the road. If they had tyre troubles they had better cut off the offending covers and drive as best they could on the rims. Eventually they reached Charolles, where patches were purchased, and thereafter things went more smoothly.

A good run was made to Orleans, where in one of the large squares Pressland and Sanders were recognised as Englishmen. They were lifted out of their cars and carried shoulder high round the town. A man who was selling plums came up to Mrs. Chater-Lea, took hold of her affectionately by the shoulder, and thrust a handful in her hands and would not hear of payment. So enthusiastic was their greeting that it became quite embarrassing. The next morning a move was made to the *Commissaire de Police*, with the object of getting the papers *viséd*. This, however, could not be accomplished before nine o'clock which was indeed hard luck, as one might only travel between the hours of six in the morning and six at night. At last the offices opened and an attempt was made to get the papers signed. Matters looked pretty hopeless at first, standing amid carters, peasants, foreigners—in fact, anyone who wished to travel from place to place. It was not, therefore, till nearly eleven o'clock that they were on the road again. All along sentries were found posted on bridges, at level crossings and at the beginning and end of every village and town, and as on one day Mrs. Chater-Lea counted more than one hundred stops it will be understood that no great mileage could be accomplished.

Here Mr. Chater-Lea related to us that down in the south yokels in their working garb and wearing only the *képi* of the French soldier kept guard, all armed with rifles with fixed bayonets. Barricades were put in the villages, which varied in efficacy according to the ingenuity of the *Mairie* of the place.

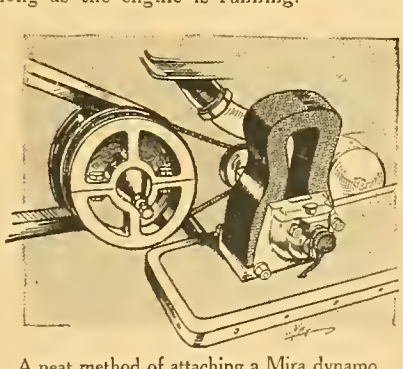
Difficulties at Rouen.

At Rouen, where they expected to get through quite easily, they found the greatest trouble. After waiting three-quarters of an hour at the *Mairie*, the *Maire* refused to sign the papers, and they had to go before the *Commissaire de Police*, who refused the papers as no photographs were attached to them. In previous places the photographs on the international pass had been accepted, but at Rouen the *Commissaire de Police* refused to recognise this procedure, but on being appealed to to help them out of the country, he agreed to allow the photographs to be taken by the prison photographic department, at a nominal charge of one franc per photograph. Here again a difficulty cropped up, as by this time all the French money had been absorbed, but the *Commissaire*, who by this time had assumed a more kindly tone, sent out and got the money changed. The photographs were taken in double quick time, and in surroundings such as an ordinary law-abiding citizen does not ever see. All round were measuring instruments for taking the stature of a criminal, a special chair which, when a prisoner sat upon it, made him assume a position in which he could be instantly photographed, apparatus for taking finger prints, and charts for recording the colour of the prisoner's eyes.

From Rouen to Dieppe is not a long journey, but three days they had to wait for a steamer, which was the last boat before the suspension of the service. The cars, of course, had to be left behind.

THE MIRA DYNAMO.

A simple form of electric lighting outfit is the Mira set, which includes the dynamo and head lamp. No accumulators are used, but an excellent light is given, which remains quite steady at all reasonable speeds. The falling off of the beam at very slow speeds is, of course, unimportant, as under the circumstances a brilliant light would not be needed. The dynamo may be driven from the engine or counter-shaft or rear wheel. On a clutch machine it should be driven, if possible, from some part of the transmission before the clutch, as the advantage of a good light is then obtained as long as the engine is running.

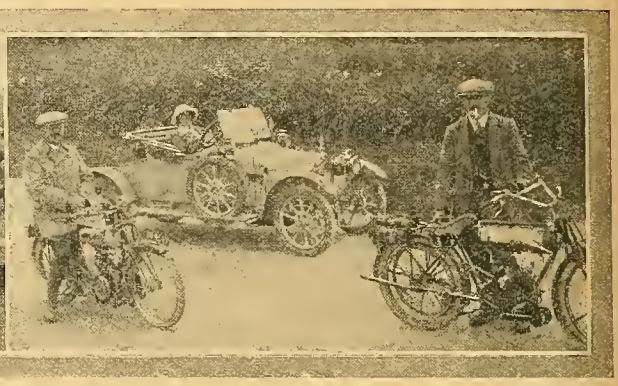


A neat method of attaching a Mira dynamo to a Douglas machine.

A TEST OF MAP READING.

A Thirty-three Mile Circuit of Coventry by Teams of Motor Cycles and Cars.

Group of members at the start.



The "A" team held up at a level crossing.

THE Coventry and Warwickshire Motor Club has had a busy time lately mainly as a result of the crisis. After placing about two dozen members' cars at the disposal of the War Office through the R.A.C., the committee met with the object of forming a rifle section, and, on Wednesday last week, practising commenced on the Humber range (thanks to the kindness of Mr. Niblett, the works manager), and will be continued each Wednesday evening until further notice. On Friday Mr. H. Whiteman, the secretary, gave a brief lecture on map reading, his remarks mainly being confined to the Ordnance map, and Mr. Tarrant (on behalf of the B.S.A. Co.) lectured on miniature rifles.

On Saturday afternoon, continuing the patriotic move, a test of map reading was held, which proved instructive and entertaining. At the starting point members were grouped into teams, motor bicycles being mixed with the four-wheelers, so that no advantage should be gained by a team of motor bicyclists on the narrow lanes.

A Bartholomew map, marked with a "tricky" course encircling the City of Coventry, was handed to each of the participants at the start, it being arranged that "A" and "B" teams should proceed westward to the outer edge of the route and then journey in opposite directions, and "C" and "D" teams travel eastward until picking up the circuit and then pursue opposite paths.

Thus the teams in journeying round the circuit acted as an automatic check upon one another, though mileage recorders in each team proved the distance traversed.

The course plotted out was by no means easy to follow, though, of course, local knowledge on occasion was bound to assist the competitors out of a difficulty. Along narrow and intricate lanes, twisting left then right, the different teams wended their way, an occasional compulsory halt at a level crossing giving the riders a chance to take their bearings from the maps very carefully. Fifteen miles per hour was the average called for, only the last man home of each team being timed. Although never more than seven or eight miles from the centre of Coventry, a number confessed that they had travelled over roads they had never seen before. Three complete teams arrived back at the start in remarkably prompt time, the distance covered being approximately thirty-three miles. The "A" team, which won, was only a second or two out, the members of the team being: A. Wright (two-stroke Triumph), S. Wright (2¾ Humber), and G. Smith (10 Stellite).

Acton and District M.C.C.

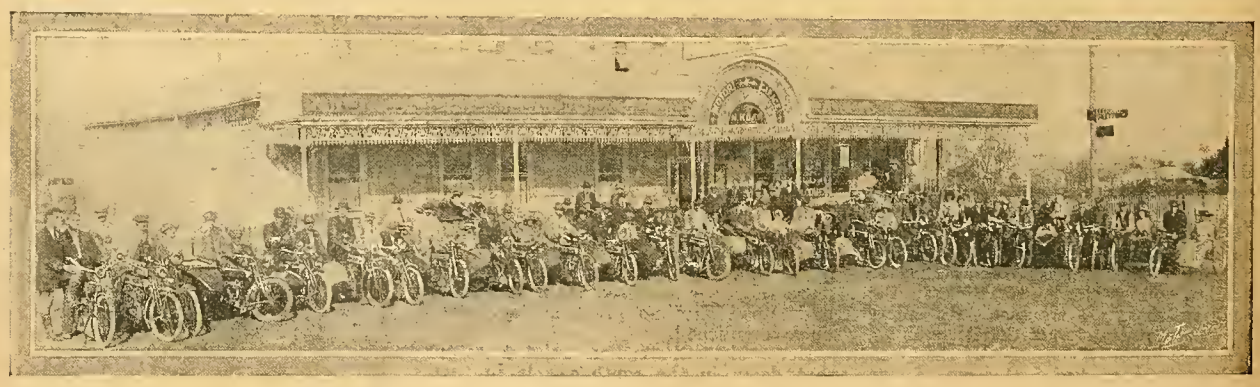
A club is being formed at Acton with the above title. Those who are interested are asked to communicate with Mr. E. B. Hunt, 47, Woodfield Crescent, Ealing, W.

Wolverhampton M.C.C.

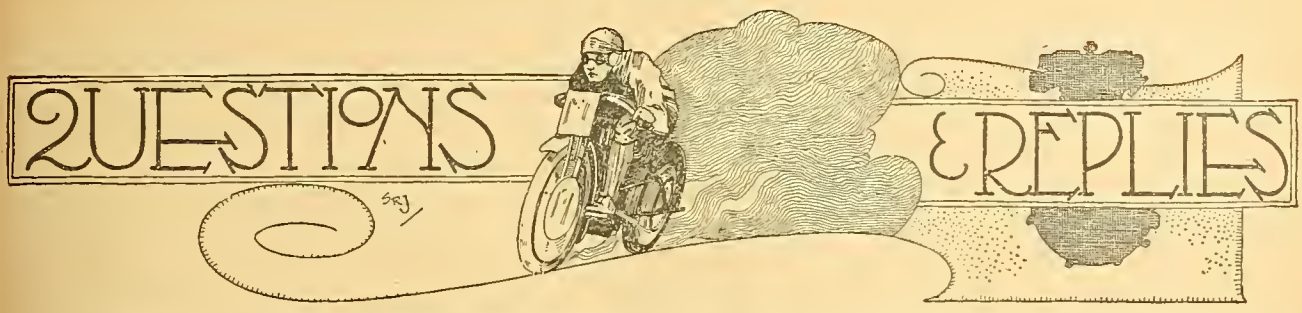
A change of headquarters has been made to the Talbot Hotel, King Street, Wolverhampton. The secretary is now Mr. A. O. Haskins, 15, King Street. All competitions have been indefinitely postponed owing to the European War.

Lincolnshire A.C. (Motor Cycle Section).

A reliability trial for the Wright challenge vase will be held on the 29th inst. over the following route: Wragby, Elkington Corner, Binbrook, Caistor, Market Rasen, Tealby, Elkington, Binbrook, Caistor, Market Rasen, West Torrington, and Wragby. The start will be at 2.30 p.m.



The Fitzroy Motor Cycle Club (Melbourne). This group gathered together for the first annual picnic to Wallan, nearly a hundred taking part. Sidecars, it will be noticed, formed an attractive feature of the day.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Steels for Various Parts.

I should be glad to know the correct kind of steels for making the following parts: (1) Wheel spindles, (2) cones, (3) nuts, and (4) valves.—J.W.C.

You should use the following steels for the parts you enumerate: (1) Carbon steel, (2) case-hardened steel, (3) mild steel, (4) tungsten or vanadium steel; probably the former is the best for the purpose.

Rust on Exhaust Pipes.

Can you tell me of any method of preventing the exhaust pipes of an engine from rusting? These have not been plated and great flakes of rust regularly appear, and, at the present rate, they will soon rust right through. I have tried blacklead, but this does not appear of any use. Enamel also is useless, as the heat destroys it and it falls off.—B.E.E.

There is no preparation which will keep the exhaust pipe from rusting, as heated iron oxidises very rapidly. Repeated applications of blacklead are all we can suggest, or you might have the pipe nickel-plated. This looks nice, but it is believed to be less efficient from a cooling aspect than if left unplated, but we do not think this is anything to worry about.

Paraffin Mixed with Petrol.

I find the page in *The Motor Cycle* devoted to "Questions and Replies" one of the most interesting and instructive in the whole of your paper, and I now wish to ask a question myself. My machine has an 8 h.p. J.A.P. engine with Amac carburetter (29 jet). As I am anxious to use petroleum or a mixture of it and petrol, will you tell me if a 29 jet is large enough, and would the float level need to be altered?—R.L.A.

In using a heavier spirit the float may need to be weighted very slightly by placing a washer on top of it, but this is not always necessary. About one-third paraffin and the rest benzole is a good mixture. In the case of paraffin and petrol mixed, you can quite well run on a half and half mixture. This will effect considerable economy and give quite good results, the only drawback being that the odour of the exhaust may be rather unpleasant. Unless a 50% mixture of paraffin be used no material economy is effected.

Paraffin as a Fuel.

My machine is of 2¾ h.p. with a B. and B. semi-automatic carburetter, and I expect to take it out to the Argentine soon. The temperature there is in summer mostly like our hottest days here, and in winter like our cool summer days. (I am thinking of the Province of Santiago del Estero.) Owing to the price and difficulty of procuring spirit, I would like to know if you think it would be practicable to run the machine on kerosene, and what I would have to do to adapt the carburetter. Also, if such procedure will injure the engine. Will you also tell me if it is possible or desirable to run on naphtha?—J.J.T.

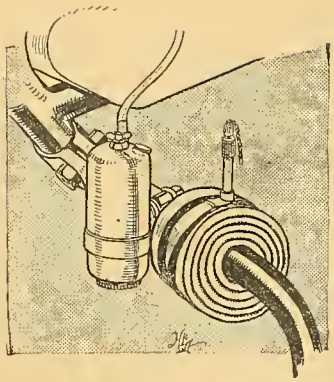
We do not think it advisable to run a machine on the crudest kerosene, but you might use ordinary paraffin instead and carry a small reserve supply of petrol for starting purposes. With a very little alteration in the petrol level of the carburetter quite satisfactory running could be obtained on paraffin. The great objection to paraffin as a fuel is that it is messy and tends to run all over the machine. We have had no experience at all of running a machine on naphtha, so cannot tell you whether it will be desirable or otherwise.

Northampton to Weston-super-Mare.

I shall be obliged if you will let me know the best route from Northampton to Weston-super-Mare, missing bad hills and traffic as much as possible. Approximately, what is the distance?—J.P.

You will find the following route to be a good one: Northampton, Towcester, Brackley, Oxford, Faringdon, Swindon, Wootton Basset, Chippenham, Bath, Marksbury, Stowey, Compton Martin, Priddy, Cheddar, Axbridge, Weston. We have given you the route through Cheddar Gorge, which is very pretty, but if you want to go direct go through Compton Martin, Banwell, and Blagdon.

ON ACTIVE SERVICE. Despatch riders awaiting orders.



A method of carrying a separate generator and spare tube on the front suspension tube of a sidecar.

Sheffield to Morecambe.

Will you kindly advise how best to proceed between Sheffield and Morecambe?—J.W.

We should advise you to go from Sheffield, through Oughtibridge, and then straight through Huddersfield, and afterwards through Elland, Halifax, Keighley, Skipton, Settle, Wennington, Lancaster, Morecambe. Of course, you must expect to pass through some unpleasant country between Huddersfield and Halifax, and, in fact, a great part of the entire route is through populous districts as far as Lancaster, after which the road is delightful.

A Mysterious Complaint.

Will you kindly assist me to locate a trouble with my engine, a 500 c.c. horizontal twin? The trouble is overheating and the engine refusing to climb easy gradients on top gear. When I start out from cold, I run perhaps three or four miles, and then, approaching a hill, the engine slows up and gives up altogether. After cooling it gets away again all right, but develops the trouble again on the next rise. I also get "popping" in the carburetter. I might add that when approaching a hill I open out a bit, and as soon as it slows, I retard, close air gradually, and then drop into low gear, but without any good effect. I have tried the following to cure the trouble: (1.) Back cylinder taken down, cleaned all carbon away, freed the rings. (2.) Examined valves and tappets, for clearance, etc. (3.) Reduced jet orifice. (4.) Advanced magneto one tooth. (5.) Overhauled lubrication (when descending hills with exhaust raised, the engine smokes, which seems to show it gets the oil all right. (6.) Tried several plugs.—E.W.W.

We cannot suggest what is the matter with your machine at present, as you seem to have gone over everything that would be likely to cause the symptoms from which you are suffering. Did you examine the valve clearance of the engine when it was really hot? There is just a chance that one of the valves might have been kept open—possibly the inlet valve—as you complain of popping back into the carburetter. There is another point which we think might cause sluggish running, and that is, condensation of petrol in the long inlet pipe itself. If you were to make some arrangement by means of which you could jacket this pipe a marked improvement in the running would probably be effected. If you try experiments in this direction you might let us know what the result is, as doubtless they would prove of general interest.

Conduction of Heat to Crank Case.

Should the crank case of a motor cycle engine get so hot that you cannot hold your hand on it for more than a few seconds, and, if so, what damage is likely to be done by running the machine? The power of the machine in question does not seem to wane at all.—F.B.

Heating of the crank case will always take place up to a certain point through conduction. Should it so happen that the rings are slack, and blowing back takes place, a great deal of power will be lost, and the cause of overheating can in this case very soon be traced. In your particular case, where the power is not lessened in any way, we should say that the overheating from which you suffer is simply due to conduction.

A Question of Taxation.

I own a motor cycle already, but have just purchased another one from a friend who had to give up riding. This machine I bought solely because it was a bargain, and I mean to sell it again. While I have the machine have I to take out any licences for it? I shall not make any use of it while it is in my possession, as I shall only ride the machine I had already, for which, of course, I have the licences. —L.V.

If the machine is used at any time to give a demonstration to a possible purchaser or is used while your own machine is temporarily laid up, you are bound to pay a local taxation licence for it. If, however, it is not taken on the road while in your possession, you will be exempt from the licence.

Some Questions re Gears.

I should like your advice on a few questions concerning change-speed gears. I have just ordered an 8 h.p. machine fitted with a three-speed hub gear, and I should be pleased if you would enlighten me on some details concerning it. I have been told of three different ways to change gear while travelling. One says close the throttle for a moment while changing, another says use the exhaust valve lifter, and the third advises me not to do anything but just change gear as quickly as possible. Which of these ways is correct? Is an epicyclic gear a gear that gives direct drive on top, and does this type of gear revolve as a solid body when on top? What particular kind of lubricating oil is required for a hub gear, and what would be the different ratios with a 4 to 1 and 3 to 1 top ratio?—ENQUIRER.

The best method to follow in changing up is to lift the exhaust lever a moment, but when changing down all that is necessary is to move the gear lever smartly into the next notch. Yes, the gear revolves as a solid mass when running on top ratio. You can lubricate the gear with ordinary engine oil, and many riders do so with quite satisfactory results, but a thinner oil sold for the purpose is better for the clutch. With a top gear ratio of 4 to 1 the ratios in a hub gear would approximate to 4, 6, and 9 to 1, but this depends upon what make of gear is fitted.

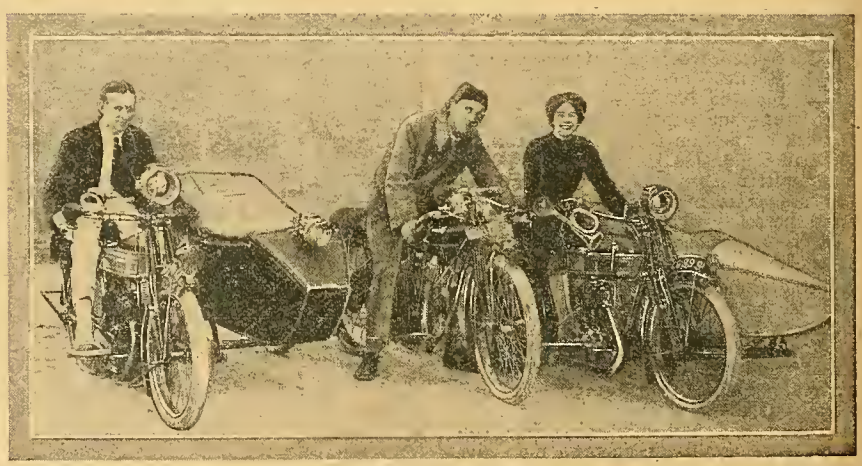
EXPERIENCES WANTED.

"J.B.W." (Pretoria). — Binks carburetter on a 4 h.p Bradbury. Petrol consumption; etc.

"E.P." (Petone).—Reliability of P. and M. sidecar and Rudge sidecar for use with 3½ h.p. Rudge-Multi.

"C.W.M." (Cambridge). — 3½ h.p. Douglas. Speed, petrol consumption, lubrication, both solo and with sidecar.

"G.J." (Salop).—Wizard. Reliability, hill-climbing powers, petrol consumption, ease of starting, and average speed over give and take roads.



A West of England group mounted on Rex (two) and Indian machines. The lady on the right, Mrs. Dewen Wotton, of Plymouth, whose present mount is a 4 h.p. Rex and sidecar, has ordered an Indian and a Levis, and hopes to win some of the West of England hill-climbing events

L·M·C·

The most successful motor cycle of the year

Successful in every reliability trial in which it has competed. The record is 22 awards out of 22 entries in 15 events.

Gold Medals in the English, Scottish, and Irish Trials, and the Manufacturers' Cup and 3 Gold Medals in the London-Edinburgh Trial.

Equally successful in the service of private owners all over the world, of which the following provides evidence.

AT HOME.

"Speed and pulling power nothing less than marvellous; my 4 h.p. touring model second fastest in fast hill climb, only beaten by 8 h.p. machine by 1¼ seconds."—T. W. H., Northumberland, 30/4/14.

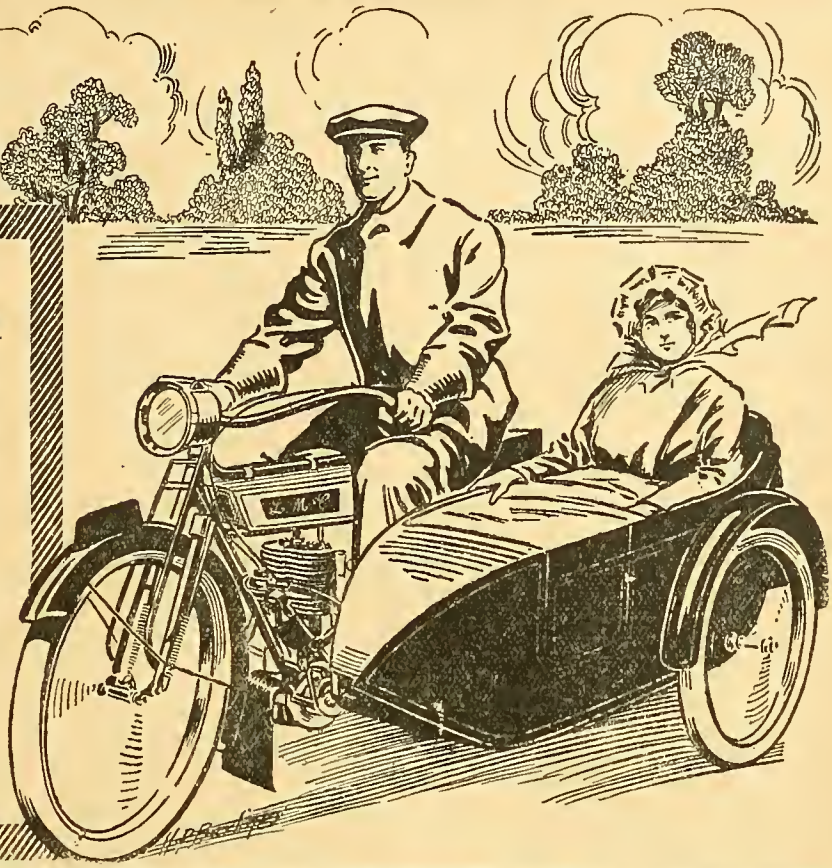
ABROAD.

"My L.M.C. behaved splendidly; has carried me over hills and through sand that riders of other machines had to get off and push."—V. B. C., Australia, 25/6/14.

The secret of the great power and speed of the L.M.C. is in its scientific construction. The chain drive for low gear and the sweet belt drive for high gear is ideal.

PROMPT DELIVERY OF HOME AND COLONIAL MODELS

LLOYD MOTOR ENGINEERING CO., LTD., 132, Monument Road, BIRMINGHAM.



YOU WON'T

PULL A WRY FACE

OR EVER BE SADDLE SORE, IF YOU RIDE AN

XL-ALL

as it springs more than any other saddle, is perfectly anatomical, cannot roll sideways or hit you back by bouncing, neither can it bend your spine by dropping at the back only like others do Works, Hall Green, Nr. Birmingham.

ROTHERHAM & SONS Ltd.,

COVENTRY.

Telegraphic Address: Rotherhams, Coventry.

Telephone No. 14.

Manufacturers of

HIGHEST GRADE ACCESSORIES

FOR MOTOR BICYCLES, Viz.:—

Brass Taps, Lubricators, Grease Cups, Automatic and Hand Oil Pumps, Carburatters and parts for same, Unions. Ball Valves Filters, Squirts, Strainers, etc.

TRIUMPH PATENT SQUIRT.

The advantage of this Squirt is that it is collapsible. When the spout is drawn out, it is fixed in the end of barrel by screwing, so making it rigid.

PRICE 3/6

Above can be had from any Motor Cycle Agent or Accessory Dealer.

Bournville Chocolate!

A packet of Bournville Chocolate makes a splendid lunch for the motor cyclist in a hurry. It is nourishing and stimulating, easily digested and delicious to taste.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. ooo, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

☞DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 6h.p., 1914, in stock; immediate delivery.—Madgwick's, Knowsley St., Bolton. [X8513

6h.p. A.J.S. Combination, showroom soiled only; what offers?—Farrar's Motories, Halifax. [X8391

A.J.S. 6h.p. Combination, also 2¾h.p., 2-speed, shop-soiled only; must clear; what offers?

A.J.S. Commercial Sidecar, £15; write for catalogue.—The Great A.J.S. agents, The Walsall Garage, Walsall. [X8433

A.J.S., 1914, 750 c.c. combination, and 750 c.c. solo in stock.—Crow Bros., 190, High St., Guildford. [6475

A.J.S., 1914, 2¾h.p., kick starter, 2-speed, splendid condition; £35.—Waterworks House, Fleet, Hants. [6558

1914 2¾h.p. 3-speed A.J.S., only done few miles; £46; exchange, part payment.—Hilton and Son, Foxhall Sq., Blackpool. [X8400

1914 6h.p. twin-cylinder 3-speed A.J.S., immediate delivery from stock, enquiries invited; £73/10.—Carnforth Motor Co., Carnforth. [6526

6h.p. A.J.S., July, 1913, 3-speed, clutch, kick starter, Lucas lamp, horn, splendid engine; accept £50.—No. 6,613, *The Motor Cycle* Offices, Coventry. [X8386

A.J.S., 6h.p., and Canoelet de Luxe sidecar, only 2 months old, Lucas and electric lamps, speedometer, hood, screen, luggage carrier, fitted up regardless of expense; cost £110, accept 69 gns.; any trial.—John Webber, Craufurdrise, Maidenhead. [X8486

LET WAR MAKE NO DIFFERENCE

To Business. Buy that Motor Cycle as you intended and

BUY IT AT

HAUCHOPE'S

Our offers comprise Better Bargains than ever. Newest Models of all Best makes and genuine 2nd-hands on view in Britain's greatest show at Bargain Prices not to be beaten anywhere in the Kingdom, and every machine fully guaranteed.

HERE IS A SELECTION OF TO-DAY'S OFFERS. ASK FOR FULL LIST.

8786.	5 h.p. 1910 2-speed	**V.S.** and Sidecar	£27 10
8789.	3½ h.p. 1914 2 speed	**DOUGLAS** and Sidecar	£85 0
8790.	2½ h.p. 1910 2-speed	**F.N.**	£18 10
8792.	3½ h.p. 1913 3-speed	**ROVER** and Sidecar	£48 0
8793.	3½ h.p. 1912 2-speed	**B.S.A.**	£35 0
8795.	2½ h.p. 1914 2-speed	2-stroke **CONNAUGHT**	30 gns.
8802.	7 h.p. 1914 Electric Starter	**INDIAN**	£57 10
8808.	3½ h.p. 1914	**TWIN-BROUGH**	£32 10
8809.	8 h.p. 1913	**ZENITH** and Sidecar	£80 0
8238.	8 h.p. 1913 2-speed	**BAT** and S'car	£52 10
8175.	6 h.p. 1913 2-speed	**N.S.U.** and S'car	£50 0
7537.	7 h.p. 1912 2-speed	**INDIAN**	£37 10
7575.	3½ h.p. 1909	**TRIUMPH**	20 gns.
7702.	8 h.p. 1912	**ZENITH** and Sidecar	£49 0
8762.	6 h.p. 1913 3-speed	**BAT**	£47 10
8765.	2½ h.p. 1914 2 stroke	**LEVIS**	£27 10
8771.	2¾ h.p. 1911, Model E.	**DOUGLAS** 2-speeds	£28 10
8772.	6 h.p.	**ROVER CAR**	£25 0
8773.	3½ h.p. 1912 2-speed	**SINGER** and sidecar	£38 10
8781.	3½ h.p. 1913	**T.T. RUDGE**	£28 0
8782.	3½ h.p. 1912	**T.T. TRIUMPH**	£25 0
8783.	3½ h.p. 1912, Twin 6-speed	**MATCHLESS**	£25 0
8784.	3½ h.p. 1909	**BRADBURY**	£17 0
8760.	8 h.p. 1913 2-speed chain drive	**MATCHLESS** and Sidecar	£55 0
8759.	2½ h.p. 1914 2-speed	**CLYNO**	£35 0
8758.	7 h.p. 1913 2-speed	**INDIAN** and Millford Sidecar	£55 0
8753.	4 h.p. 1914 3-speed	**TRIUMPH** and Bramble Sidecar	£80 0
8746.	6 h.p. 1913	**A.C.** Sociable	£80 0
8739.	4 h.p. 1914 3-speed	**TRIUMPH**	£45 0
8737.	6 h.p. 1912	**ZENITH** and Canoelet	£45 0
8732	3½ h.p. 1914 2-speed	**P. & M.** and coach-built Sidecar	£69 0
8710.	4 h.p. 1914 3-speed	**TRIUMPH** and Gloria coach-built Sidecar	£83 0
8708.	2¾ h.p. 1910	**DOUGLAS**	£17 10
8705.	3½ h.p. 1912	**F.E. RUDGE**	£27 10
8702.	2 h.p. 1912	**MOTO-REVE**	£14 0
8682.	6 h.p. 1913 2-speed	**V.S.-J.A.P.** and Sidecar	£45 0
8671.	7 h.p. 1911 2-speed	**INDIAN** and Sidecar	£35 0
8654.	3½ h.p. 1910 standard	**TRIUMPH**	£22 10
8640.	3½ h.p. 1912	**F.E. RUDGE**	£27 10
8627.	2½ h.p. 1912 twin	**HUMBER**	£22 10
8592.	3½ h.p. 1908	**QUADRANT**	£17 10
8568.	3½ h.p. 1910	**BRADBURY**	£20 0
8561.	3½ h.p.	**VINDEC** and Sidecar	£17 10
8554.	8 h.p. 1913 2-speed air-cooled	**WILLIAMSON** and Sidecar	£50 0
8551.	2¾ h.p. twin	**FAIRY**	£12 10
8502.	3½ h.p. 1908	**TRIUMPH**	£20 0
8412.	3½ h.p. 1908	**TRIUMPH**	£20 0
8367.	8 h.p. 1912 3-sp.	**CHATER-LEA** and Sidecar	£55 0
8359.	6 h.p. twin	**BROWN** and Sidecar	£22 10
8338.	3½ h.p. 1910	**BRADBURY**	£22 10

9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone: Holborn 5777.
Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., late 1913, 6h.p., 3 speeds, and 1914 Bradbury coachbuilt sidecar, complete with lamps, horn, Cowey speedometer, new tyres and chains, spare chains, etc. the whole in excellent condition; cost new over £100 bargain at £65.—Claro Motor Garage, Knaresborough [654

Alldays.

ALLDAYS, 1913, 3½h.p., 2-speed, free engine, and in good order; £23.—The Premier Motor Co. Ltd., Aston Rd., Birmingham. [043

Anglian.

ANGLIAN, 3h.p., Cowey, new tyres, Pillion seat; bargain, £15.—Queen's Head, Northfleet, Kent. [645

Antoine.

3½h.p. Antoine, low, fast, wants slight frame repair mag., good order; £6.—Ront, c/o Clarkson, The Green, Thirsk, Yorks. [X833

Ariel.

3½h.p. Ariel Counter-shaft Model, shop-soiled only what offers?—Farrar's Motories, Halifax. [X839

1913 3½h.p. T.T. Ariel, accessories, very fast; £24.—Sproston and Grace, 154b, Gt. Titchfield St., W. [652

ARIEL, 1914, 3½h.p., kick starter, 3-speed gear box new June, smart grey sidecar; £70, or offer; trial run.—O.O., 124, Highlever Rd., North Kensington. [646

ARIEL, 1913, 3-speed model, kick starter, decompressor little used, capital order throughout; worth £40 easily, price £32/10, cash only.—Laytons, Bicester Oxon. [X841

ARIEL, 1914, 3-speed, countsr-shaft, with Phoenix £11/5 torpedo sidecar; £60, cost £76; not done 500 miles.—260, Coldharbour Lane, S.W. 'Phone: Brixton 2042. [0577

Arno

3½h.p. Arno, 1911, needs a little repairs; £10.—J. O. Harper, Central Cycle Stores, Craven Arms [646

Auto-Wheels.

AUTO-WHEELS in stock; trade supplied.—The Agents 118, Hampstead Rd. [619

AUTO-WHEEL, with special low gear, shop-soiled only; bargain, £14/14.—9, Union St., Ryde. [X851

AUTO-WHEEL for sale, has not been ridden 100 miles; price £8.—Wrightson, 2, Nelson St., Hull [X837

AUTO-WHEEL, first-class condition, perfect working order, little used, tyre perfect, many spares, toolbag; genuine bargain, £9.—Woodcock, 149, London Rd., South Lowestoft. [6461

Bat.

BAT, 1914, 4½h.p., 2-speed model, perfect for sidecar or solo work, brand new, but slightly shop-soiled; catalogue price £57/10, cash price £50.—Laytons, Bicester, Oxon. [X8414

Blumfield.

BLUMFIELD, 3½h.p., early 1914 T.T. model, done about 1,500 miles; £30, or nearest offer.—Brown, St. Martin's House, Hereford. [X8404

Bradbury.

BRADBURY, 6h.p., 3 speeds, shop-soiled only; offers wanted.—Turpins 22 and 29 Preston Rd., Brighton [0510

BRADBURY, 3½h.p., free engine, late 1912, very little used, F.R.S. lamp; cash offers.—Box 6,610, *The Motor Cycle* Offices, Coventry. [X8445

Brough

BROUGHS.—Immediate delivery from stock of the 500 c.c. horizontal twin 2-speed overhead valve models.—The West Lancashire Motor Co., Southport. [0555

BROUGH, 1914 Horizontal Twin, 3½h.p., T.T. type, 2-speed, equal new; rock bottom price £39, cash only, extraordinary bargain.—Laytons', Bicester, Oxon. [X8421

BROUGH, 1914, 6h.p., 2-speed, kick start, chain drive, brand new; £75; buyer secures £15/15 Canoelet sidecar to match gratis.—West Lancashire Motor Co., Ltd., 10, Hoghton St., Southport. [0575

B.S.A.

B.S.A., 1913, 3½h.p., 2-speed, free engine, new condition; £35.—Peacock, 274, High Rd., Balham. [6504

1913 3½h.p. 2-speed chain drive B.S.A. and sidecar combination; £44.—Carnforth Motor Co., Carnforth. [6529

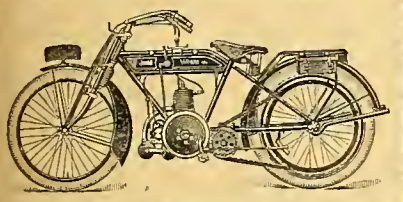
B.S.A., 1914, 4h.p., counter-shaft 3-speed model in stock; best cash or exchange quotations.—Laytons', Bicester. Oxon. [X8422

B.S.A. Specialists.—Every 1914 model in stock, sidecars, motor and pedal; easy payments.—Riggs, 107, Bishopsgate, London. [X7446

1914 B.S.A., 4h.p., 3-speed combination, new July; bargain, £62, cost £77; bought car.—Friars, Ingleborough. Blaydon-on-Tyne. [X8362

"JUNO" MOTOR CYCLES AND SIDECARS

ARE THE VERY BEST.



One of the many testimonials from riders of Juno Motor Cycles.

SILVER MEDAL AWARDED.

W. S. Capstick, Esq., 620, Manchester Road, Bradford, writes: 22nd July, 1914.

"I have been awarded a Silver Medal in the Bradford M.C.C. Speed Trial, on Blubberhouse Moor, Harrogate (Handicap) with JUNO 2-STROKE, with a speed of just over 38 miles per hour. The machine will really do more, I have got 49 out of it several times."

THE "JUNO" 2½ H.P. TWO-STROKE.

WRITE FOR LIST, POST FREE.

Over 150 pages, 900 illustrations.

2½ h.p., **£26 5** or 46/3 monthly. Carr. Paid.

The sweetest running Two-stroke on the market. "Silent as the Night." See our List, page 8.

3½ h.p., 2-speed, F.E. **£46 10** 80/10 monthly, Carr. Paid.

5-6 h.p., 3-speed. F.E. **£61 15** 106/8 monthly, Carr. Paid.

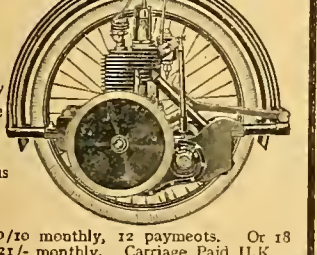
SECOND-HAND MACHINES.

In good order. Cash or 12 monthly payments.

MEAD - PRECISION, 3½ h.p., £25.

MODEL C. "JUNO" SIDECAR.

The **JUNO** Model A. **£5 10** 10/3 monthly Carr. Paid.
The **JUNO** Model B. **£7 16** 14/4 monthly Carr. Paid.
The **JUNO** Model C. **£10 10** 19/3 monthly Carr. Paid.
The **MILLFORD** Model D. **£6 6** 11/8 monthly Carr. Paid.
The **MILLFORD** Model E. **£8 18** 16/3 monthly Carr. Paid.
The **CRUISER £12 12** 23/4 monthly Carr. Paid.
The **CORVETTE £12 12** 23/4 monthly Carr. Paid.



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Converts any Pedal Cycle to a Motor.

Demonstrations Daily.

£16 16 or 30/10 monthly, 12 paymeots. Or 18 payments 21/- monthly. Carriage Paid U.K.

The **JUNO** Model F. with Anto attachment **£21 16** Cash or 12 payments 39/2 each.

Metropolitan Machinists Co., Ltd.,

G. Y. Dept.

248, BISHOPSGATE, LONDON, E.C.

'Phone: 12857 Central. Telegrams: "Quills, London."

Accessories on gradual payments. See our advertisement in "Miscellaneous" column.

MOTOR CYCLES FOR SALE.

Enfield

1910 Twin Enfield, Kempshall cover back, Palmer front, good condition, handle-bar mag. control, general condition excellent; £15.—Robinson's, Green St., Cambridge. [8621

ENFIELD, 2¾h.p., 1912. 2-speed, chain drive, perfect order; accept £25 cash.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0569

ARMY Officer going abroad must sell 6h.p. Royal Enfield combination, with fittings, cost £100, done 5,000 miles; accept £70, or nearest offer.—Apply, Cycle, Annstead, Chat Hill, Northumberland. [X8376

ENFIELD 1914 6h.p. Combination, one month old, Lucas head light, rear and sidecar lamps, Lucas horn, Cowey, speedometer, brass mounted wind screen; £75 cash, no offers.—1, Palmerston Rd., Northampton [X8527

Fafnir.

FAFNIR, 1912½, 5h.p. twin, Chater frame and fittings, Bowden 2-speed, kick starter, and splendid coach-built sidecar, just thoroughly overhauled; 40 gns.—Sindrey, 139, Graham St., City Rd., N. [6600

F.N.

F.N., 1910, 2¼h.p., 2-speed, mag., excellent order, just overhauled; £14.—Hall, Craiglea, Banchory. [X8508

F.N., 7h.p., 4-cyl., 3-speed gear, latest type, early deliveries.—F.N. Agency, 95, Aston Rd., Birmingham. [0463

F.N., 1913¼, 2 speeds, clutch, kick starter, coach-built sidecar; £46.—Edwards, 5, Danemere St., Putney. [6575

1914 2½h.p. F.N., faultless; owner bought 7h.p. model; £33.—Brighouse Motor Agency, Bailiffe Bridge. [X7411

1914 7h.p. 3-speed F.N.'s; £78; immediate deliveries.—Parcells, 78, Charlotte St., Tottenham Court Rd., W. [3759

1911 4-cyl. F.N., 5-6h.p., clutch model, with torpedo sidecar, all accessories, splendid running machine; bargain, £18.—Below.

SHAFT-DRIVEN 2-speed Lightweight, F.N. flat solo machine.—Earl, 5, Heath St., Hampstead. [X8506

2¼h.p. F.N., 2-speed, free engine, mag., first-rate going order, tyres nearly new; £15, a bargain.—E. Sheen, Gloucester Rd., Cheltenham. [6551

LATE 1913 F.N., 5-6h.p., 4-cyl., 2-speed, kick starter, Millers head lamp, electric rear lamp, spares, tools, etc.; £35.—Dawson, Rutland Rd., Eccles. [X8408

F.N., 4-cyl., 1912, with 1913 2-speed gear, kick starter, large head light, speedometer, horn, cane sidecar; complete, £33 only.—Heybourn Motors, Maidenhead. [6323

Hazlewood.

1914 5-6h.p. Hazlewood, 3 speeds, new Whit. week, and only ridden 500 miles; cost £68/5; sacrifice for £58.—125, London Rd., Manchester. [0562

HAZLEWOOD Competition Machine, 1914 5-6h.p. twin model, special J.A.P. engine, all gold medal winner, good as new; £40.—52, West Orchard, Coventry. [X8519

Henderson.

8-10h.p. Henderson, 2-speed model, nearly new, £10 accessories; £60, no offers.—Earl, 5, Heath St., Hampstead. [X8507

Hobart.

HOBART 2-strokes in stock, 25 gns.—118, Hampstead Road. [6195

1906 2½h.p. Hobart, mag. ignition; £10.—Carnforth Motor Co., Carnforth. [6532

HOBART, 1911, 2½h.p., overhauled, good condition, 1914 improvements; £12.—Tarry, Oat St., Evesham. [X8360

Humber.

2h.p. Humber Lightweight, excellent condition, spares; £22/10; owner purchased twin.—180, Eagle St., Coventry. [X8359

HUMBER, 1911, 3½h.p., 2-speed, just thoroughly overhauled; bargain for quick sale.—Parkinson, Builder, Chatteris. [6592

1911 3½h.p. Humber and sidecar, 2-speed free, handle starting; £26/10.—918, High Rd., Tottenham. [6601

HUMBER, 1914, 2¾h.p. twin, 3 speeds, brand new; list 50 gns., accept £37.—P. J. Evans, John Bright St., Birmingham. [X8523

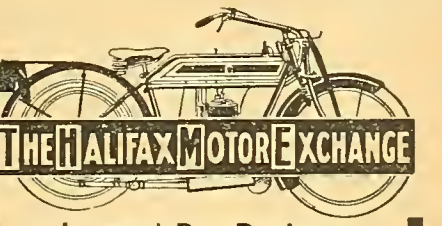
1912 3½h.p. 2-speed Humber, free engine, sidecar, all accessories, perfect order; £28/10.—13, Fleetwood St., Stoke Newington. [X8510

HUMBER, 1912, 2-speed, and sidecar, good condition, lamp, horn, spares; £25.—Baker St. Garage, Handsworth, Birmingham. [X7761

HUMBER, 3½h.p., 1912, 2-speed gear, handle starter, with Milliford £13 sidecar, guaranteed; £25.—Premier Motor Co., Ltd., Aston Rd., Birmingham. [0531

HUMBER 2¾h.p. Twin, lamp, horn, etc., late 1913, as new; must sell; cost over £45, bargain, £25.—Box No. L6,028, *The Motor Cycle* Offices, 20, Tudor St., E.C. [6471

HUMBER, 1912½, 2-speed, sidecar, all new tyres, new belt, hand starting, splendid condition; sacrifice £32 for immediate sale.—Scruton, Berkeley, Gloucestershire. [X8432



Largest Rex Dealers,

16, WESTGATE, HALIFAX.

'Phone—766. Telegrams—"Perfection."

EXCHANGES WANTED.

1914 2½ h.p. **LEVIS**, 2-stroke, new £25 0
1914 8 h.p. 2-speed **REX-J.A.P.** ..... 74 Gns.
1914 **REX-J.A.P.**, 8 h.p., 3 speeds £77 14
1914 **REX** Sidette, 3-speed £85 0
1914 **BRADBURY**, 4 h.p., 3-speed, countershaft gear, kick start ..... 59½ Gns.
1914 **WILLIAMSON**, w.-c., combination £96 10
1914 **DOUGLAS**, 2-speed £48 0
1914 **SUN-VILLIERS**, 3½ h.p., 2-speed, F.E. £46 10
1914 **VELOCETTE**, 2-speed £31 10

SOLO MACHINES.

1913 4 h.p. 2-speed **REX**, new, reduced to £48 10
1913 3½ h.p. 2-speed **LINCOLN-ELK** £29 10
1912 3½ h.p. **BRADBURY** Tourist £25 0
1912 3½ h.p. **BRADBURY**, N.S.U. gear £35 10
1912 6 h.p. **REX** Twin, new £35 10
1912 w.-c. 2-speed **SCOTT** £35 10
1912 3½ h.p. **LINCOLN-ELK** £24 10
1912 2½ h.p. 2-speed **SINGER**, counter-shaft £29 10
1912 3½ h.p. **RUDGE**, free engine £28 10
1911 3½ h.p. **TRIUMPH**, variable gear £29 10
1911 W.-C. 2-speed **SCOTT**, late model £29 10
1911 3½ h.p. 2-speed **REX**, N.S.U. gear £27 10
1911 3½ h.p. Tourist **REX** £23 10
1911 2½ h.p. 2-speed **A.J.S.**, counter-shaft .. £24 10
3½ h.p. Magneto **TRIUMPH** £20 0
1910 3½ h.p. Tourist **REX** £21 10
1910 3½ h.p. 2-speed **TRIUMPH** £25 10
3 h.p. F.E. Magneto **TRIUMPH** £17 10

SIDECAR COMBINATIONS.

1914 W.C. **WILLIAMSON** Combination, with speedometer and accessories, as new £85 0
1914 T.T. 3½ h.p. **PRECISION**, overhead valves £33 10
1913 New **REX** Sidette, reduced to £65 9
1913 6 h.p. 2-speed **REX**, and Sidecar £49 10
1913 3½ h.p. **LINCOLN-ELK** and Sidecar .. £33 10
1912 6 h.p. **DOT-J.A.P.** and Sidecar £42 10
1912 6 h.p. **ZENITH** and Sidecar £42 10
1912 6 h.p. **REX** Sidette £46 10
1912 3½ h.p. F.E. **LINCOLN-ELK** and Sidecar £27 10
1912 6 h.p. 2-speed **REX**, chain drive, and new Sidecar £46 10
1912 3½ h.p. 2-speed **BRADBURY** and S'car £39 10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar £29 15
1911 8 h.p. 2-speed **BAT-J.A.P.** and Sidecar £39 10
1911 3½ h.p. 2-speed **REX** and Sidecar £29 10
1911 3½ **TRIUMPH**, speed gear and Sidecar £33 10
1910 3½ h.p. 2-speed **TRIUMPH** and Sidecar £28 10
PHANOMEN, 6 h.p., 2-speed, and Sidecar .. £26 10
EXCELSIOR, 3½ h.p., 3-speed, and Sidecar . £28 0
NORTON, 4 h.p., 2-speed, and Sidecar £26 10
REX, 1910, 2-speed Twin and Sidecar £31 10
REX, 1909, 2-speed Twin, and Sidecar £27 10
ANTOINE, 4 h.p., 2-speed, and Sidecar £12 10

BARGAINS IN BRAND NEW 1913 REXES.

Fully guaranteed by Makers.	Makers' Price.	Our Price.
6 h.p. 2-speed Twin	£62 10	£53 2 6
6 h.p. Coach Sidette	£77 0	£65 9 0
1912 new 4 h.p. 2-speed chain drive	£61 5	£49 10 0
1912 New 6 h.p. 2-speed Twin	£62 10	£45 10 0

Liberal Exchanges. Cash Offers wanted.

TRADE SUPPLIED.

LIGHT CARS.

1914 11 h.p. **LAGONDA**, hood, screen £150 0
1914 11 h.p. **LAGONDA** Cabriolet £150 0
1914 **G.W.K.**, done about 500 miles £129 10
1914 **G.W.K.**, de Luxe £157 10
1914 **VICTOR**, A.C., £105 ..... W.C. £115 0
1914 **CALTHORPE** Minor £168 0
1914 **CALTHORPE**, Duke Michael model .. 175 Gns.
MORGAN Sporting £91 0
REX, 1908, 3½ h.p., magneto £18 10
REX, 1909, 3½ h.p., magneto £19 10
REX, 1910, 3½ h.p., magneto £21 10
REX, 1911, 3½ h.p., magneto £23 10
REX 1908 5½ h.p. twin £19 10

CASH BARGAINS, 10% DISCOUNT.

N.S.U., 4 h.p., twin, grand condition £18 10
N.S.U., 3 h.p., magneto, h.-b. control £12 10
N.S.U., 3½ h.p., 2 speeds, F.E. £19 10
N.S.U., 3 h.p., 2-speed, F.E. £16 10
N.S.U., 3 h.p., 2-speed, F.E., as new £27 10

BIG REDUCTIONS

—NOW is the time to obtain a Motor Cycle or Light Car at a really bargain price — I have a splendid selection of shop-soiled machines marked at pounds below ordinary prices!

NOTE THESE:

1914 MODELS.

CLYNO, Combination; list, £91; accept . £78
NEW HUDSON, 6 h.p., 3-sp., coach combin'n £72
NEW HUDSON, 3½ h.p., 3-speed £48
ARIEL, 3½ h.p., 3-speed counter-shaft £52
TRIUMPH, T.T. Roadster £45
ROVER, T.T. clutch model £45
CLYNO, 2-stroke, latest model £27
HUMBER, 2¾ h.p., twin, 3-sp.; list, 50 gns. £37
NEW IMPERIAL, J.A.P. model, 2½ h.p. .. £25
CONNAUGHT, 2½ h.p., 2-speed £37
JAMES, 4½ h.p., 3-speed, combination £58
ENFIELD, 3 h.p., 2 speeds £38
CLYNO, 2-speed, all spares £32
INDIAN, 7 h.p., 2-speed, with electric lamps, horn, speedometer, and Indian coach S'car £68
HUMBER, 2¾ h.p., 3-speed, twin, new £37
WILLIAMSON, 8 h.p., combination £65

1913 MODELS.

MATCHLESS, 3½ h.p., twin, 3-speed £35
ENFIELD, 6 h.p., Enfield cane Sidecar, and apron, 2 speeds, complete with accessories £58
RUDGE Multi, 5-6 h.p., complete, good tyres and belt, excellent condition £38
SINGER, 2½ h.p., 2-speed, F.E., clutch £28

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ZENITH, 3½ h.p., with Gradua gear, good tyres, etc. £28
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HUMBER 3½h.p. and sidecar, new August, 1913, 3 speeds, free engine, kick starter, very little used; £42, or would exchange 2-seat. car.—Walker, 176, Evelyn St., Deptford. [6604

HUMBER and torpedo wicker sidecar, side entrance, 3½h.p., 2-speed, free, h.b.c., Bosch, Dunlops (new), lamp, horn, tools, spares; £20, immediate sale; giving up.—Wright, 133, Clonmell Rd., Tottenham. [6480

1911 (late) 3½h.p. Humber, 2-speed, clutch, hardly ridden, rejuvenated, perfect and unscratched, £27; also 1911 Humber lightweight, good condition, splendid climber, £12.—Cornwell, Daisy Hill, Euxton, Chorley, Lancs. 6513

Indian.

INDIAN, 1914 model, 7h.p., practically unscratched, 600 miles; offers wanted.—Leslie Bucknall, Langley Court, Beckenham. [0580

HENDEE Special, brand new; first cheque for £69 secures, listed at £80.—West Lancs. Motor Co., Ltd., 10, Hoghton St., Southport. [0574

1914 7h.p. Indian, T.T. model, lamp, horn, and tools, only run 1,200 miles, in perfect condition; £55.—Barton, 279, Woodstock Rd., Oxford. [X8352

INDIAN, 1914, 7h.p., coachbuilt combination, electrical equipment, grand condition; £65.—P. J. Evans, John Bright St., Birmingham. [X8522

INDIAN, 1914 models, in stock, ready to ride away; best cash or exchange terms from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0479

1914 Hendee Special, 19 gn. sidecar, electric starter, etc. under 2,000; owner going abroad; £75, or nearest.—Ovendale, 6, Park Rd., West Smethwick, Birmingham. [X8484

BLUE Indian, 1911, 5h.p., free engine model, twin, overhead valves, mechanical lubricator, wicker sidecar, thorough working order; £20, offers.—Jos. Calvert, Howden-le-Wear. [X8397

1914 Indian, 7-9h.p., 2-speed, F.E., kick starter, electric horn, head and rear lights, special Swan sidecar, C.B., spares, tube, valves, springs, plugs; £62, as new.—4, Southwark Park Rd., Bermondsey. [6509

INDIAN, 1914, 7-9h.p., 2-speed, electric lamp, horn, etc., Swan sporting sidecar to match, disc wheel, sidecar brake, lamp, etc., all in splendid condition, new set Kempshalls just fitted, guaranteed mileage under 4 000; £65.—Smith, Longworth, Highfield, Oxford. [6459

INDIAN, 7-9h.p., red, 1913½, 2-speed, kick starter, free engine, 20 gn. sidecar, Lucas head and generator, Lucas horn, all spares, done 2,000 miles; cost £100, cash offers, or take Douglas part.—J. Crawford, New Junior Motor Club, 6, Bute St., South Kensington, S.W. [6519

1914 Hendee Special, with coachbuilt sidecar, in royal blue (Mills-Fulford), electric self-starter, horn, lamps, etc., complete, scarcely used, in perfect condition; 75 gns., no offers; owner going abroad sole reason for selling.—Box L5,470, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4829

Ivy.

1913 3½h.p. Ivy-Precision, 3-speed and free engine; £34.—Carnforth Motor Co., Carnforth. [6530

James.

JAMES, 1914 models, in stock, ready to ride away; also the latest 2-stroke; best cash or exchange terms from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0480

JAMES Combination, 1914, as new, not ridden 800 miles, wind screen, luggage carrier, speedometer, Lucas lamps, horn; cost £90, sell £68/10.—57, Hilldrop Rd., Holloway. [6482

JAMES, the big single.—Ask for prices and my record in recent trials. Exchanges entertained; immediate delivery.—T. Stevens (James specialist), Gooch St., Birmingham. [0432

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8-10h.p. J.A.P. Engine, m.o.i.v., Bosch mag., carburetter, etc.; £15/10, snip, quick sale.—79, King George St., Greenwich. [X8504

J.A.P., 4h.p., 1911, P. and M. 2-speed, and canoe front sidecar, excellent condition; any trial; £30.—111, Grove Lane, Camberwell. [6546

J.A.P., 4h.p., Bosch, B. and B., N.S.U. 2-speed, Palmer cord tyres, exhibition engine, exhaust whistle, watch, speedometer, condition as new; £25.—19, Nigel Rd., Peckham Rye. [6484

1914 8h.p. J.A.P., done 1,200 miles, all on, latest underslung sidecar, and Pillion seat; £65, great sacrifice; also 3½h.p. Lurton and coachbuilt sidecar, never been on road, £45.—Seen at 462, Lea Bridge Rd., Leyton, N.E. [6597

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J.E.S., 1h.p. set, perfect, used for demonstration only, new Whittle belt; £7/10.—Imp Motor Co., Preston. [X8456

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Triumph.

TRIUMPHS.—Premier Motor Co., Aston Rd., Birmingham. [0559

TRIUMPH, 1911, speedometer, perfect; £19.—L.P., 34, Nelia Rd., Fulham Palace Rd., W. [6557

1912 Clutch Triumph, splendid condition; £26.—73, St. Leonard's Rd., East Sheen. [6579

1914 Triumphs.—Early delivery from The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0428

1913½ Triumph, 3½h.p., 3-speed, with sidecar (wicker), lamp set, horn; £42/10.—Stout, Egremont, Cumb. [6448

1913 T.T. Triumph, 3-speed, clutch, accessories; £44.—Sproston and Grace, 154b, Great Titchfield St., W. [6524

TRIUMPH, late 1912, clutch model, little used; £31/10.—Seen, 155, Goldhawk Rd., Shepherd's Bush. [6578

TRIUMPH, 1912, engine good condition; £16.—Southbury House, Mytchett Rd., Frimley, Surrey. [6583

1914 2¼h.p. 2-stroke Junior Triumph, used one demonstration run only; £38.—Parker and Son, St. Ives, Hunts. [0535

TRIUMPH, 1911, Philipson pulley, sidecar, speedometer lamps, splendid condition.—84, Muntz St., Birmingham. [X8438

TRIUMPH, 1914, 4h.p., 3-speed model; instant delivery; price £60; exchanges entertained.—Laytons, Bicester, Oxon. [X8419

1910 Triumph, perfect condition; £20; any trial.—260, Coldharbour Lane, Brixton, S.W. 'Phone: Brixton 2042. [0476

TRIUMPH 1911¾, F.E., heavy Kempshalls and Dunlops, as new; £29/10.—197, London Rd., Kingston, Surrey. [6606

TRIUMPH, 1912 3½h.p., free engine, equal to new; £33 cash.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0473

1914 3-speed 4h.p. Triumph, lamp set, and horn, not done 1,000 miles, as new, perfect; £50.—Tangye, 5, Cross Side, Egremont. [6449

1914 2¼h.p. 2-stroke Junior Triumph, slightly soiled only; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0247

TRIUMPH, 1909, 3½h.p., clutch, overhauled, very sound machine, lamp, horn, rock-bottom cash price £17/10.—Laytons', Bicester, Oxon. [X8418

TRIUMPH, 1914, 4h.p., 3-speed, practically new, speedometer, lamps, horn, and sidecar; 50 gns.—Taylor, 29, St. James's Av., Brighton. [6500

TRIUMPH, 1911-12, F.E., 1914 coachbuilt sidecar, perfect combination; £33, complete.—18, Berkeley Av., Victoria Park, Manchester. [X8398

3½h.p. 1909 F.E. Triumph, engine newly overhauled, spare belt, cover, new tubes, complete; £20.—Kieg, 49, Camberwell New Rd., S.E. [X8402

1913¾ Triumph, 3½h.p., 3-speed, new last Oct.; cost £60, bargain for £40; another 1912½ ditto, £24.—Hartwell's Garage, Chipping Norton. [6336

1912 Triumph, free engine model, in excellent condition; £33; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0546

TRIUMPH and Sidecar, late 1913, 3 speeds, new trip speedometer, lamps, etc., under 1,000 miles; £49.—Pooley, 18, Upper Grosvenor St., London [6594

1911 Clutch Triumph, coachbuilt sidecar, F.R.S. lamp set tools, horn, like new; any trial; sacrifice £26/10.—49, St. Leonard's St., Bromley, E. [X8407

2¼h.p. Junior Triumph, 2-stroke, used for demonstration purposes only, perfect condition, as list; £38.—Robinson's, Green St., Cambridge. [0515

TRIUMPH, 1911, Mahon clutch, footboards, splendid engine, and just thoroughly overhauled, tyres perfect; £25.—Madgwick's, Knowsley St., Bolton. [X8514

TRIUMPH, 1911½, N.S.U. 2-speed, Jones speedometer, wicker sidecar, very little used; £30, bargain.—28, Balmoral Rd., Cricklewood, N.W. [6563

1912 Triumph, F.E., all accessories, guaranteed sound; owner gone abroad; £29/10.—Mills, 4, Wood Side Parade, North Finchley. 'Phone: 1745 Finchley. [6496

TRIUMPH, late 1913, semi-T.T., decompressor, Cowey, spares, fast, P. and H. lamp; £32/10.—Write, E.A.W., 83, Ribblesdale Rd., Streatham. [6603

TRIUMPH, 1914, 4h.p., and coachbuilt sidecar and screen, complete with lamps, horn, speedometer, etc.; 60 gns.—Baker St. Garage, Handsworth, Birmingham. [X7762

TRIUMPH, 3½h.p., 1908 engine, Mahon clutch, Lio. Whittle, lamp, spares, tube, overhauled by makers, enamelled grey; £20.—Smith, 29, Thursby Rd., Northampton. [X8487

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TRIUMPH, 1914, and coachbuilt sidecar, with screen, 3-speed, speedometer, horn lamps, spares, as new; £58, cost £80.—72, Windermere Rd., Handsworth, Birmingham. [6523

TRIUMPH, 1910¾, very fast, new belt and tyre, 1913 spring forks and piston, T.T. handle-bar, accessories; £21/10; owner enlisting.—E. P. Wildman Brown, Lynfield, Sutttisham. [6562

2½h.p. 2-stroke Triumph, new at beginning of last May, in splendid running order, plating and enamelling perfect; bargain, £37, or near offer.—Box No. 6,566, *The Motor Cycle* Offices, Coventry. [X7737

1912½ Triumph, Philipson, Montgomery sidecar, nearly new tyres and inch Dunlop belt, all tools, and many spares, in excellent going order; £28/10; will separate.—Birch, Cherley Rd., Bear's Head, Wigan. [X8482

TRIUMPH, 3½h.p., late 1909, just been overhauled and re-enamelled, tyres in excellent condition, back nearly new, acetylene lamp and generator, usual tools, etc.; will take £20.—Box L5,014. *The Motor Cycle* Offices, 20, Tudor St., E.C. [0553

Wanderer.

1912 Spring Frame 3h.p. Twin Wanderer, little used, fast reliable; bargain, £17 cash.—Tacey, Ockley, Surrey. [6434

Williamson.

WILLIAMSON, 1914, 8h.p., water-cooled, and coach sidecar, perfect throughout; £65, cost £105.—P. J. Evans, John Bright St., Birmingham. [X8520

WILLIAMSON, 8h.p., 1914, water-cooled, with coachbuilt sidecar, hood, screen, speedometer, 3 lamps, all accessories, new condition; £68/10, cost £120.—Eagles and Co., Acton. [X8499

1914 8h.p. Williamson, water-cooled, and low coachbuilt sidecar, competition machine, excellent condition; any trial; £80, or near offer.—Victor Garland, 2, Finstock Rd., North Kensington. [6470

Zenith.

ZENITH, 1913, 6h.p.; lowest cash price £45.—Laytons', Bicester, Oxon. [X8424

ZENITH, 1913, 3½h.p., sound throughout; rock bottom cash price, £28, easily worth £35. Laytons', Bicester, Oxon. [X8423

1912 Zenith, 6h.p., Gloria sidecar, Lucas lamp, almost new tyres perfect condition, spares; £40.—20, Swainson St., Blackpool. [X8446

ZENITH, 1914, 3½h.p. twin, used very little, in first-class order, no lamp or horn; £42, worth £50; cash only.—Laytons, Bicester, Oxon. [X8420

LATE 1913 Zenith-Jap, clutch model, only done 200 miles, with coachbuilt sidecar; 39 gns.—22, Hargrave Rd., Upper Holloway, London. [6478

ZENITH, 1914 models in stock, ready to ride away; best cash or exchange terms from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0481

3½h.p. Zenith and sidecar, in excellent running order, first-class engine; owner bought car; £27, or near offer.—Capt. Barnes, Heatherdene, Fleet. [0576

ZENITH-GRADUA, 3½h.p. twin, counter-shaft, in stock; 59 gns.—Exeter Motor Cycle and Light Car Co., Ltd., 28, Tevistock Rd., Plymouth. [0568

ZENITH-GRADUA, 5-6h.p., and sidecar, 3in. Rom combination, 8½in. headlight, Stewart, etc., very recv. £9 just spent; price £30.—Dr. Gasmann, 211, Lower Rd., S.E. [6555

ZENITH 1914 4½h.p. Twin, counter-shaft drive model; list price 61 gns.; only used 20 miles, and braud new; owner bought car; first cheque £54 secures.—Alexander's, 115, Lothian Rd., Edinburgh. [6590

ZENITH, 6h.p., late model, with luxurious coachbuilt sidecar, condition as new; £50 cash; would consider 2-speed Douglas part exchange.—Apply, Chauffeur, Oakhands Court, St. Peters, near Broadstair. [6497

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Miscellaneous.

PEUGEOT, Chater-Lea, 3½h.p., 1914, 2 speeds, free engine, Saxon forks, and sidecar £16.—84, Allison Rd., Harringay, N. [6483

CHATER-SAROLEA, 6h.p., mag., Amac, good tyres, and belt, sound order; must dispose; £12 cash.—H. Fulcher, Orpington, Kent. [6436

MOTOR Cycle, 1914, purchased July, with all accessories, 2¼h.p., faultless condition; acce. 20 gns.—3, Aubert Park, Highbury, London, N. [6438

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5h.p. Chater-Lea-Peugeot, Bosch mag., B.B. carburetter, Dunlop tyres, spring forks, X.L. saddle, can be seen.—12 Blackhorse Lane, Walthamstow. [6466

W. P. Edwards, Taunton.—Triumph combination, Bowden gear, £35; Douglas, 1912, £25; Triumph, 1909, £17; Campion lightweight, offers; Quadrant, £6/10. Three sidecars, cheap. [X8168

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1911 Twin 2-speed Rex, canoe sidecar, perfect, £23; 1911 3½h.p. Chater-Lea, Roc, perfect, £15, offers.—9, Fambridge Rd., Sydenham. [6560

EAGLES.—Motosacoche, 2½h.p., late 1912, variable gear, free engine, fine condition; £17/10.

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EAGLES.—Alldays Matchless, 3½h.p., late 1912, 2 speeds, free engine, footboards, with coachbuilt sidecar; £30.

EAGLES.—Triumph, 1912, free engine model, with Philipson pulley, new condition; £30.

EAGLES.—Radco 1914, 2¼h.p. 2-stroke, slightly used, as new; £18/10.

EAGLES.—Bradbury, 4h.p. (89×89), N.S.U. 2-speed gear, free engine, with Phœnix £14/14 sidecar; £32, or separately.

EAGLES.—N.S.U. 6h.p. twin, 1911, m.o.v., Bosch, latest pattern spring forks, 2-speed gear, fine sidecar machine; £30.

EAGLES.—Bat-Jap, 6h.p., 1912-13, chain drive, 2 speeds, with clutch, kick starter, and Gloria coachbuilt sidecar; any trial; £47/10.

EAGLES.—Any of the above can be had on approval, "The Motor Cycle" deposit system.—Eagles and Co., High St., Acton. Tel.: 556 Chiswick. [X8501

1914 Rex, Rex-Jap, Douglas, Williamson, Bradbury, and Sun-Villiers motor cycles for cash or exchange.—Colliers Motories, Westgate, Halifax. [0388

HALIFAX.—100 second-hand motor cycle to clear; huge cash discounts.—Colliers Motories, Westgate, Halifax. [0390

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

OAKLEIGH-CHATER-LEA, 8h.p., J.A.P.—Owing to Capt. Stokes having been called to the front, Mrs. Stokes is desirous of disposing of the above sidecar combination for £50, cost £95/10 few months back.—C/o 65a, Rosendale Rd., West Dulwich. [6516

MORGAN and Maxwell.—We have a large stock (over fifty) of machines, in A1 condition, at exceedingly moderate prices to clear. They include Ariel, Antoine, Bat, B.S.A., Bradbury, Chater-Lea, Douglas, Enfield (fine twin sidecar combinations), F.N., Humber, Indian, Campion, J.A.P., L.M.C., Moto-Reve, New Hudson, Premier (two, one lightweight, one 3½h.p.), Rex (several fine Rexes), Rudge, Scott, Singer, Triumph, Zenith. Two good cycle cars for sale cheap. We can give quick delivery of new mounts. Write for details of the M. and M. 2-stroke. Magnetos, clutches, 2 and 3-speed gears, engines, air and water-cooled, Binks, B. and B., Sensspray carburetters, decompressors, cheap sidecars, lamps, belts, etc. All rock bottom prices. Come to us if you want a machine for military use. We will give you a specially low quotation.—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham, London. [X8440

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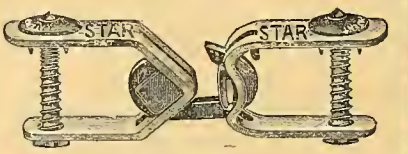

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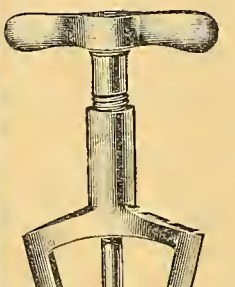

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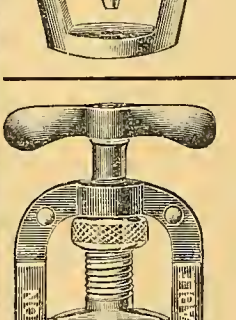

2/6 each.

SELF-CENTRING ADJUSTABLE BELT PUNCH.

Two Sizes—

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PROMPTEST Delivery of any make of motor cycle on our easiest deferred payment system. Exchanges entertained. Our experience at your disposal. Tuition free. Please favour us with a postcard.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [0533

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THE South-Eastern Garage (late Palmer and Kitson), Herne Hill Station, London, S.E., offer the following bargains, which are all guaranteed to be in perfect running order: 1910 6h.p. 2-speed N.S.U., £20; 1913 Williamson, W.C., and 2-seat. sidecar, £60; 1912 Kerry-Abingdon, 2-speed, and sidecar, £35; 4h.p. Roc, 2-speed, sidecar, £22; 1909 2-speed Triumph, £26; 3h.p. Quadrant, £8; 1914 4½h.p. Precision, 2-speed, sidecar, £50; 2¾h.p. 1914 Douglas, 2-speed, £40; 6h.p. 1914 counter-shaft Zenith, £56; 3½h.p. 1912 Ivy-Precision, £25; 1908 3½h.p. Antoine, F.E., £12; 1913 3½h.p. Ariel, T.T., £35; 6h.p. 1911 Matchless, £30; 3½h.p. 1912 Triumph, £33. 1913 Kendall cycle car, 8h.p. J.A.P., hood, screen, £70. Sidecars from 35/-. Accessories—New Mabon clutch, suit lightweight, £2; Triumph pattern bars, all 5 controls, 25/-; 5-6h.p. w.c. engine, U.H. mag., Stewart-Precision carburetter, suit cycle car, £9; 3h.p. Minerva engine, £3; carburetters, horns, inner tubes, covers, belts, etc. Write for lists.—South-Eastern Garage, as above. [8451

MOTOR CYCLES, ETC., FOR HIRE.

FOR Hire, sidecars, 7/6 per day, £1 per week.—Rey, 378, Euston Rd., and 173, Gt. Portland St., W. [4975

MOTOR Cars and Cycle for hire, day or week; terms on application.—Rey, 378, Euston Rd., and 173, Gt Portland St., W. [4974

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CHATER-LEA Tricar, 7-9h.p. J.A.P., mag., 3 speeds, reverse; £18/10.—1, Ebner St., Wandsworth. [X8495

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MELVILLE Sidecars, Halifax.—Melville Sidecars, Halifax.

SHOULD a Firm who absolutely manufacture sidecars from A to Z be able to give the maximum value at the minimum price? This granted, you cannot afford to pass us for anything sidecarish. We contend we have more variety and give infinitely better value than is offered elsewhere. It's easy to prove. Send for lists (which will clinch the argument and make a satisfied customer). Hoods, wind screens, bodies, chassis, luggage grid, etc.—Melville Sidecars, Halifax 'Phone 999 [X1703

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TERRIFIC Speed at Highgate. Mr. — riding flying Middleton entered trap at 45, saw copper stopped, turned round, flew out of trap at 60 m.p.h. Policemen jumped on pavement, women screamed, cows laughed, dogs barked. See local rags

TESTIMONIAL.—Sirs,—Your flyer is I.T. I never need ride alone now, it's a proper bird catcher.

MIDDLETON'S Sidecar, the only one to do 60 uphill. Manchester hill-climb

MIDDLETON'S Sidecars hold all principal track records, won 5 golds in Exeter trial, 7 golds Edinburgh Trial, etc., etc.

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MIDDLETON'S Agent Rey, Gt. Portland St., and Euston Rd.

MIDDLETON'S Sidecars, 27, Stroud Green Rd., Finsbury Park, N. 'Phone: Hornsey 1584. [5396

1913 Gloria Sidecar, torpedo cane body, spring wheel fits Triumph; £6.—Farrar's.

1913 Portland Sidecar, enclosed body, 26in. wheel, extra fine condition; £3/15.—Farrar's.

WE are offering big reductions in Farlow sidecars. Don't miss this golden opportunity.—Farrar's Motories, Halifax. [X8396

NEW Cane Sidecar, Dunlop tyre new; £5.—30, The Broadway, St. Margaret's. [6459

MILLFORD Sidecar, torpedo front body, side entrance; £3/17/6.—73, Church St., Camberwell. [6534

SIDECAR for sale, in good condition, quick detachable joints; 50/-.—Apply, The George, Bucklebury, Hitchin. [6459

LONGMAN Bros. and Aitken, 1, King St., Acton. Tel.: Chiswick 1578.—We have several good second-hand sidecars from £2. [6574

1914 Millford, Montgomery, Fitsu, Watsonian, and other makes in stock to fit any machine, from Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0400

SIDECARS AND FORECARS.

BASTONES for Sidecars.—Latest torpedo models from £5/18; bodies from 36/-; cigar pattern bodies, £7/17/6.—228, Pentonville Rd., King's Cross, London, N. [6411

IVY Sidecar, black, with red lines, Cape cart hood and wind screen, new; cost £17/2, take £15; order can-celled through war.—Hucklebridge, 133, Sloane St., Chel-sea, S.W. [6460

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1913 Warne Cycle Car, beautiful condition; real bar-gain, £55.—Rey, 378, Euston Rd., London. [6489

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DALMER'S Garage, Tooting.—6-8h.p. Autotrix, late 1912, water-cooled, sociable, fast, low, beautiful new condition; £55.

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SPORTY Monocar for sale, cheap, or exchange.—Par-ticulars and trial, F. Bassans, 155, Bridge St., Derby. [X8437

A.C. Sociable, 6h.p., 1913, perfect order, all spares; £40, cost £107.—Hutchinson, Fosse Rd., Syston, Leicester. [X8030

3h.p. Cycle Car, twin air-cooled engine, hood, lamps, generator, tyres, in perfect order; £20.—Gosling 3rd Moore, Leen Side, Nottingham. [X8381

1¾h.p. Elswick Cycle Car, 4-wheeler, run 600 miles; cost £80, sell £60, or exchange late high-powered Cycle.—Rhodes, Moortown, Lincoln. [X8193

PREMIER 7h.p. Motorette, 3-wheeler, hood, screen, all lamps, complete, scarcely used, condition as new. Smith, 15-23, Farringdon Rd., E.C. [6593

SMART 2-seat. Cycle Car (1913), 8h.p. J.A.P., good as new, chain drive, 2 speeds, spare tyre, all acces-sories; £50.—Powell, 153, Bowes Rd., Palmer's Green. [X8356

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38. —The Premier Motor Co., Ltd., Aston Rd., Bir-mingham. [0527

HALIFAX.—1914 Lagonda, £145, £150; G.W.K., £150; Victor, £115; Calthorpe, £168; all new from stock; exchanges quoted.—Collier's Motories, Westgate, Halifax. [0488

ONE A.C. Pattern Cycle Car, 4½-6h.p. water-cooled engine, wants dash and mudguards, new, £30; one Crouch Carette, complete, £55; call and inspect.—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham, London. [X8441

STELLITE Light Car, in first-rate order throughout, finished Wolseley grey, awarded two "appearance" prizes, hood, screen, complete in every respect, and in-cluding following extras—spare Sankey detachable wheel and tyre, folding dickey seat, pair large size H. and B. head lights, Watford speedometer, dashboard clock, vari-able ignition, usual tools and spares; £155.—Geoffrey Smith, "Dunelm," Northumberland Rd., Coventry. [X8379

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AND THE

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THE NEED OF TO-DAY :
COOL HEADS &
COOL ENGINES.

The motor cyclist desirous of getting the very last bit of service out of his engine without running it to ruin must use the

NEW CHEMICO MOTOR CYCLE OIL

It keeps the engine as cool as a cucumber.

Obviates every tendency to gum up.

Admits of starting-up from cold without the use of injections.

Gives vastly greater mileage.

No power wastage.

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Let us send you copies of testimonials received, expressing astonishment at improved running.

Ask your dealer to supply. If he can't or won't, we will, and pay carriage.

Quarts 1/9 ½-Galls. 2/9

Gallons 5/-

5-Gall. Drums 3/9 Per Gallon.

KEEP COOL,
KEEP THE ENGINE COOL,
AND WIN.

The County Chemical Co., Ltd.,
Chemico Works, Birmingham.

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6h.p. Rover Car, perfect running order; £25.—Rey, 378, Euston Rd., London. [6241

BEDFORD, 4-cyl., in beautiful condition; £60.—Rey, 378, Euston Rd., London. [6490

4-CYL. Humber, good condition, for quick sale; £17/10. —Henshaw, Wheelwright, Stockport. [X8475

PALMER'S Garage, Tooting.—12-16h.p. De Dietrich, side entrance, mag., 4 speeds, hood, screen; £30.

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PALMER'S Garage, Tooting.—12-14h.p. F.I.A.T. lan-daulet, silent, speedy, reliable, average 28 m.p.g., £175; one also at £160.

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PALMER'S Garage, Tooting.—24-36h.p. Spyker, long chassis, make good van; £50.

PALMER'S Garage, Tooting.—20-24h.p. Arrol-Johnston double landaulet; clearance bargain, £75.

PALMER'S Garage, Tooting.—15h.p. Metz-Lion, 1912-13, 2-seat., with dickey; £75.

PALMER'S Garage, Tooting.—18h.p. Daimler touring car, live axle, superb hire car; £140.

PALMER'S Garage, Tooting.—Over 100 2-seaters, 4-seaters, landaulets, cycle cars, and motor cycles always in stock. Write for complete list, with catalogue. Ask for auction catalogue. Exchanges, easy terms. [6442

10-12h.p. Car, running order, splendid tyres; £21, or nearest, or tricar part.—Armitage, Clarendon St., Hyde. [X8453

PILOT, 1912, 6-8h.p., 2-seat., full equipment, Step-ney, dual ignition; accept £35.—Peacock, 274, High Rd., Balham. [6506

FORD, 1913, 2-seat., dickey, full equipment, Stepney (never used), only done 4,500 miles, new condition; £90.—Peacock, 274, High Rd., Balham. [6505

6h.p. Rover, 3 speeds and reverse, dual ignition, hood, screen, Stepney, lamps, speedometer, com-plete; £40.—Attrill, Chattenden, Rochester. [5068

CLYDE 2-seat. Car, live axle mag., etc., guaranteed absolutely perfect; £40; would exchange for motor cycle.—Longman, 1, King St., Acton. Tel.: Chiswick 1578. [6574

20h.p. Studebaker-Flanders, low 4-seat. torpedo body, dual ignition, beautifully fitted up regardless of cost, fast, and silent, almost new condition throughout; sacrifice £95; take powerful sidecar combination part.—Else, Derwent Mills, Matlock. [X8454

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ANTOINE Engine, 3h.p., Chater-Lea frame, coil igni-tion, in sound running order, spare parts; £7.—J.M., Road Field, Cranbrook Rd., Barking Side, Essex. [6455

BASTONES.—New Rex, 1913, 6h.p. twin engine, with Bosch mag., £16/15; new Blumfield 3½h.p. single, less mag., £8/15.—228, Pentonville Rd., King's Cross, London, N. [6407

2¾h.p. De Dion Engine, £2/10; 3½h.p. Rex, £4/10; 1910 Rex, 3½h.p., 2-stroke, Bosch mag., £9; 6h.p. twin Rex, £5; 1911 twin 6h.p. Rex, £8/10; 6h.p. N.S.U. twin, £6/10.—Murray's, 37a, Charles St., Hatton Garden, Holborn. [X8459

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PARKER and Rice.—Re-winding, re-magnetising, overhauling, etc.; repairs executed with expedi-tion, and unapproachable workmanship; low quota-tions.

IMPORTANT.—Parker and Rice give 12 months' written guarantee with each repair.

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MAGNETO, Ruthardt, type 3HI., nearly new; 45/.—Essenhigh, 40, Darnley Rd., Gravesend. [6577

BASTONES.—New Bosch DAV, 2-cyl., £3/10.—228, Pentonville Rd., King's Cross, London, N. [6408

ACCUMULATORS Repaired and made as new; work guaranteed; liberal allowances for old cells in ex-change for new; lists free.—Richford, 153, Fleet St., London. [1775

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JEBRON, registered 291298, greatly superior to platinum, unequalled for blades, screws, etc.; cures misfiring; 2/6 each rivet; Jebron screws, fit Bosch magnetos, 5/6 pair; old screws Jebronised, 2/6 each.

JEBRON Contacts, used by Messrs. Collier Bros., Colver, Martin, making world's records.—Jebron, 38, Herbert Rd., Woolwich, London, S.E. [X4331

MAGNETO, Bosch, DA2, single, for 3½, sprocket wheel, chain; bargain, £2/5, or offer.—Pooley, 1, Wastdale Rd., Forest Hill. [6605

24 Hours Magneto Repair Service.—All makes of magnetos, coils, or accumulators repaired by experienced mechanics, and returned within 24 hours as efficient as new. Spares for all makes stocked.—Simms Motor Units, Ltd., 191, Wardour St., London, W. [0539

MAGNETO Repairs of every description, any make. Armature winding a speciality, guaranteed 12 months. We are late of the leading manufacturers, and give same guarantee at half their prices. New and second-hand magnetos in stock.—The Magneto Repairing and Winding Co., 158, Seymour St., Euston Rd., London. 'Phone: Museum 1158. [6502

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ELITE.—Wood-Milne belts, rubber and canvas, 1½in. 1/6 per ft., ¾in. 11d. per ft., ⅝in. 10d. per ft.

ELITE.—Special clearance line of Lyso belts, fully guaranteed by the manufacturers (Avon India Rubber Co.), 7ft. 6in.×⅞in., 7/- each; 7ft. 4½in., to suit Triumphs, 6/9; only a few left.

ELITE.—Continental belts, rubber and canvas, 1in 1/6 per ft. (list price 2/2), ⅞in. 1/2 (list price 1/11), ¾in. 1/- (list price 1/7), ⅝in. 10d. per ft. (list price 1/5).

ELITE.—New 1914 John Bull belts, ¾in. 1/6, ⅞in 1/9½, 1in. 2/1, 1⅛in. 2/7; allowance up to 3/ for old belts.

ELITE.—Service pattern leather belting, ⅞in. 10½d ft., 1in. 1/- ft.

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria (one minute from Victoria Station), and 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phones: Victoria 6553, and Brixton 2042. [9069

FINEST Value.—Leather belts, 1/3 per foot.—Exeldo Co., Haworth, Keighley, Yorks. [6094

BASTONES.—Best quality leather and chrome belting, ⅜ 11d., ¾ 1/1, ⅞ 1/2, 1in. 1/4, 1¼in. 1/6 per foot.—228, Pentonville Rd., King's Cross, London, N. [6409

NEW Lyso Rubber Belting, in two pieces, 7ft. 6in.× 1in., 9/6; 8ft., 10/-; 7ft. 6in.×⅞in., 5/-; 8ft. 5/6. —Murray's, 37a, Charles St., Hatton Garden, Holborn. [X8456

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LEGGATE, Edinburgh, for tyre value.

LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchers, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

LEGGATE, Edinburgh. — Clearance.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6; 26×2¼ 32/6, list £2/7/3; 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10. The Dreadnought is specially designed for passenger machines, is built of 6-ply fabric, and has a tread half an inch thick. An experienced sidecarist says: "Dreadnought is undoubtedly IT."

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LEGGATE, Edinburgh.—Clearance.—1914 Clincher A Won, heavy rubber studded, beaded covers, 26×2 21/-, list 31/6; 26×2¼ 23/-, list 34/-; 26×2½ 23/-, list £2/1/6.

LEGGATE, Edinburgh.—Clearance.—1914 Clincher sidecar covers, rubber studded, beaded edge, 26×2¼ and 26×2½. 16/-.

LEGGATE, Edinburgh.—Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅛ 6/6, 26×2½ 7/-; list almost double.

LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against cash, which will be refunded in full if goods not approved of.

LEGGATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh 'Phone: Central 3195. [X8447

ROBERTSONS

SECOND-HAND MOTOR CYCLES

1584. 1914 **HARLEY-DAVIDSON,** 8 h.p., 2-speed, one of our own demonstration machines **£50**

1592. 1914 **HENDERSON,** 8 h.p., 2-sp., large F.R.S., born, mirror, trip and total mileage Cowey, etc., run under 500 miles, being sold owing to illness of owner; cost £95 ..... **£72**

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1569. 1914 **ROYAL ENFIELD** Outfit with Sidecar, large lamp, horn, etc. **£72**

1588. 1913 **PREMIER,** 8 h.p., 3-speed, Sidecar, outfit, complete with accessories **£56**

0551. 1913 **ALCYON,** 2 h.p. **£24**

0552. 1913 **ALCYON,** 2¾ h.p. **£29**

1580. 1913 **RUDGE** Multi, 3½ h.p., and Sidecar **£42**

1572. 1913 **ZENITH,** 8 h.p., specially built machine **£54**

1533. 1913 **B.S.A.,** 3½ h.p., 2-speed **£40**

1565. 1913 **HENDERSON,** 8 h.p., F.E., owner married a wife and cannot afford both **£55**

1433. 1913 **REGAL,** 4½ h.p. (1912 frame), 2-speed .. **£28**

1542. 1913 **ZENITH,** 6 h.p., F.E. **£45**

1591. 1913 **DOUGLAS,** Model R, with accessories, all absolutely like new **£44**

1590. 1913 **DOUGLAS,** Model R, in very fine order .. **£42**

1587. 1912 **B.S.A.,** 3½ h.p., 2-speed, very little used .. **£27**

1457. 1912 **HENDERSON,** 7 h.p., 4-cyl., F.E. **£38**

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B.A.T., 1914, 8h.p., 3-speed gear, new .. £54
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TWO New Rubber-studded Covers, 26×2¼; 21/- eac no use to owner.—Cooksou's, Grocers, Elton, Bu [X83

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BASTONES.—Peter-Union make covers, 26×2 12/-, ×2¼ 15/-, 26×2½ 17/6, 28×2 15/-.

BASTONES.—Michelin 1914 covers, beaded edge, 2 1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18 28×2 16/6; wired edge, 26×1¾ 11/6, 26×2 13/9, 2 2¼ 15/-, 26×2½ 16/-, 28×2 14/9; Michelin tubes stock.

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BASTONES, 228, Pentonville Rd., King'e Cross, L don, N. 'Phone: 2481 North. [64

HUTCHINSON Tyres, 26×2, 12/6; other sizes grea reduced; Moseley, 26×2½, 650×65, 27/-, us 37/-.—Hilton and Son, Foxhall Sq., Blackpool. [X84

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ELITE.—Henley oversize covers, 700×80, to 650×65 rims, heavy plain tread; 28/6.

ELITE.—Dunlop Pillion covers, 1913 stock, 65 65; 27/6, list price 50/-.

ELITE.—Heavy Three Spires covers, 26×2¼, B. 15/- (list price 27/6).

ELITE.—Midland heavy ribbed and studded cove special clearance line guaranteed for 3,000 mil 26×2¼ 25/- (list price 37/6), 26×2½ 27/6 (list pr 40/-).

ELITE.—Hutchinson Brooklands, 1913 stock, 26 12/-, T.T. 26×2½ 16/6 (list price 33/6).

ELITE.—Hutchinson Passenger covers, 1913 sto 26×2½ 22/6 (list price 41/3), 26×3 to fit rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 2 2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

ELITE.—Hutchinson small car covers, 650×75, suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Continental T.T. covers, 26×2¼ 19/6 (l price 28/-).

ELITE.—Michelin clearance covers, beaded ed 26×2 light 8/9, 26×2½ 13/9; Trident, 26× 24/-; Standard, 26×2¼ 22/6, 26×2½ 24/6.

ELITE.—Clearance Michelin covers, wired on; Stand 26×2½ 26/-, 26×2¼ 24/6.

ELITE.—Clincher heavy rubber studded covers, 2 2¼ 17/6 (list price 34/-).

ELITE.—Dunlop heavy rubber studded covers, 26×2 17/6 (list price 30/-), old 1913 stock.

ELITE.—Special heavy rubber studded covers, suita for back wheel of 3½h.p. machines; 15/-.

ELITE.—Clincher 700×80 covers, plain tread 21 heavy grooved 25/-; Clincher tubes, 700×80, 6 suit 650×65 rims.

ELITE.—Clincher extra heavy tubes, best quali 26×2¼ 6/6.

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An index to advertisements will be found on the page facing the back cover.

Amalgamate the Car and Motor Cycle Shows.

BRITAIN'S motto, "Carry on," which we have ventilated and supported to the best of our ability, will, we trust, be applied to the Olympia Shows. From what we can gather, the Management Committees of the Olympia Car and Motor Cycle Shows are much exercised in their minds as to whether to hold the exhibitions this year, as heretofore, but our view is that postponement of the Shows this year would be extremely unfortunate. It is certain that there will be no Shows at Berlin or Vienna, though there may be a glimmer of hope that the Paris Show will be held should the war be short-lived. The odds are, however, that the only Show which is at all likely to take place this year will be in England, and it would appear that now is a chance for British trade concerns to seize upon this magnificent opportunity of penetrating new channels and of demonstrating the solidity of British manufactures, even in times of stress such as these. It will in no way benefit France or Belgium if there is no Show in London. Much can happen in the period intervening between now and the dates of the Shows, but it is sincerely to be hoped that events may go so well with the Allied Forces that the Show question may no longer hang in the balance. Should, however, the present stress continue and the financial conditions necessitate an alteration in the original programme, we suggest that by combining the Car and Motor Cycle Shows, a successful exhibition, both financially and as regards public support, would be the result. Great Britain must have a Show, and this is the opportunity. It is even now felt in many quarters that both Shows would receive sufficient support to warrant their being held; but, on the other hand, it would be unwise for manufacturers to strain their finances in supporting two separate Shows which might be but moderately attended, when one "amalgamated" Show would result in a crowded hall and good business, at a much reduced expenditure. Agents would, no doubt, welcome this plan on account of the halving of time and expense. We put this suggestion forward to the organisers as a possible solution of the difficulty with which they are confronted.

Our Trade Overseas.

WITH Olympia, the motor mart of the world, in the balance, the American Cycle Trades Convention has just been held at Atlantic City, N.J. This convention is composed of practically all those engaged in the motor cycle and allied trades in America, and very naturally the convention fell to discussing the war and the likely effects thereof on American commerce. While naturally a grave view was taken, and it was quite realised that any idea of much European trade in the near future was hopeless, the members of the convention turned quite briskly to the prospects of securing business in other parts of the world, *and special mention was made of the possibilities of getting into British Overseas markets*, which the home manufacturers might possibly consider not worth while cultivating during the crisis. This is an important point, for once a seller has established himself on a friendly footing with a buyer, it is not easy to effect a severance.

We are perfectly well aware that, despite the dominance of the fleet over the high seas, shipping facilities are not altogether normal, more particularly in the matter of freights, but still substantial assistance has been promised by Government with regard to war rate insurances, and we think that manufacturers might well make continuous efforts to keep existing and secure fresh overseas trade, even during the course of hostilities.

A hundred years ago England managed to conduct long wars for year after year, and at the same time successfully hold the bulk of the world's trade, and even pay off Funded Debt instead of piling it up. To-day we are just as strong.

SEVERE TRIAL AT THE CAPE.

Real Colonial Test in the Competition for the Continental Cup.

"THE most strenuous motor cycle trial ever held in these parts" was the verdict voiced by competitors who, on the King's birthday, had the pluck to enter for the 115 miles' road trial and face miles of mud and water and typical Colonial roads in the competition for the Continental Cup held by the Cape Peninsula M.C.C.

Until a day before the trial it had been raining continuously for a week, and as a result streams had grown to rivers and the roads had become shocking, and thus only the most courageous entered—eleven riders in all.

The sun was shining when O. M. Lewis (3½ h.p. Humber sc.) led the field, which was despatched at intervals from Salt River, and 20 m.p.h. was the speed fixed. The route turned over the Koeberg Road, where M. Prillevitz (3½ h.p. B.S.A.) was seen pedalling his hardest past the farm Vissershok and over a steep hill, on the top of which the first secret control was met. Lewis failed before reaching the summit, and the Rev. S. B. Priston hereabouts stopped to fasten the stand of his 3½ h.p. horizontal engined Bradbury, thus losing 10 marks. Nearing the village of Durbanville, the latter nearly ran into S. Moralee's sidecar outfit, which suddenly collapsed, and only three of the competitors got through here without a stop. At Kuils River a young man from the veldt assisted Fritchley in his argument with the back tube of his 3½ h.p. P. and M., which delay caused him a big loss of marks.

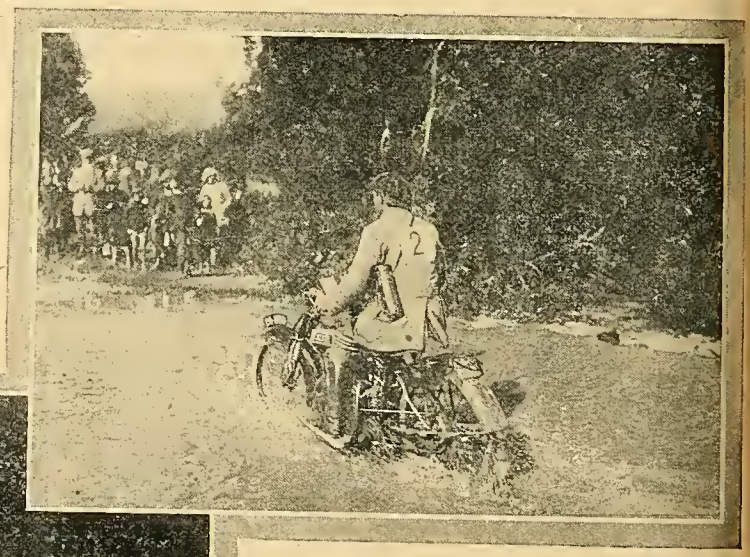
Something like a Watersplash.

An interested crowd, anticipating excitement, had gathered at the foot of Sir Lowry Pass, where the "watersplash" of normal times had now swollen to 25ft. in width and over a foot in depth. The only man to get through was the Rev. S. B. Priston on his chain-driven mount; all the others came to a stop in midstream, and had in some instances to be hauled to *terra firma*.

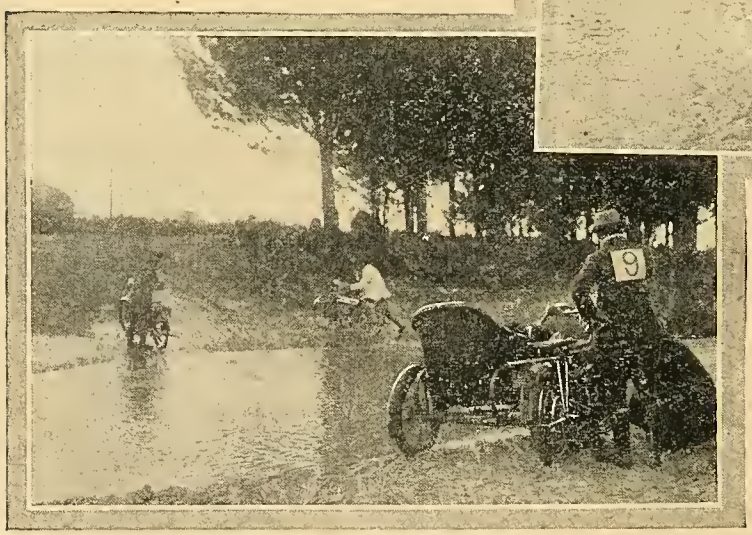
After the luncheon interval at the hamlet, where G. Alexander (6 h.p. Bat sc.) was the last man to arrive, after having been detained by an overdose of tyre trouble and search for a lost speedometer cable, the route led through the picturesque village of Somerset West and the town of Stellenbosch, towards Hel' Hoogte—a steep mountain pass with numerous bends and in parts a frightful muddy surface—the *pièce de résistance* of the day. J. C. F. Myburgh (7 h.p. F.N.) steered through the mud with a good deal of footwork, but on the descent side-slipped twice. Priston passed the observers near the summit all smiles—he had held the cup already for a year. Coasting down, contestants were suddenly faced by a stretch of thick greasy mud, that proved the undoing of many. Near Pniel, E. W. Watts (6 h.p. Enfield sc.) effected a smart repair to the timing gear, while further on towards Drakenstein, F. Meredith, riding a similar outfit, was seen halting at the edge of one of the numerous streams met in the day's run, trying to replace a broken valve. Then over a waterlogged road to Klapmuts, and hence the route led over the main road to the Cape. Many were the heroes met with who had fallen by the roadside. Results:

		Marks lost.
1.	Rev. S. B. Priston (3½ Bradbury) (holder)	20
2.	J. C. F. Myburgh (7 F.N.) ...	30
3.	E. W. Watts (6 Enfield sc.) ...	41
4.	E. G. Alexander (6 Bat sc.) ...	180

The Continental Cup now becomes the winner's absolute property.



The Rev. S. B. Priston (winner) on his 3½ h.p. horizontal Bradbury. This rider was the only one successfully to cross the river without assistance thanks to a protected engine and a high magneto position. The deeper part has still to be negotiated.

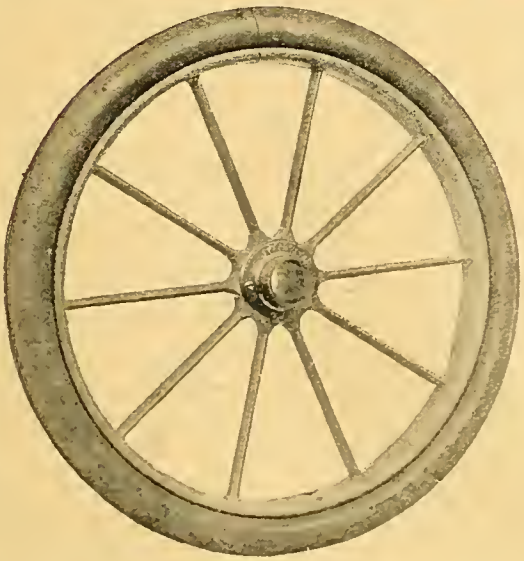


The stream near Drakenstein. F. Meredith (6 h.p. Enfield and sidecar) experiencing trouble with a valve.

The Starley Tubular Wheel.

An Artillery Wheel for Motor Cycles, Easy to Clean and Light in Weight.

THERE is no doubt that the ordinary wire wheel is very troublesome to clean, for the spokes are numerous and it is difficult to get at the hub; many motor cyclists will, therefore, be glad to hear of a wheel which very closely approaches the wire wheel in the matter of weight, and possesses none of the disadvantages just mentioned. The Starley wheel which we illustrate is the invention of Mr. William Starley and is of very interesting construction. Ten lugs are riveted to the rim, the latter being made as usual; over these lugs are placed the spokes, which in the centre fit into malleable wedge-shaped pieces like the ends of the spokes of an artillery wheel. For convenience of fitting, a certain amount of play is allowed between these pieces, and, when the spokes are in place, corrugated steel wedges are forced between these pieces from the inside, thus the whole is held firmly together. A groove is then turned in the centre and a liner inserted, which is spun into the groove. Next, a hub is put through the centre and bolted up with a flange on each side, the bolts going through alternate spokes. The spokes are formed from steel tube rolled to an oval section, but running to a point on each side. This gives great lateral stiffness, but at the same time the wheel has a certain amount of spring. The parts are all made of steel and polished before assembling, thus very little finishing off is needed, and, as no wood is used in the construction, the whole can be stove enamelled. Wheels made in this way are absolutely true and very strong. The inside of the rim is unusually smooth owing to absence of spoke heads, the riveted lugs before mentioned being flush with the inside of the rim. The weight of the wheel is very little more than the ordinary type, being 9 lb. complete. The wheel is made by the Jointless Rim Co., Long Acre, Birmingham, and is at present being tried by certain well-known firms with a view to adoption in 1915.



The Starley tubular wheel for motor cycles and sidecars.

The Future of the Artillery Wheel.

It will be exceedingly interesting to watch the development of what may be termed artillery wheels for motor cycles. Since the advent of steel wheels on the Clynos in the Scottish Trials there has been a considerable amount of spade work done in this direction.

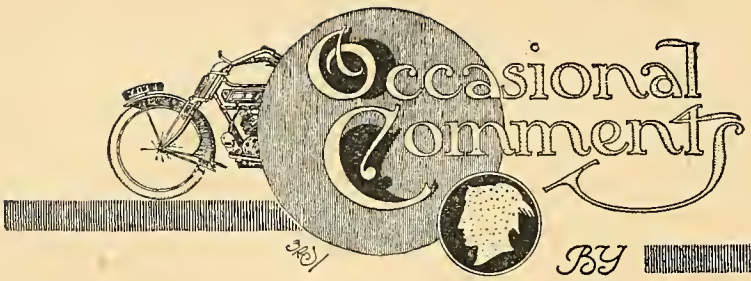
There are also many possibilities about the disc wheel which was designed many years ago for use on pedal racing bicycles, one of the objects being the elimination of the air resistance of a large number of fast revolving spokes, the skin friction of the polished disc being almost negligible.

SCENES ON THE SEVERE TRIAL HELD BY THE CAPE PENINSULA M.C.C. FOR THE CONTINENTAL CUP.

(See opposite page.)

Scene at the Sir Lowry Pass River. Competitors assist in the crossing.

J. C. F. Myburgh (7 h.p. F.N.) negotiating the thick greasy mud during the ascent of Hel's Hoogte.



A Magneto Trouble with Two-stroke Engines.

I rejoice to see that two or three British firms are seriously embarking on the manufacture of magnetos; and I hope that when they get under way they will pay careful attention to a small detail which the Germans have yet not solved. The carbon brushes which pick up the high-tension current from the collector ring are apt to become non-conductive at their tips when the magneto is run at crankshaft speed (as on a two-stroke engine). The tip of the brush becomes glazed over with a kind of hard scale which appears to be a non-conductor, and the engine may behave very funnily until the brush is renewed or its tip filed down a trifle. I understand the trouble can be reduced by using a lighter spring behind the brush, as less pressure is required for good contact at the high speed attained by the armature in machines of this design.

Curious!

In common with many other people, I should like to know on what principles the responsible authorities made their selection from the first plethora of motor cyclist volunteers. A number of comparatively raw and inexperienced "blinding nuts" (as one disgruntled and rejected rider put it) were rapidly given coveted berths, whilst several of our very finest and most experienced men were ruthlessly refused work. One of the men whom every rider in the kingdom would naturally nominate as one of the best qualified for the job was cold-shouldered; some of those accepted are reckless drivers and indifferent mechanics, besides being apparently devoid of map-reading or military experience. The War Office has behaved so magnificently in most respects that this wee grumble seems ungrateful; but one rather suspects that genuine motor cycling authorities were barely consulted in this business, and one hopes that if more motor cyclists are required, the committees of the A.C.U., M.C.C., B.M.C.R.C., and two or three of the bigger provincial clubs will be interviewed on the matter. Balaclava was due to a despatch rider's blunder; I should not like to think that the fate of a brigade in the present war might depend on one or two motor cyclists of my acquaintance; however, they will soon be classified when they get to work.

Sidecar Mudguards.

It may have been a pure coincidence that on a short afternoon run this week I passed three sidecar outfits all minus the near side mudguard. Contrariwise, it may be that these stays are not made strong enough for the duties they sustain. There is no more irritating trouble of a petty kind, for it is difficult to fake a broken stay, and the unlucky owner must usually detach the remaining stays, and compel his fair passenger to nurse the filthy, no-shape fitting until he reaches a repair shop. I do not remember seeing a sidecar with a wide flat mudguard fitted to the chair instead of to the chassis, the explanation being that there is usually too much play on the springs; why should sidecar springs require more rise and fall than car springs? However, the makers' business is either to fit a strong stay on the unsprung chassis, or to spring the chassis; or to fit the guard on the chair, and make it wider.

Rear Springing.

I have long held that the problem of rear springing is the most vital of all that face the motor cycle designer, but I have made few references to the matter lately, because the trade seemed cynically impervious on this point. I return to it at last like a giant refreshed. I happen to have ridden a P.V. spring frame and a rear-sprung Indian within one and the same week, and the relief to my spine was enormous. Readers will guess from the length of my connection with *The Motor Cycle* that I am no longer in my teens, and the older one gets the more heartfelt is the muttered "Ouch!" which is our normal benediction of a level-crossing or a particularly antediluvian pothole. I admit the worst that can be urged against existing rear springs; they are heavy, they may not appear beautiful, and they add to the cost of a machine. But the extra insulation they afford is most desirable. I live in a district of average roads, and once a week I ride five miles out and home to a golf club. Thrice in that distance I stand on my footrests to dodge the bang of a level-crossing, a half-filled drain trench, and a series of potholes where a foundationless road crosses a bridge over water meadows. For a whole mile of the distance my eye is glued to the road surface, for I know that the manholes and drain lids protrude from one to three inches out of the worn macadam. Yet over the remainder of the journey I am always unduly conscious of the fact that I have a spine, and that my spine is constructed of short pieces like a speedometer driving shaft; are not the rough road and the rigid frame playing skittles with my vertebræ every inch of the way?

Yet I am no weakling. I think nothing of 300 miles in the day, or of trebling the speed limit on a deserted road. There are millions of potential riders far more sensitive than myself. Does the trade realise what this means? It means that if one of the fiercely competing 500 c.c. firms brought out an efficiently rearsprung machine I should ride it to the exclusion of every other make; and that thousands of similar individuals would be equally discerning and resolute. Does this tempt nobody?

THE TWIN ARIEL ON THE ROAD.

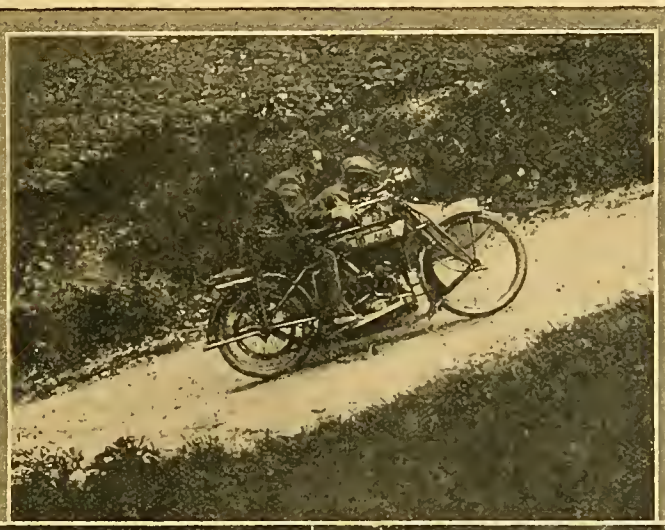
Freak Hills Successfully Scaled with a Sidecar.

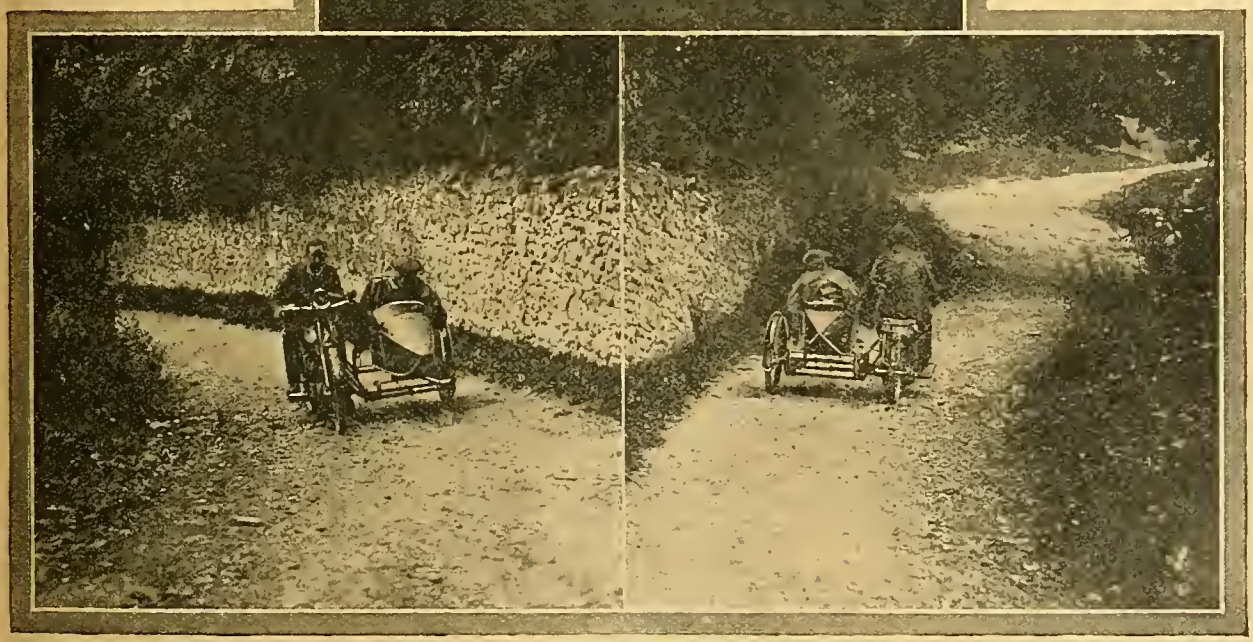
WITH recollections of our last successful trip to Bwlch-y-Groes with F. C. North on a 3½ h.p. Ariel and sidecar, we determined to try and beat the 5-6 h.p. twin on some freak gradients. Accordingly we set out to attempt the Nailsworth Ladder under full touring conditions. The machine was a standard one with the usual gear ratios of 4½, 8, and 14 to 1, and we were told that the engine had received no attention for a very long time.

We set off from Coventry at a smart pace, intending to make our first attempt on the Ladder before lunch. The engine started easily and purred away steadily through Warwick, Stratford-on-Avon, and Broadway, and never a fault or misfire appeared. At Cheltenham it was considered advisable to replenish the tank, and calling at Mr. T. West's garage we obtained petrol at normal prices. After this we changed places with North, who had previously been driving. The engine is particularly easy to handle, and is practically vibrationless, while the gears are silent and change very easily and quietly. Rain began to fall in a few heavy drops, and after passing through Stroud the roads were wet and greasy. However, on reaching the hill it was found to be protected by the trees and quite dry, though the surface in places was very bad.

Up Nailsworth Ladder at the First Attempt.

The first pitch of all is probably the steepest, and on it the large stones stick out of the bed of the road in a terrifying manner and we began to wonder if the steel-studded rear tyre would stand up and grip the surface. Although the driver had never before attempted the hill the very first attempt was successful, and on a second attempt for photographic purposes the machine was intentionally stopped and restarted just below the steep gradient at the top of the climb. The engine pulled superbly, and though the back wheel spun without moving the machine, the passenger quickly moved from the sidecar to the carrier and the machine went up quite comfortably and easily. This is one of the finest performances we have seen for an engine of

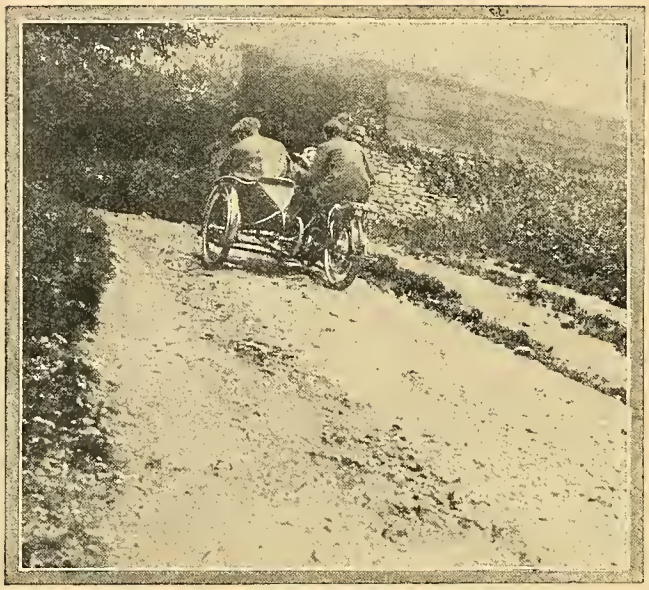




THE TWIN ARIEL ON NAILSWORTH LADDER.

(1) In the middle of the Ladder A stop and restart was accomplished at this point.
(2) Another view half-way up the Ladder.
(3) Approaching the last steep pitch. The surface gets gradually worse towards the top.

The Twin Ariel on the Road.—



On the steepest part of The Ladder. Note the rough state of the surface.

670 c.c., and we were thoroughly satisfied with the pulling powers of the machine. It may be added that no sign of belt or clutch slip was observable, in spite of a fairly slack belt and a well loaded and fully equipped machine. During lunch the rain started in earnest and we prepared for a wet ride home.

Up Birdlip on Middle Gear.

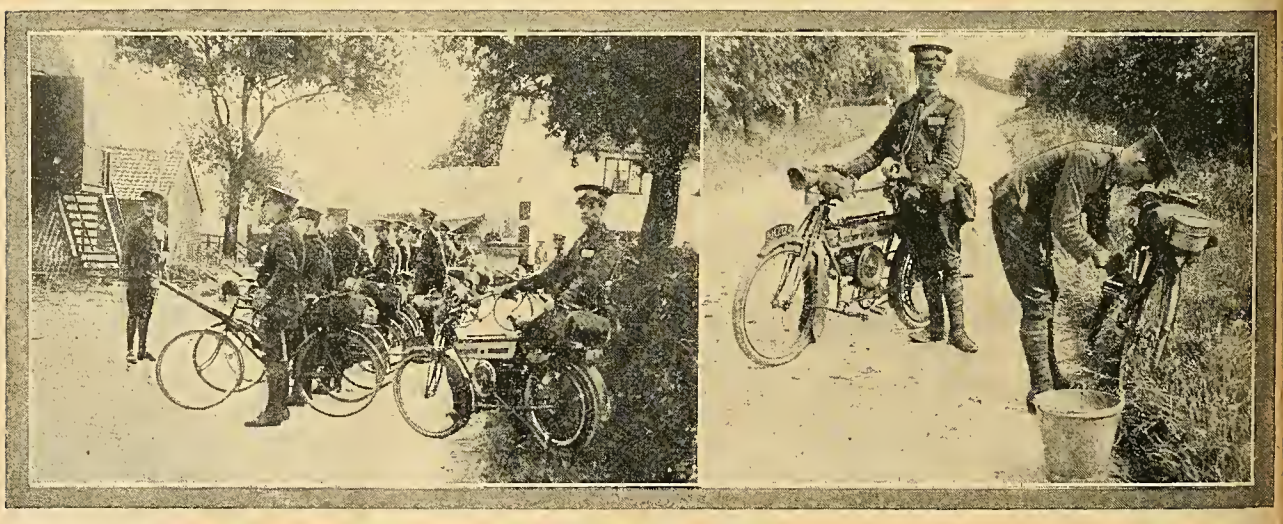
However, at the foot of Birdlip the rain eased off and we decided to reach Cheltenham *via* the well-known hill, though, of course, it is child's play in comparison with the Ladder. So easily did the twin take the long gradient that the low gear was never used; in fact, the engine was turning round comfortably on middle all the way up. After passing Cheltenham, North expressed a desire to have a look at Post Office Hill, and in spite of our warning that the surface on the steep part was horrible the attempt was successfully made with a hot engine. The loose stones and cross gullies are very bad, but the Ariel travelled steadily up with never a falter.

The rain had now stopped entirely, and we enjoyed a pleasant run home. Among the many excellent features of the machine is the splendid way in which it will maintain a high average speed without a sign of overheating, besides which it is extremely quiet, and when driving in traffic the engine is almost inaudible.

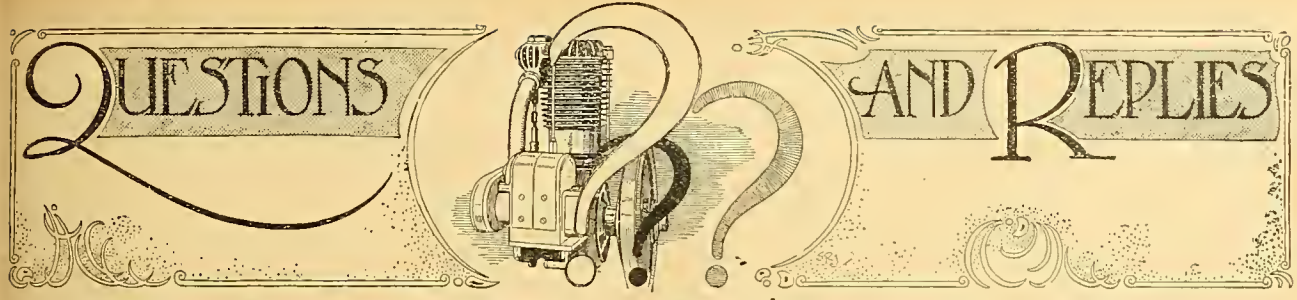
Two-strokes and Paraffin.

THE experiments with paraffin which we have been carrying out on a two-stroke machine have been progressing satisfactorily. The consumption of fuel is rather better than with petrol, and several interesting features have become apparent. Firstly the carbon deposit is not noticeably greater, secondly the exhaust port does not become choked anything like so quickly, owing to the softer nature of the deposit, and, thirdly, the deposit on the cylinder head and piston is very much easier to remove.

So far only one serious drawback has been encountered, and that is the difficulty of obtaining a plug which will withstand the increased heat and the paraffin vapour. Sooting up has not been experienced since the oil supply has been slightly reduced, but the insulation seems to break down under the heat and the effects of paraffin. The plugs give out quite suddenly, usually when travelling fairly fast, and when removed from the cylinder appear in good order. After cooling down they may be used again until the same symptoms repeat themselves. Plugs with porcelain insulation have so far stood the tests most satisfactorily. The trouble may be partly due to the rather high compression used on the engine, and experiments are now going forward with the compression slightly lowered, though so far our road experience since the alteration has been too short for definite results to be obtained.



One of the cyclist sections which are doing useful work on the East Coast. They are attended by a motor cyclist despatch rider who stays behind in case of tyre trouble to hurry his comrades on.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Automatic Magneto Timing.

Why not fit small governors on the magneto revolving with the armature, to advance and retard the spark, instead of having to move a lever frequently, as one needs to do on many machines? There could be a movable stop at full advance and retard for adjustment. Is there any objection to such a plan?—M.S.

Your idea would certainly be of advantage to a certain degree, but it is questionable whether it is really worth the extra complication. Personally we do not think that it would be so. As a matter of fact, a certain firm of magneto makers have already tried such a device, but gave it up as not being sufficiently certain in its action.

Endorsements on Driving Licence.

A few weeks ago I was convicted at a country police court for having, as they stated, an inefficient silencer, and was fined and had my driving licence endorsed to that effect. The information I should like is as follows: Are the police empowered to endorse a licence for such a technical offence, seeing that the magistrates did not state that my licence was to be endorsed? This was done by one of the police. Will this endorsement have to be made on any future driving licence I may take out? Are there any means by which I can have the endorsement taken off? What is the effect of such an endorsement upon my licence, and am I restricted in any way by having such an endorsement? Is a driving licence suspended or cancelled when a certain number of endorsements have been made thereon? —G.W.H

The police were quite within their rights in endorsing your licence, and the endorsement will be copied out on every licence you take out. There are no means of getting the endorsement cancelled unless you prove yourself to be not guilty in an appeal. The effect of such an endorsement is not really very serious. Although your licence is not endorsed for the first and second offences against the speed limit the offences are recorded against you in the police books. A driving licence is suspended only if the number of endorsements is excessive and the behaviour of the driver has been really bad, and, in the opinion of the magistrates' court, such a driver is dangerous to the public.

Formula for Speed Trials.

Some time ago I was concerned in holding a speed trial on the flat. The formula used was $\frac{\text{miles per hour}}{\text{c.c.}}$ = figure of merit, highest to win. Hitherto, we have found this formula very satisfactory. This year, however, one of the competitors rode a two-stroke Connaught, with the result that the other competitors were left far behind. The figures for the first two men in the sidecar class are as follow: First man, $\frac{21 \text{ m.p.h.}}{293} = 706$; second man, $\frac{32 \text{ m.p.h.}}{550} = 581$. Would you please let me have a formula that will make things more even for two and four-stroke machines, or let me know a fair handicap for two-stroke motors? Next year we shall have several in the club. The event was for speed on the flat from a flying start.—G.A.D.

Your formula is faulty, for the reason that it assumes that an increase in capacity (or horse-power) means a proportional increase in speed, but this is not the case. For instance, a 500 c.c. machine, well tuned, is capable of 70 m.p.h. According to your formula, a 1,000 c.c. engine would have to do over 140 m.p.h. to win, whereas the highest recorded speed in this country is well under 100 m.p.h. The formula we recommend for hill-climbing is $\frac{C \times t^2}{W}$ as is now well known (C = capacity, t = time, and W = weight of machine and rider). In the case of speed on the level the weight can be ignored, and the formula will then be $C \times t^2$, and the smallest figure will win. Assuming the distance to be 1 km., this gives your first man 330 and the second 270, and the places are thus changed. The old handicap on two-stroke engines was to multiply the capacity by 1.25, or if water-cooled by 1.32, but this was removed by the A.C.U. some few years ago.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance, should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

Cylinder Insecurely Held Down.

I wonder if any of your readers have had a similar experience to mine? Recently I had occasion to take the cylinder down, and found a piston ring was broken, so fitted a new one. In screwing the cylinder down again I found the bolts were turning with the nuts, but as the joint seemed fairly tight I fitted the carburetter, but upon starting the engine the cylinder was blown completely away from the crank case, and now I find the threads have stripped in the aluminium, making it impossible to bolt down. I should be obliged if you can suggest what will have to be done —A.F.D.

The cause of the burst in the cylinder is probably due to some of the holding down bolts being screwed tighter than others, thereby badly straining the casting. Under the circumstances, the only thing to do is to fit fresh bolts and a new cylinder, and see that the bolts are firmly and evenly fixed in the aluminium. It will probably be necessary to fit bolts of slightly larger diameter, so as to get a good grip of the crank case.

Numbers not Illuminated.

When out riding at night lately I was stopped and my name and number taken. The speed was normal, and I find that there were scores stopped at this particular spot, a motor car being drawn across the road. Nothing whatever was said either about speed or illuminating of number plate, and now I have been summoned, the charge being non-illumination of the front number plate. I carry a good lamp in front, which shines on the plate and front wheel, and the plate is standard type, upright, with the number on both sides. It is absolutely impossible for anyone to read a number while travelling with lamp lit, owing to bouncing of the front wheel.—G.E.D.

We are afraid it is no excuse for you to say that it is impossible for anyone to read the number when the lamp is alight. The law says that the number must be illuminated, and if it is not illuminated in a manner that may be read you are liable to prosecution. If you belong to the Auto Cycle Union or Automobile Association and Motor Union, you can get defended free of charge on a summons of this kind.

Blow-back on a Twin-cylinder.

I am the owner of a 1912 2¾ h.p. which, until recently, ran quite satisfactorily, but now it has developed a very bad blow-back, *i.e.*, quite a heavy stream of petrol is blown back through the air inlet. The carburetter is a lightweight Amac. The carburetter does not flood, because if the machine is standing no petrol leaks out, and to make sure I have lowered the level in the float chamber. If you can help me to make the engine run normally I should be greatly obliged.—L.R.

In all probability the trouble is due to the inlet valves closing imperfectly. As a matter of fact, there is nearly always a little blow-back through all types of carburetters, and the fitting of a pipe about four inches long to the air inlet would minimise loss of petrol very considerably in this direction. There is evidently nothing the matter with the carburetter itself on your machine, but you must examine carefully if there is proper clearance between the valve stems and the tappets when the valves are closed. This clearance should be about the thickness of a visiting card.

Persistent Overheating.

I have a 3½ h.p. 1908 motor cycle, single-cylinder, Bosch magneto, B and B. carburetter, standard jet and choke. The trouble I experience is overheating, which causes poor pulling on hills when too hot, additional or spontaneous firing, causing a sort of back stagger to the machine and burning of the exhaust valve every 200 miles or so. The top of the exhaust valve casing glows red after a stiff pull up hill. The magneto timing has recently been set correctly, and since this was done the heating is slightly less, but the valve burns out quicker. The engine has been racing more or less due to a poor belt, but I do not think this will account for the trouble. Could you throw any light upon this trouble?—R.A.S.

We think your machine is suffering from want of a good overhaul. The exhaust valve spring is probably weak, and you may be using valves which are not of the very best quality. It also sounds as though you have too large a jet, which causes overheating and extra wear on the valves. Of course, if the engine has been racing continuously it must have got very hot, and this alone might account for the trouble.

Providing Increased Comfort.

I have a 2 h.p. lightweight and suffer badly from jolting, even over quite moderate London roads. To remedy this, would you advise me to put a 2in. or 2¼in. rim to back wheel instead of the present 1¾in., and would it be well to alter the belt ⅝in. to ¾in. in consequence? The magneto timing is fixed, but I find the engine runs cooler by advancing it slightly, as on higher-powered machines when ordinary speed is reached. Would there be any danger in my putting on a control, and what range would you suggest?—H.N.W.C.

We think that if you fitted 2¼in. rims and tyres both to the front and rear the smoothness in running would be greatly enhanced. We do not think that one wheel alone would be sufficient to make a marked difference. It would certainly be better to run a ⅞in. belt than a ⅝in., whether you alter the size of the tyres or not, and a variable ignition is a great asset to a machine. If you could alter yours you would probably find a marked difference in the running. We should advise you to give a movement of about half an inch on the contact breaker cam casing and time the engine as follows: When the piston is on top dead centre the contacts should be just about to break and the ignition lever should be in the full retard position.

Gear Ratios and Pulley Adjustment.

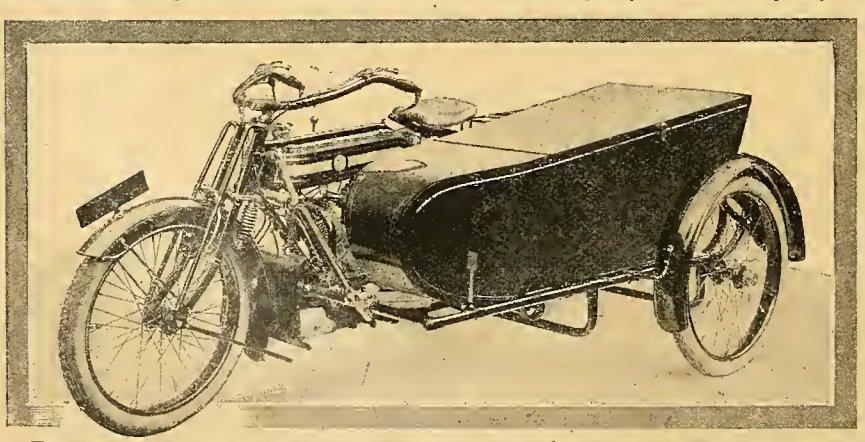
I am thinking of having an adjustable pulley made to my own design, expanding on a worm on the shaft. I want to get a 6½in. or 7in. pulley. What size belt rim should I require to get a 3½ or 4 to 1 top gear, and what is the lowest gear I could get when the belt is at the bottom of the pulley (2½in. diameter)? I intend to operate the pulley by means of a ball push piece, and I shall possibly have a jockey pulley worked from the push piece lever to come in contact with the belt only when the latter is getting well down in the pulley.—H.K.

You cannot obtain a 4 to 1 top gear with a 7in. front pulley unless this pulley is geared down from the engine. If you had a 7in. pulley you would require a 28in. rear belt rim, which is obviously impossible. In addition, you will find that it is not possible to get a pulley of 7in. diameter on top and 2½in. diameter on bottom unless the flanges are made to interlock in some way as the angle of the belt prevents this being carried out. The variation of 3in. is probably as much as can be obtained in the ordinary way, that is to say, if you have a 7in. pulley with the flanges contracted; when expanded you will get a 4in. pulley. A rough method of checking your gear ratio is to divide the diameter of the front pulley into that of the rear. This is not absolutely correct, but gives a very fair idea in each instance.

Oil Pressures on Pistons.

Can you tell me if there is a piston on the market to stand a continuous pressure from 800 to 1,000 lb. per square inch (oil pressure) without any leak and running at 1,500 maximum? If I can find a piston to stand the above pressure and speed without any loss I can assure you that the article for which it is intended will be the most novel thing you have heard of in the motor trade for many months. The idea is not only theory, as I have made one and tried it on my motor cycle, but cannot get a piston to stand up for long without a leak. I have a provisional protection for this idea, which will run out in about another month, and I wish to know if it is possible to get an extension till the end of the war, as the countries in which one would want to take out patents are in such a disturbed state.—N.F.S.

We are afraid that no motor cycle piston will stand a constant oil pressure of 1,000 lb. per square inch without a slight leakage. We would advise you to apply to manufacturers of steam pistons, as steam rings and piston design would be more suitable for your work, as far as we can understand, although you do not give us sufficient details to state definitely what type of piston you require. We have heard of no alterations in the provisional patent forms, and think it is extremely doubtful that you can obtain an extension without completing your patent. Still, you had better apply to a patent agent, who will be able to advise you.



The 6 h.p. Rex-Jap sidecar specially arranged for use by commercial travellers. The sidecar body will accommodate personal effects and samples

EXPERIENCES WANTED.

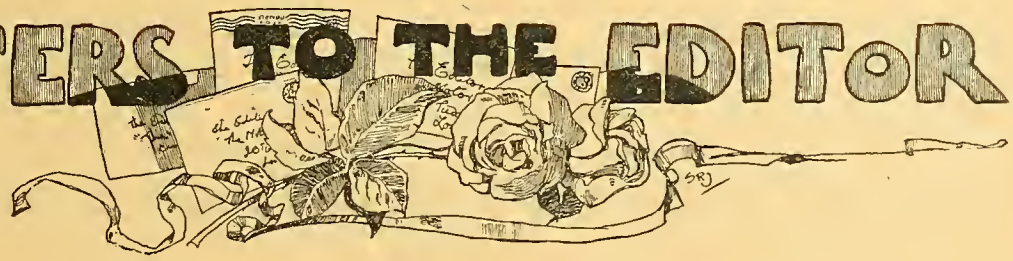
Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"B.W.G." (Dublin).—Lincoln Elk. Reliability and durability, hill-climbing powers with sidecar, and wear of tyres.

"F.W.P." (York).—3½ h.p. Wolf. Reliability, durabilty, and consumption, whether chain drive is harsh, or chain-cum-belt preferable. Also if a Binks or B. and B. carburetter gives best results.

"J.W.H." (Sydney, N.S.W.)—3½ h.p. Douglas with kick starter; solo and with sidecar. Efficiency of mechanical lubrication, oil and petrol consumption. Brampton bi-flex spring forks. Binks three-jet carburetter.

LETTERS TO THE EDITOR



The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Notched Ring Unions.

Sir,—I note that "Ixion" finds difficulty in moving notched ring unions. I think that, if he gets a proper C spanner instead of the rubbishy sheet metal contraption usually supplied, he will not find any more difficulty than he would with an ordinary hexagon nut.

The C spanner should be forged about $\frac{3}{8}$in. to $\frac{1}{2}$in. thick, according to the size of the nut for which it is made.

ARTIFEX.

The Double Purpose Machine.

Sir,—I have seen a good deal of discussion lately as to the ideal "double purpose machine," and I would venture to give my views on the subject. The majority seem to be in favour of the 3½ h.p. machine, but I think nothing under 1,000 c.c. is any use for sidecar work. On taking off the sidecar this makes an ideal solo mount, owing to the fact that one has perfect acceleration and hill-climbing power, combined with all the speed required on the level. Although petrol, oil, and tyre expenses are slightly greater than on a lower-powered machine, this is compensated by fewer stops and troubles on the road caused by overheating. The comfort of a long run on a big twin cannot be compared with the vibration of a 3½ h.p. single.

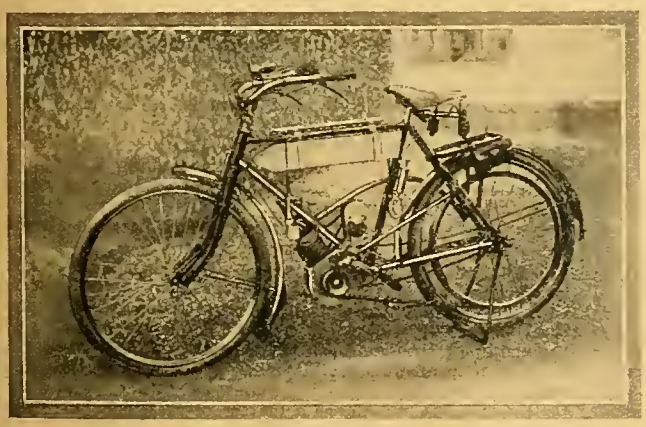
10,000 MILES A YEAR.

A Converted Minerva.

Sir,—I have been interested of late in the illustrations in your valuable paper, *The Motor Cycle*, of the different types of lightweight motor cycles both old and new, and thought it might interest some of your readers to know what can be done with some of the old type motors.

I purchased a Minerva and converted it into an up-to-date lightweight; the frame has been cut down from twenty-four to twenty-one inches; the wheels are 26in. × 1¾in., and the tank is of copper, holding two gallons petrol and one pint oil; a spring seat pillar is fitted, also spring fork ends and magneto ignition. The weight of the motor cycle is 65 lb.; it runs splendidly, and is most comfortable to ride and easy to control. All parts are accessible for repairs.

C. R. BECKETT.



C. R. Beckett's converted Min rva. (See letter.)

The Effect of the War on Patents.

Sir,—My Parisian agent, writing on August 19th, informs me that by a decree given on the 16th the French Government, with commendable thoughtfulness for inventors, will allow applications for patents to be made without payment of the usual application fee of 100 francs. Such payment is only to be made after the war and on a date to be subsequently fixed.

The decree applies to British applicants, and, presumably, to all others except subjects of those countries at war with France.

WILLIAM H. TAYLOR.

Sir,—In connection with the above, considerable misunderstanding exists as to the steps which are being taken to deal with the patents held in this country by Germans and Austrians. Special Patent Rules have been drawn up dealing with this point, and printed copies will shortly be available. Meanwhile, it may be of interest to know that such patents do not *ipso facto* become void, but that in each case an application must be made to the Board of Trade, accompanied by a £2 stamp, asking for the patent or licence to be suspended. No special period of suspension is mentioned in the Rules, but the applicant must satisfy the Board of Trade that the owner of the patent is a German or Austrian subject, that he personally intends to manufacture or have manufactured the patented article, and that suspension of the patent is in the interests of trade.

The same Patent Rules also deal with a case where a British patentee is unable, through active service, etc., to give proper attention to patent matters. In such a case special delays are granted.

ERIC W. WALFORD.

Suggestion to Riders of Hendee Special Motor Cycles.

Sir,—On a recent Sunday when I went to get my Hendee Special sidecar outfit from the garage I found, to my disgust, that I had left the contact plugs in the switch block under the saddle from the previous day. It immediately occurred to me that it would be useless to try to start the engine with the weak current which was left in the batteries, so I tested the horn to see if there were any current at all, and found there was just enough left in to give a faint sound. I then started the engine by pushing off and rode about thirty miles at an average speed of twenty miles an hour, using the horn as little as possible, but was very pleased to find that the further I went the louder the horn sounded. At the end of thirty miles I tested the batteries with the voltmeter, which I always carry, and found that they had recovered fully up to their standard, and the electric starter worked perfectly.

My advice, therefore, to all riders of Hendee Specials is, that if through an oversight you leave the contact plugs in overnight, do not attempt to start the engine with the electric starter; drive the machine from twenty to thirty miles, using the horn as little as possible, and the chances are that the batteries will, in that distance, become fully re-charged.

W. H. WELLS

(Manager, Hendee Mfg. Co.).

A Universal Repairing House.

Sir,—Will some few enterprising capitalists start and equip a central repairing house, which shall specialise on prompt and efficient repairs to motors, motor cycles, and ordinary cycles?

It has been my misfortune to have to send to a big motor cycle firm for a pair of new forks. Between two

and three weeks have now passed since the order was despatched, and no news is to hand beyond the formal acknowledgment.

A well-equipped central repairing house, which would carry out ordinary orders with ordinary business promptitude and courtesy, would, I am convinced, rake in profits with both hands, and its happy clients would be its own advertisement. My motor cycle comes from a firm with a big name, but I am not so wedded to its particular virtues that those of other motor cycles are hidden from me. Delays are dangerous—to second orders, and when next I get a new machine I shall sample another make.

W.V.C.

A Freak Climb.

Sir,—Might I ask "W.G.," whilst in the mood, and also the Rochdale M.C.C., to have a look at "The Buttress," Hebden Bridge?

W.L.

Two Lady Motor Cyclists Missing.

Sir,—Can you aid us with any information concerning the whereabouts of Mrs. Rachael Foster Avery and her daughter, Miss Julia Avery, who left this country to visit the dairying centres of Great Britain and the Continent? Mr. H. H. McDaniel, of Madison, Wisconsin, U.S.A., received a postcard saying that the Harley-Davidson motor cycle and sidecar which they were using in their travels had been confiscated for war purposes, but the post mark on the card was so obliterated that it was impossible to tell where it had been posted.

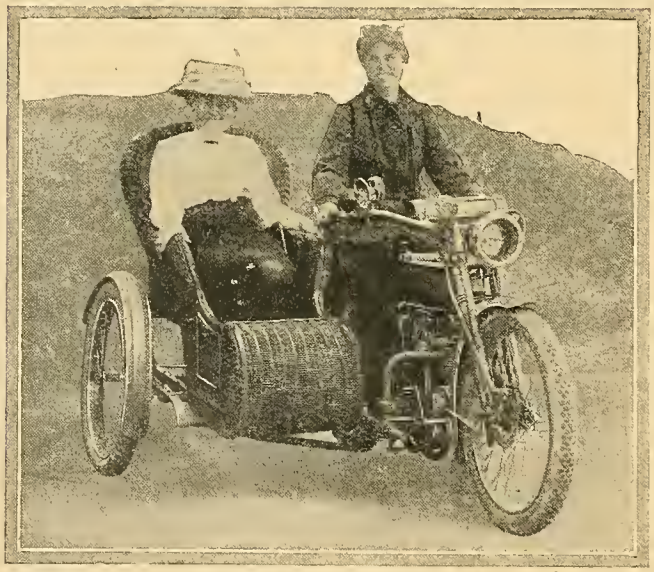
Miss Avery and her mother had planned to be at Ostend, Belgium, the early part of August, and it is assumed that the commandeering was done by the Belgian Government, but the information on the subject is not definite, and it is possible that they were deprived of their means of transportation either by the French or German Government, as they contemplated travelling to Ostend from Paris, *viâ* Alsace-Lorraine.

Both Miss Avery and her mother are students in the agricultural department at the University of Wisconsin. They planned their trip to arrive in Brittany for the day of "The Pardons," a Catholic holy day, at which time large numbers of cows are blessed and a certain number given to the church. Following that, they planned to inspect the large dairy farms in the Channel Islands, the home of the Jersey and the Guernsey, and then to travel through France, Belgium, and Holland to study the Holstein breed and the Dutch belted cattle.

Mrs. Avery and her daughter have travelled extensively in Great Britain and on the Continent in previous years. Their trip this year was the first one in which they used a motor cycle, and we trust that everything possible will be done by motor cyclists to aid them in returning home safely, after the commandeering of their motor cycle and sidecar.

We are sending, under separate cover, a photograph of Miss Avery and her mother and the sidecar purchased for dairy inspection and destined to serve in the war. If any of your readers have any information concerning Mrs. Avery and her daughter we trust that it will be communicated to us promptly to relieve the anxiety of their many friends.

HARLEY-DAVIDSON MOTOR CO.



HAVE YOU MET THEM?

Mrs. Rachel Foster Avery and her daughter, Miss Julia Avery, of Philadelphia, who planned to spend the summer studying European dairy methods, to supplement their studies at the University of Wisconsin, and whose Harley-Davidson sidecar outfit was confiscated for war purposes Their friends are anxious to hear news of them

A Private Motor Bicycle Commandeered.

Sir,—In a recent issue of *The Motor Cycle* I note with interest your photograph of Corporal Guy Drew and his 3½ Premier. I must tell you he is now riding a 1914 T.T. Douglas, which he most kindly commandeered from myself. I learn that something went wrong with his original mount, and there was no time to have this put right. I happened to be the unlucky man nearest with a new machine.

ALBERT MOSS.

Despatch Riders.

Sir,—Below is an extract from *The Evening News* of August 25th: "A despatch motor cyclist, on Government business, broke down in Edgware Road. Unfortunately, he knew nothing about his machine. A lady motorist of the Women's Emergency Corps stopped and made good the defect in the machine."

May I ask why such a man as this should be given preference to over 13,000 motor cyclists who have volunteered for service, among whom I am personally acquainted with two or three expert riders, having also volunteered myself and awaiting instructions? I do not claim to know everything, but I do not think I should be stranded in such a predicament.

F 7556.

The A.C.U. and Competitions.

Sir,—We have to-day received from the A.C.U. a circular letter urging that motor cycle competitions should be carried on. We think it is necessary that a paper with a circulation such as yours should take this matter up very strongly. We have replied to the effect that as most of the competitors in A.C.U. competitions are single men, the A.C.U. would be assisting the country in a much more loyal manner if they urged their members who are single men to take up arms on behalf of their country, which would be much more commendable than riding about through the country on a motor bicycle for the purpose of gaining marks with a white badge round their arms, which we think at these dreadful times would be utterly absurd. We cannot imagine the Belgians, French, or Russians having motor cycle competitions at this time.

MOTOSACOCHE, LTD.
August 27th. O. DE LISSA, Managing Director.

Possible Scarcity of Motor Tyres.

Sir,—Referring to a statement which is being industriously circulated relating to the "Possibility of a Scarcity of Tyres," we, as the largest tyre manufacturers in the Empire, are in a position to say positively that there is no danger whatever of a shortage in the supply of tyres. We have already stated that we can instantly meet any demand likely to be made upon us, and we have done this after taking into full consideration the situation created by the stoppage of supplies from Continental European sources.

We have also announced that there has been no alteration of our prices, and no stoppage of credit.

We should feel obliged if you would publish the above facts so as to reassure the public. We think it will be agreed that the suggestion which has also been made in this connection, that owners of motor vehicles and cycles should curtail the use of their vehicles, is an untimely and mischievous one, tending to promote unemployment and to injure the rubber, motor, cycle, and cotton industries by reducing the demand for these goods, which, as a matter of fact, can be produced in practically unlimited quantities in this country by British workpeople.

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W.H.W.

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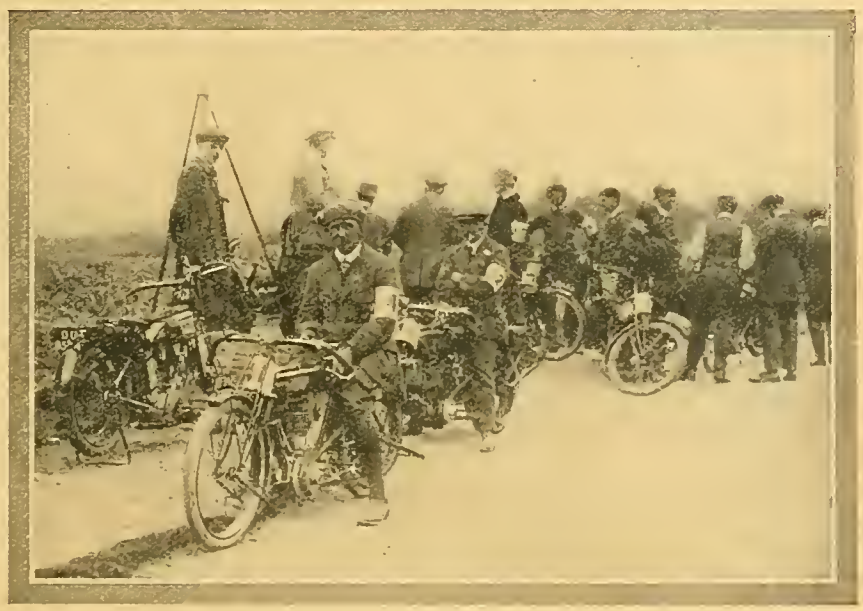
HIGH SPEEDS AT STYLE COP.

Results and Impressions of the Coventry and Warwickshire M.C. Ninth Annual Hill-climb.

THERE was a goodly crowd of spectators at the ninth annual hill-climb of the Coventry and Warwickshire Motor Club held at Style Cop, near Rugeley, last Saturday. The Coventry Club's hill-climb has come to be regarded as one of the classic events of the year, as entries are always numerous and the competition keen.

It may not be known that the Highway Board of the locality charge £5 for the use of Style Cop as a hill-climbing venue, the Wolverhampton, Sutton Coldfield, and Coventry clubs having paid this amount. There were 100 entries in the Coventry climb, so that 1s. per run should pay the council splendidly. However, the Coventry Committee were anxious to use a "safe" hill, and there is no doubt that Style Cop is one of the most desirable venues in the country from a speed hill-climbing point of view, being comparatively straight, of good surface, and with a high bank at the roadside near the finish which forms a natural grandstand for the spectators. There was a good sprinkling of the trade among the big concourse of spectators, who had arrived at the hill on all descriptions of motor vehicles.

The organising club's local headquarters were at the Shrewsbury Arms Hotel, where here numbers were issued.



Scene at the scales. The riders in the foreground are: H. Petty (3½ h.p. Norton)—who headed two "general" classes, and Ernest Smith (3½ h.p. Regal-Precision.)

The Ever Useful Boy Scout.

Prompt at 1.30 p.m. competitors, officials, and timekeepers were in their places on the hill, a long line of Boy Scouts signalling along the course by means of red and white flags. It only remained for the hill to be cleared of non-competing vehicles, and a start was made with Class 2 (Class 1 for Auto Wheels receiving but one entry). In this event the four long-stroke Levis machines of 60×70 mm. stood out prominently, and varied very little in speed. Their Enfield two-speed gears were used to great advantage in starting, and the drone of their engines was good to listen to. Even in Class 3, when competing against engines up to 350 c.c., they were just as prominent. In this event an entirely new design Enfield made its debut. We describe and illustrate this machine on another page.

The class for 350 c.c. machines proved a repetition of history—a duel between 2¾ h.p. Sunbeams and A.J.S., the speed of these ultra-efficient single-cylinder machines being really wonderful; they were not perceptibly slower than the 500 c.c. mounts which followed.

Competitors waiting to descend the hill at the end of a class

Tarred with the Same Brush.

Though "standard pattern" machines were called for in Classes 6 and 7, we regret to have to observe that standard machines were conspicuous by their absence, despite the splendid entry. Practically all were T.T. mounts; we do not recollect seeing a single standard chain case on the chain-driven mounts, there were no such things as footboards and pedals, and even silencers were dispensed with. We heard of no protests, however, which rather suggested that most regarded themselves as on an even keel with their rivals.

Petty on the Norton was the first to show us what a modern 3½ h.p. mount can do, flashing over the finishing tape at express speed. Two Triumph exponents on the programme in this class, viz., Harrison and Cocker, were expected to show up well, but, unfortunately, Harrison was a non-starter, owing to an accident sustained during the week. Cocker, however, who used a T.T. mount with a Philipson pulley, did remarkably well, his speed in the middle of the hill being greatly admired.

COVENTRY AND WARWICKSHIRE MOTOR CLUB'S HILL-CLIMB AT STYLE COP, RUGELEY.

S. A. Rowlandson and his wind-cutting disc wheel Rudge sidecar, winner of a formula prize.

Davies on the Sunbeam managed to beat him by a fraction, the three-speed gear giving him an advantage in getting off the mark. His plan of operation was to start his engine and wait on the starting line for the signal to go. Immediately he would let the clutch in and his mount would spring forward with a bound. The Sunbeam rider was especially fortunate, as he was fastest in both Classes 6 and 7. Rowlandson sat his single-geared Rudge very neatly, and finished very fast. Wade is a rider who can always be expected to do well on his Zenith. A non-starter was George Brough, who had gear box trouble in practising on the hill with his horizontal twin, which he had tuned to perfection.

The "All Comers" Class.

The "open" class was the best supported with twenty-nine entries, ranging from the diminutive Levises to the fleet of 8 h.p. twins, handled by such expert drivers as Harry Reed, J. J. Cookson, A. Mackenzie Cott, S. Briggs, and A. J. Brewin. The honour of accomplishing fastest time fell to the last-named and his 8 h.p. Zenith-Gradua, his speed being terrific. Brewin told us that his speedometer registered 75 m.p.h. on the fastest stretch, which we can well believe, as he averaged over 59 m.p.h. Cott was handicapped by his single-gear, but was nevertheless easily fastest of the generals. Colliver's 7 h.p. Indian got away well, but the engine seemed to choke when approaching its maximum revolutions.

The Passenger Motor Cycles.

The sidecars were not numerous, but credit for fastest time in the 750 c.c. class went to Wade and his 5 h.p. Zenith, the plucky 3½ h.p. riders who had entered being naturally outpaced by him and Frank Smith (Clyno). The award in this class was, however, decided on formula, as also was class 10 for sidecars up to 1,000 c.c., in which event Brewin (who, by the way, is an amateur) added to his laurels by the fastest passenger climb in 55s. G. H. Fry would have done much better on his white Zenith had not the belt broke fifty yards from the finishing line. The impetus of his machine was sufficient to carry him over the line at a good speed.

Another striking machine was Brigg's silver-plated Campion, on which he has won many awards, but single-geared machines have little chance against variable gears in hill-climbing events, especially when standing starts are the order, as in the Coventy Club climbs.

The cycle car event was made up of five light cars and a belt-driven Buckingham, which latter stuck halfway up the hill owing to the timing gear slipping. A Morris-Oxford, driven by the designer, was first in 1m. 28s.

The Organisation.

The event was run off very smoothly and promptly but for unavoidable traffic delays, and no incident of any kind marred the proceedings. At the end of each class an Excelsior "commercial" sidecar took the times up the hill, and as the different classes were worked out, the same vehicle, which carried a blackboard, descended the hill slowly with the results chalked on the board, so that spectators assembled all along the hillside could follow the proceedings. The weighing operations were conducted in a siding at the top of the hill, and each competitor in the formula events was weighed together with his machine just as he had ascended the hill.

The complete time results were posted in the Shrewsbury Arms Hotel at 5.30 p.m., and the formula results were issued on Monday morning.

The Results.

The formula results were calculated on the formula recommended by *The Motor Cycle*. viz., $\frac{C \times T^2}{W}$. In most cases experts competed for time awards only, the "generals" sharing the formula prizes.

CLASS 2.—STANDARD PATTERN TOURING TWO-STROKE LIGHTWEIGHTS UP TO 225 C.C.

ON TIME.	M.	S.
J. Veasey (1.9 Levis)	1	9⅗
H. Newey (1.9 Levis)	1	9
W. H. Butterfield (1.9 Levis) ...	1	12⅘

ON FORMULA.	FIG. OF MERIT.
H. Newey (1.9 Levis)	265
J. Veasey (1.9 Levis)	324
W. H. Butterfield (1.9 Levis) ...	346

CLASS 3.—STANDARD PATTERN TOURING TWO-STROKES UP TO 350 C.C.

ON TIME.	M.	S.
H. Newey (1.9 Levis)	1	7⅘
J. Veasey (1.9 Levis)	1	9
W. H. Butterfield (1.9 Levis) ...	1	12

ON FORMULA.	FIG. OF MERIT.
H. Newey (1.9 Levis)	251
J. Veasey (1.9 Levis)	320
W. H. Butterfield (1.9 Levis) ...	343

The team of 1.9 h.p. Levis riders which did so well in the Coventry and Warwickshire Motor Club's hill-climb. Reading from left to right the riders are: W. H. Butterfield, C. Lindall, J. Veasey, and H. Newey.

High Speeds on Style Cop.—

CLASS 5.—STANDARD PATTERN TOURING FOUR-STROKES UP TO 350 C.C.

ON TIME. M. S.

W. Stevens (2¾ A.J.S.) 53 2/5
H. R. Davies (2¾ Sunbeam) ... 54
C. Williams (2¾ A.J.S.) 54 1/5

ON FORMULA. FIG. OF MERIT.

C. Williams (2¾ A.J.S.) 308
W. Stevens (2¾ A.J.S.) 320
H. R. Davies (2¾ Sunbeam) ... 322

CLASS 6.—STANDARD PATTERN TOURING TWO AND FOUR-STROKES UP TO 500 C.C.

Experts.

H. R. Davies (3½ Sunbeam) ... 50 3/5
J. Cocker (3½ Triumph) 51 4/5
H. Green (3½ Triumph) 54 4/5
S. A. Rowlandson (3½ Rudge) ... 56
C. T. Newsome (3½ Rover) ... 58 1/5
G. H. Fry (3½ Rudge) 1 1 4/5

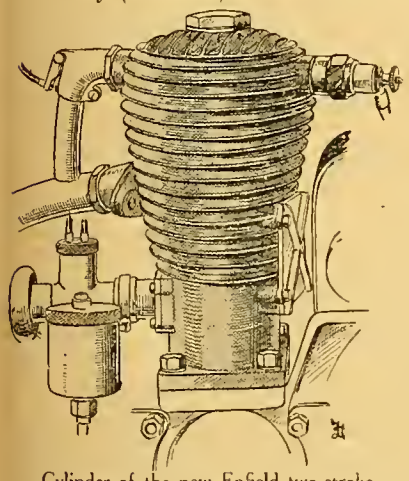
General.

ON TIME. M. S.

H. Petty (3½ Norton) 51 1/5
E. Smith (3½ Regal-Precision) ... 1 0 3/5
C. J. Lambert (3½ Norton) ... 1 1 3/5

ON FORMULA. FIG. OF MERIT.

H. Petty (3½ Norton) 351
W. H. Butterfield (1.9 Levis) ... 360
H. Newey (1.9 Levis) 371



Cylinder of the new Enfield two-stroke

CLASS 7.—STANDARD PATTERN TOURING TWO AND FOUR-STROKES UP TO 750 C.C.

Experts.

ON TIME. M. S.

H. R. Davies (3½ Sunbeam) ... 50 2/5
J. Cocker (3½ Triumph) 50 4/5
L. Hill (3½ Rudge) 51
C. T. Newsome (3½ Rover) ... 53
A. B. Wade (5 Zenith) 54
S. A. Rowlandson (3½ Rudge) ... 55 1/5

General.

H. Petty (3½ Norton) 52
C. G. Lambert (3½ Norton) ... 1 0
E. Smith (3½ Regal-Precision) ... 1 1

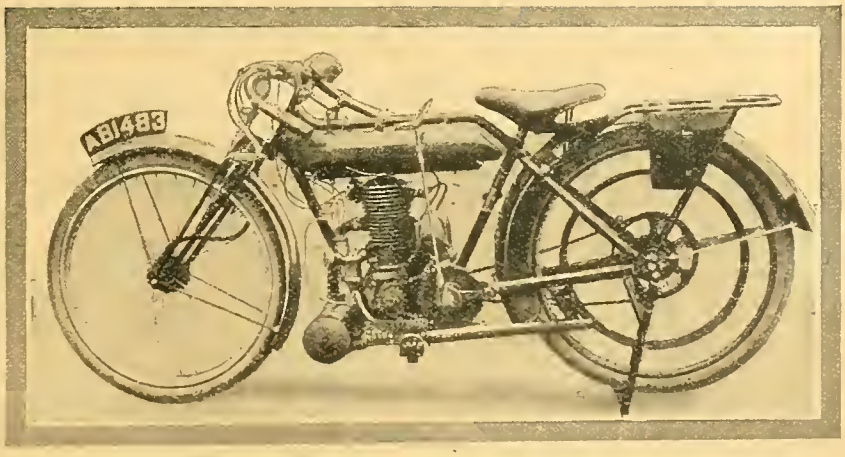
ON FORMULA. FIG. OF MERIT.

H. Petty (3½ Norton) 363
H. Newey (1.9 Levis) 380
C. G. Lambert (3½ Norton) ... 430

CLASS 8.—"ALL COMERS" UP TO 1,000 C.C.

Expert.

A. J. Brewin (8 Zenith) 45 4/5
S. Briggs (8 Campion) 47
H. Reed (8 Dot-Jap) 48
J. J. Cookson (7 Matchless) ... 50
J. Cocker (3½ Triumph) 51
C. T. Newsome (3½ Rover) ... 52



The new Enfield two-stroke, which made its *début* at the Coventry and Warwickshire Motor Club's hill-climb on Saturday last.

General.

ON TIME. M. S.

A. Mackenzie Cott (8 Ivy-Jap) ... 51
C. G. Lambert (3½ Norton) ... 58 3/5
H. Newey (1.9 Levis) 1 8 3/5

ON FORMULA. FIG. OF MERIT.

J. Veasey (1.9 Levis) 320
C. H. Lindall (1.9 Levis) 344
W. H. Butterfield (1.9 Levis) ... 362

CLASS 9.—SIDECARS UP TO 750 C.C.

ON TIME. M. S.

A. B. Wade (5 Zenith sc.) ... 1 2
Frank Smith (5 Clyno sc.) ... 1 5 2/5
L. Hill (3½ Rudge sc.) 1 6

ON FORMULA. FIG. OF MERIT.

S. A. Rowlandson (3½ Rudge sc.) ... 414
L. Hill (3½ Rudge sc.) 417
A. B. Wade (5 Zenith sc.) 452

CLASS 10.—SIDECARS UP TO 1,000 C.C.

ON TIME. M. S.

A. J. Brewin (8 Zenith sc.) ... 55
G. H. Fry (8 Zenith sc.) ... 1 0 4/5
A. B. Wade (5 Zenith sc.) ... 1 2 2/5

ON FORMULA. FIG. OF MERIT.

A. B. Wade (5 Zenith sc.) 461
A. J. Brewin (8 Zenith sc.) ... 474
G. H. Fry (8 Zenith sc.) 590

OUR ADVICE TO CLUBS

At a time when every motor cyclist is anxious to serve his King and Country, and when all army vacancies are for the present filled, the advice of "THE MOTOR CYCLE" to Club Committees is to encourage members to cultivate assiduously an intimate knowledge of their own particular localities, to become well versed in the art of map reading, and practised in the handling of a rifle, so that, should their services be required they will be as useful as possible.

Ordinary competitions having been cancelled, Clubs might well arrange map reading contests and reconnaissance tests in districts not occupied by troops.

CLASS 11.—CYCLE CARS UP TO 1,100 C.C.

ON TIME. M. S.

W. R. Morris (10 Morris-Oxford) 1 28

ON FORMULA. FIG. OF MERIT.

W. R. Morris (10 Morris-Oxford) ... 478

BEST FIGURE OF MERIT.

H. Newey (1.9 Levis, in Class 3) ... 251

AN ENFIELD TWO-STROKE

The First Model Makes its Appearance at the Coventry Hill-climb

THE Enfield Cycle Co., Ltd., of Redditch, are yet another of our large manufacturers who have turned their minds to the two-stroke question, and the first of their productions in its experimental form made its *début* at the Coventry and Warwickshire M.C. hill-climb on Saturday last. It is a very neat looking mount. It is interesting to note that the Enfield engine is in no way a copy of existing machines, but the designer has struck out boldly on lines of his own. Perhaps the most interesting feature is the slide valve employed to control the port openings. It is actuated from the crankshaft, and it is claimed that the petrol consumption is considerably improved by its use. The magneto is carried behind the cylinder, and at present the engine is mounted in a loop frame, though we are given to understand that in its final form a divided frame will be standard and that the engine will be so constructed as to make a unit with the already well-known Enfield two-speed gear.

Accessibility well Studied.

The bore and stroke are 70 × 72 mm. respectively, but the slide valve gives the engine the appearance of having a longer stroke. Care has been taken to render all detail work accessible, and all ports are arranged slightly on the skew, so that they may easily be inspected without interference from the frame. An Amac carburetter was in use, but the type of magneto has not yet been definitely decided on.

CURRENT CHAT

TIMES TO LIGHT LAMPS

Sept. 3	...	...	7.40 p.m.
,, 5	...	...	7.38 ,,
,, 6	...	...	7.35 ,,
,, 8	...	...	7.31 ,,

A Show Suggestion.

The Motor Cycle this week makes the suggestion that the car and motor cycle shows be combined this year in view of the war.

International Cycle Car Race Abandoned.

The Auto Cycle Union has decided to abandon the international cycle car race originally fixed to take place in the Isle of Man on September 24th. It is the intention of the Union to hold this race as soon as circumstances permit, but it is of course impossible at present to make any definite statement as to the probable date on which it will be held.

Puzzle, Find the Hill!

The Coventry and Warwickshire Motor Club have achieved fame as the result of their hill-climb at Style Cop last Saturday, first of all because it broke a period of club inactivity since the war began, and secondly because two motor journals announced the venue of the climb as Porlock! As Porlock is only about 160 miles from Coventry, it would be a distinct feather in the cap of even the modern machine to be able to go such a distance to a climb and back in a week-end. And what about the Auto Wheels?

A Danger Spot.

An exceedingly dangerous spot is a bend about one and a half miles on the Chelmsford side of the Fox and Goose on the Ongar-Chelmsford Road. There have been many serious motor cycle accidents at the spot, and we regret to have to record that a fatal accident occurred there on the afternoon of August 23rd, when Mr. Percy Sheldrick, of Enfield, was killed when driving his wife and little son in a sidecar round the bend. A verdict of accidental death was returned by the coroner's jury, and the dangerous nature of the road was shown by the evidence that Mr. Sheldrick was proceeding at quite a moderate pace. The corner is a right-angle one, 12ft. wide, and the surface is loose, and there are several ruts. The jury recommended that the attention of the authorities be called to the spot.

A.A. and M.U. Notes.

WARNING TO MEMBERS.—While the present conditions prevail, members of the Automobile Association are advised to abstain from unnecessarily using the roads after dark. They are also particularly urged to drive very carefully in districts where sentries are on duty, and to stop immediately the request to "Halt!" is made. It need hardly be mentioned that failure to observe this rule involves serious risk to motorists.

It may not be generally known to prospective tourists in Devonshire that a new road has been constructed enabling motorists to go from Lynton to Lynmouth without encountering any abnormally severe gradients. The average gradient of the new road is 1 in 16, with a steepest portion of 1 in 12. Arrangements are being made whereby the new road will be adequately signposted by the Association, also by the authorities.

SPECIAL FEATURES

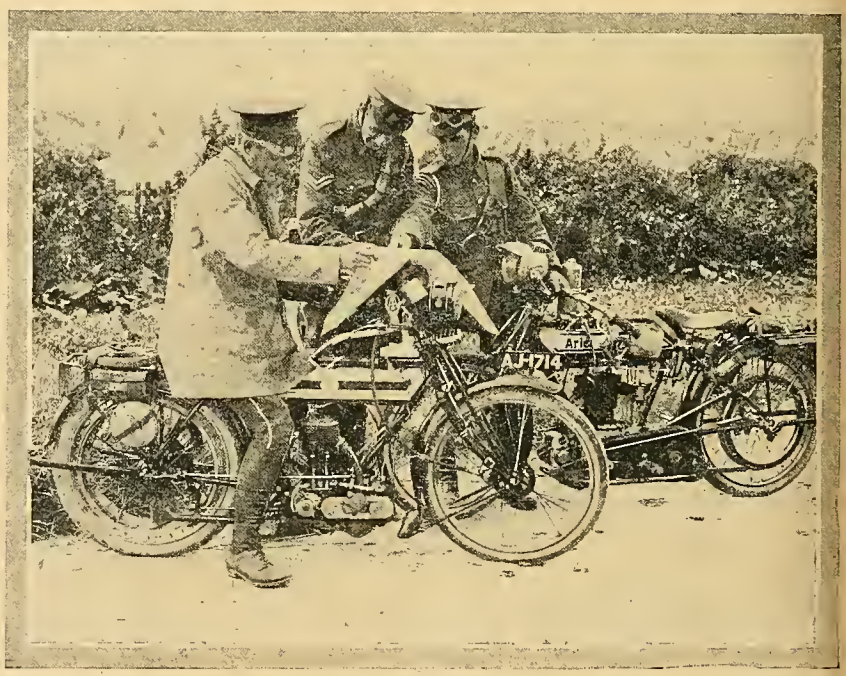
COVENTRY CLUB'S OPEN HILL-CLIMB.

SIDECARS FOR RED CROSS WORK.

AMALGAMATE THE CAR AND MOTOR CYCLE SHOWS.

Manufacturers and the War Office.

We understand that Messrs. Phelon and Moore have supplied the War Office with a consignment of P. and M. motor bicycles, and the company is now working at high pressure to cope with the remainder of the War Office demands. With each section of the Royal Flying Corps a P. and M. motor bicycle and sidecar form part of the regulation equipment. The machines are standard in every respect with single-cylinder engines, two-speed gears and enclosed chain drive.



CONSULTING THE MAP.

P. C. Collier and comrade, who are attached to the Queen's Own Yorkshire Dragoons. The machines are a Triumph and an Ariel. One of the greatest assets from the point of view of a military despatch rider is an intimate knowledge of roads and map reading.

FROM "MOTOR CYCLING," OF CHICAGO, U.S.A.

A cartoon culled from an American journal, which is accompanied by false statements, to the effect that "European manufacturers are cut off from the Colonial markets owing to the blockades of ports and the prospects of capture by the enemy," and, therefore, "American manufacturers should get busy." But, as every Britisher knows, our Navy has swept the seas, and practically all trade routes are still open. Moreover, British manufacturers are still executing orders from Overseas markets.

S. R. Axford's New Post.

Sydney R. Axford, the well-known rider, has recently been appointed as leading mechanic, first grade, Air Craft Department of the Royal Navy.

A Lucky Escape.

Dr. Low and his brother were recently working in their laboratory, when someone fired two revolver shots at them through the window. Fortunately both shots went wide and no damage was done. The man who is alleged to have been responsible for this dastardly attempt at murder has been arrested. He is, we regret to say, an Englishman. Dr. Low has been busily engaged in Government work lately.

From Motor Cycles to Aeroplanes.

Harold Karslake, now Corporal H. Karslake, of the Royal Flying Corps, writes us a cheery letter, saying he is hard at work preparing a squad of aeroplanes for service at the front and that he expects to go with them. His experience in turning air-cooled engines has stood him in good stead in tackling the somewhat *difficile* Gnome motors, and he says many little racing tips from motor cycle practice are applicable to the Gnome. Incidentally, he mentions that two foreign spies were captured at Brooklands last week and their car commandeered.

Exclusive Features in this Issue.

Following upon the first details and illustrations in our last issue of the new Sturmey-Archer counter-shaft gear, the Splitdorf dynamo-magneto machine, and the Albion counter-shaft gear, we publish exclusively in the present number, illustrated descriptions of the

Starley tubular wheel for motor cycles,
Henderson dynamo lighting set,
First Enfield two-stroke machine.

An illustrated description with both time and formula results of the Coventry and Warwickshire M.C. hill-climb (which attracted 100 entries), and an exclusive account of a reliability trial at the Cape are also features of the present issue.

The Scope of the Sidecar.

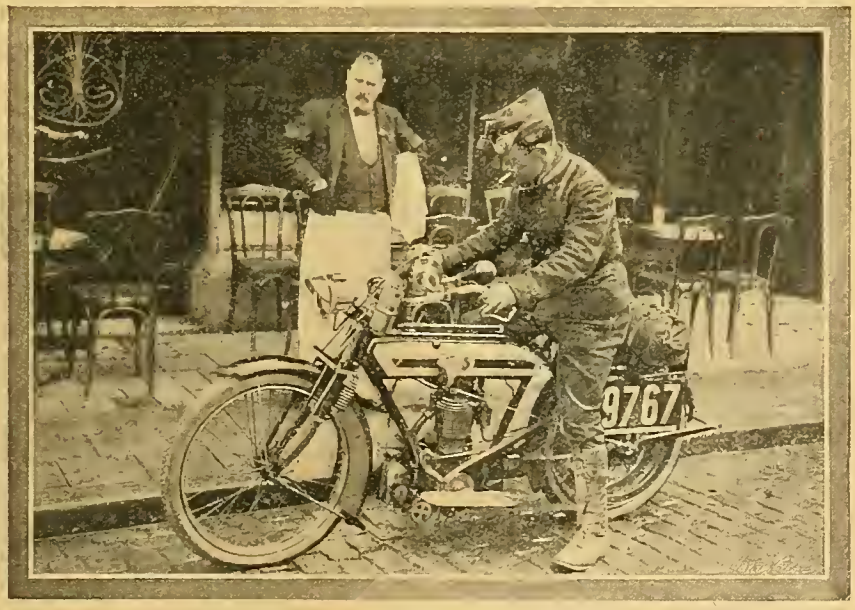
A fortnight ago in these columns we dealt with "The Sidecar as a Commercial Vehicle," pointing out the possibilities of such a low-priced outfit and illustrating several examples. This week we deal with another important possibility for the sidecar, viz., as a Red Cross ambulance vehicle. Some time ago we illustrated the first of these vehicles, and makers have not been slow to recognise their usefulness. This week we illustrate and describe a number of different designs, and we believe we are correct in saying that it is only a question of time before sidecar ambulances receive official recognition.

Two Sides to the Competition Question.

The letter issued by the A.C.U. urging clubs to "carry on" as usual seems to have given offence in some quarters. This, after all, is not surprising. Many people look upon competitions as events solely to amuse; they overlook altogether the business side of the question. It would, however, be deplorable if competitions were the means of hindering young unmarried men from enlisting when their King and Country need them.

An Appeal to Play Fair.

Since the declaration of war police trapping has almost entirely ceased, and in only one district in London, namely, Highgate, have we heard of any police traps at all. The reason for this cessation of persecution of motorists is obviously due to two reasons, the first being that many motor vehicles are being used in the service of the Government, and secondly owing to the police force being depleted through many of its members being called out to join the Reserves in both the Navy and Army there has been no one to work them. It is indeed pleasant to think that the roads are as free and open in this country as they are in France, but we most earnestly beg motor cyclists not to take unfair advantage of their present immunity. If there are numerous complaints, no matter in what district, the trapping is sure to be started again. Last week-end on the Ripley Road three constables were employed to estimate the speed of motor vehicles which passed them, while we would also like to point out that the new force of special constables lately enrolled will release more policemen for control duty. There have been numerous cases of fast driving in places where fast driving is dangerous, and we would therefore earnestly impress upon motor cyclists the necessity to drive with due caution in places where caution is necessary. Taking advantage of an opportunity like the present is not playing the game.



A Belgian motor cyclist despatch rider who bravely brought despatches through the German lines from Brussels to Antwerp

INVALIDED HOME.

Chat with a Well-known Motor Cyclist in Hospital.

VERNON BUSBY, the well-known motor cyclist, has been invalided home from the front, having had his leg damaged by a bullet wound. On Tuesday we had a chat with him in hospital and learned that he saw a good deal of the fighting in the heart of Belgium when the British troops first came into contact with the enemy.

The journey to the front *viâ* Ireland occupied two and a half days, and Busby (whose rank was Corporal, R.E. Signalling Section) had to proceed to a rest-camp, which was reached by a circuitous route over very bad roads, made worse by an excessive amount of rain. The camp was finally reached, but at times the wheels of his 3½ h.p. T.T. Sunbeam almost to the axle were buried in mud. It was a tedious process, as every mile the section had to halt and wait for the troops to come up. The section was under the command of Lieut. Selwyn, R.E., who has a Swift cycle car loaded with petrol tins.

On one occasion the officer's car was absolutely immovable in thick mud, and it took twenty men to clear it. In the afternoon the order to advance was given, and they had to make their way

Vernon Busby, who has been invalided home from the front.

back to ——. Busby slept in a guard's van, in company with Featherstonhaugh (of the Rover Co.), Kayzer (an Oxford man), and several other despatch riders.

On arriving at the centre of operations, Busby's first duty was to take over an officer's machine, the big end of which had seized. Still another had to have the same attention in a field workshop.

Most of the time Busby was acting as Artificer-Corporal in a Signal Station.

From the south-east of Mons he had a magnificent view of the great battle, and saw many German aeroplanes, which, unfortunately, accurately discovered the position of our troops. Matters became so serious that the motor cyclists had to go out in pairs, and were instructed to drive with one hand on the handle-bars and carry a revolver in the other. Their duties were to cut the telegraph wires before the order to retire was given.

One of the most important works they had to carry out was the finding of an ammunition column which had gone astray. The authorities were exceedingly pleased with the motor cyclists' work, but the roads hampered progress. Unfortunately, too, the machines were not too well used, and a number were damaged by inexpert handling. In the heavy fighting which took place several motor cyclists were killed; one, a doctor

WELL-KNOWN MOTOR CYCLISTS IN FRANCE.

V. Busby (Sunbeam), H. B. Blower (Douglas), and G. Featherstonhaugh (Rover), members of the Special Motor Cycle Corps of the Expeditionary Force. This corps went over to France soon after the outbreak of hostilities.

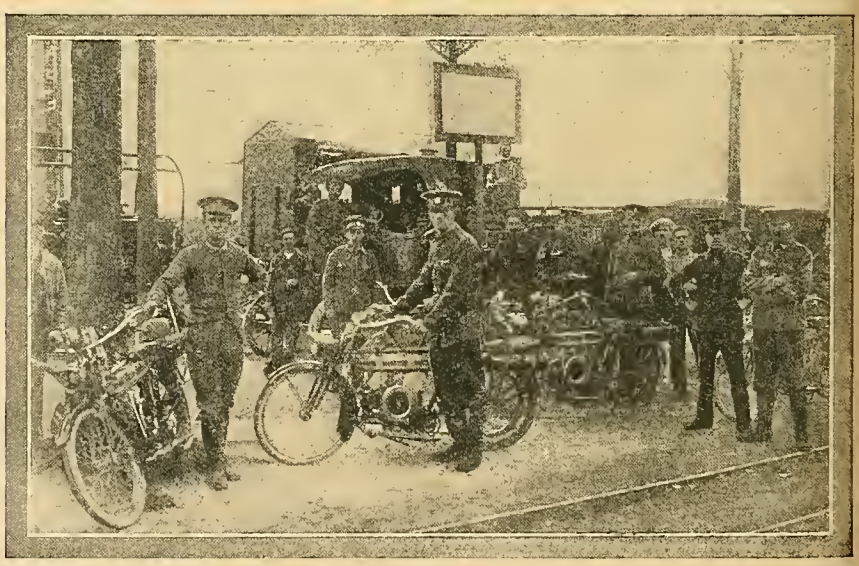
on a Rudge, was said to have been blown to pieces by a shell.

Among the well-known riders who Busby met on the Continent we may mention Begley, who stated that he had shot several Uhlans. The Fifth Division, among whom were the two Burneys and the two Roberts's of Blackburne fame, suffered very heavily, and news of them is anxiously awaited. The Germans appear to have any number of aeroplanes. At one time Busby saw a Zeppelin manœuvring over the battlefield, against which a terrific bombardment was levelled, but it eventually escaped.

Busby's wound is, happily, slight, and he is expected to be out of hospital in a fortnight or so.

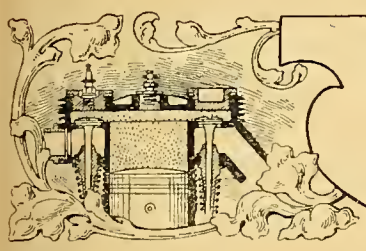
War Risk Rate Reduced.

The War Risk Rate for cargo insurance was again reduced on Tuesday morning from three guineas to two guineas per cent. This reduction, it is considered, will very considerably stimulate British oversea commerce.



WITH THE ENGLISH ARMY IN FRANCE.

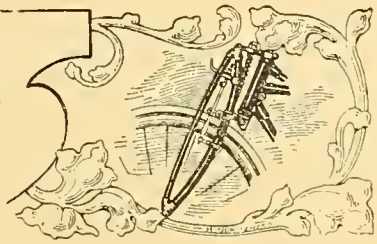
A transport section accompanied by a number of military motor cyclists, all mounted on Douglas machines owned by the War Office.



Hints for Beginners.

SECOND INSTALMENT.

ON THE ROAD.



THERE are so many types of gear that it would be futile to attempt advice for every make, but the following tips will be found correct in general practice. With hub gears the change should always be made fairly quickly. When changing up raise the exhaust lifter momentarily, but this is not generally necessary when changing down unless the gears do not at once follow the action of the lever; even then it is better to declutch for a second.

With counter-shaft gears it is better to change up fairly slowly with the exhaust lifter raised, and the bigger the gap between the ratios the slower the change should be made. When a clutch is fitted it is usually as well to use it gently. To change down use the clutch alone and move the lever firmly across; the revolving parts of motor cycle gears are seldom heavy enough to necessitate double clutching.

One of the first needs on the road is to get accustomed to the feel of the brakes, and before serious touring is undertaken the rider should be able to put on the brakes automatically in an emergency. Use the brakes sparingly, and when possible slow down on the throttle some time before it is necessary to stop. A sudden application of a harsh brake is more apt to cause skidding than almost any other cause. Especially is this the case with a front wheel brake, and should a front brake be at all sudden in action it is well to use it with the utmost care.

Steering is an easy matter unless a sidecar is attached, and then anyone who is used to riding a pedal tricycle will have but little difficulty. Those who have no experience with three-wheelers should go slowly and remember to lean in towards the inside of the curve or corner until complete confidence has been acquired.

How to Manipulate the Clutch.

When the engine is firing it should be slightly accelerated before letting in the clutch, but *never* race the engine when running light, and do not accelerate more than is necessary. A little practice will soon show how fast the engine should be run to take up the drive gently. Never do anything on a motor cycle hurriedly. Let your clutch in gently, be steady with your brakes, change speed firmly but do not slam your gears in. Advance the spark gradually and open the throttle gently. Take your corners slowly and in as wide a sweep as possible, and, above all, learn to use all controls without needing to look for them. Then when you get in a tight place or have to drive at night you can keep your eyes on the road ahead and your feet and hands will work automatically.

If you wish to keep the plated parts in good condition throughout the winter coat them well with vaseline, and the accumulated mud and dust can afterwards be easily removed with a rag.

Causes of trouble are nowadays few and far between, and the symptoms can only be traced after some experience, consequently only a few of the most likely faults will be mentioned. After a little experience it becomes almost second nature to know where to look for trouble.

Tracing Faults.

A sooted plug is generally caused by over oiling, and the machine will usually misfire and stop or cease firing quite suddenly. Under these circumstances remove the plug and examine the points. If they are shorted or joined by a piece of carbon or drop of oil, it is best to scrape the points and then wash the plug in clean petrol. Before replacing it in the cylinder, connect up the high-tension terminal and lay the plug on the cylinder in such a manner that, though the body touches, the central electrode and terminal are clear. Revolve the engine smartly by hand or foot, and if a spark occurs between the points all is well and the plug may be replaced once more. If, however, there is no spark try another plug; if this fails to give a spark, see that the terminals are properly affixed to the magneto and plug; see, also, that the magneto is clean and dry.

Guarding Against a Seizure.

If this does not effect a cure, make sure the rocker arm in the contact breaker is free. A choked jet generally stops the engine to an accompaniment of loud pops or one loud pop. In this case the jet should be carefully removed and examined. A very small piece of dirt will choke a jet, and must be removed without damaging the jet nozzle; a strand of Bowden cable is excellent for cleaning purposes. Make sure that the petrol is reaching the float chamber and jet, as it is possible that an air lock has formed or dirt has blocked the pipe or passages, which will, of course, need cleaning under these circumstances. It is not uncommon for a beginner to run out of petrol and then spend quite a long time searching everywhere but in the tank for the cause of the stop.

A seizure is possible in the case of a new engine, and can only be guarded against by liberal oiling. The symptoms are those of a drag on the machine, the engine running harshly and stiffly, and getting gradually slower, while it usually emits loud knocks. Under these circumstances stop at once, inject oil copiously, and revolve the engine steadily by the kick starter or pedals in order to splash the oil over the interior of the engine before restarting.

NOTICE.

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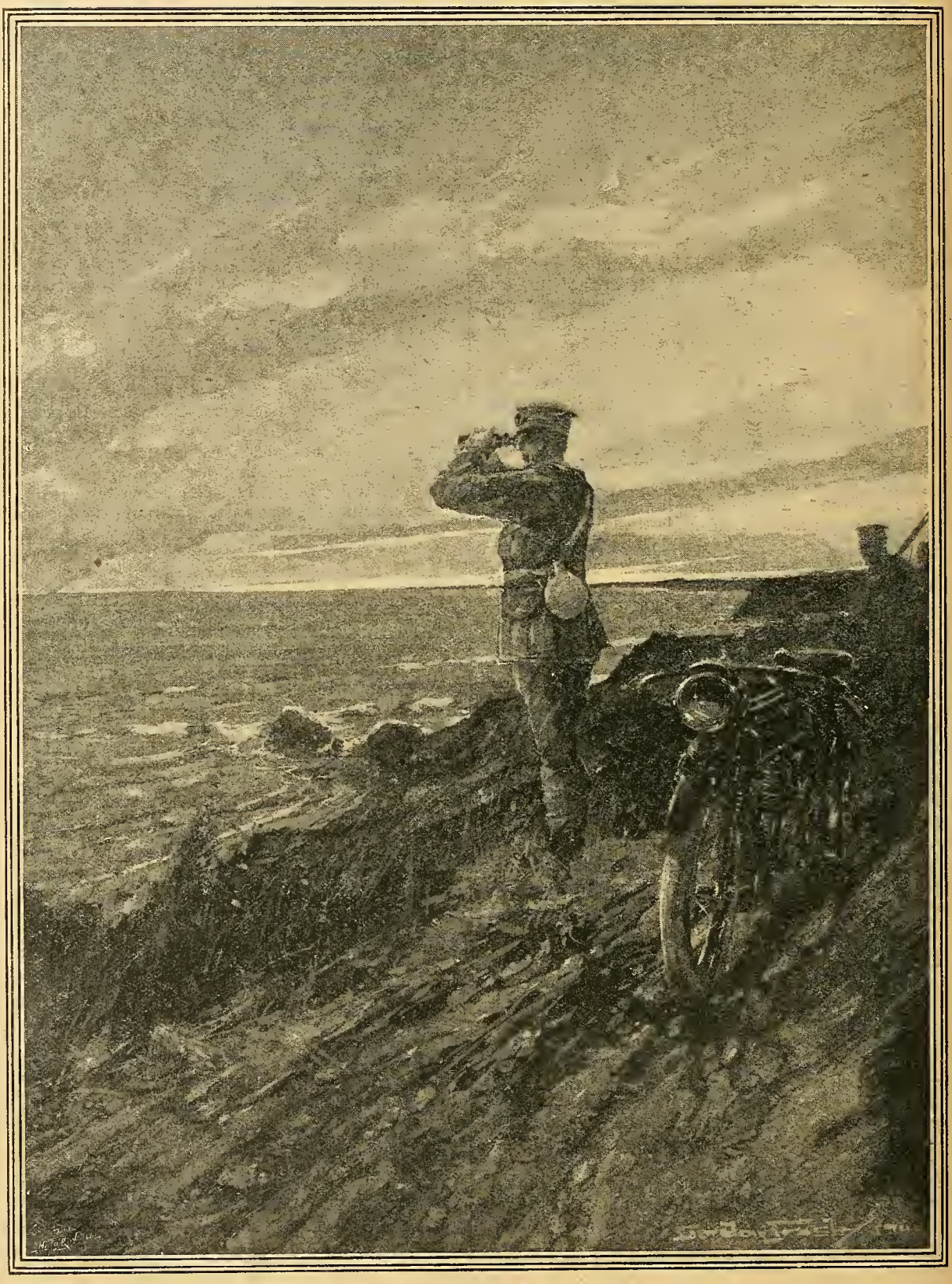
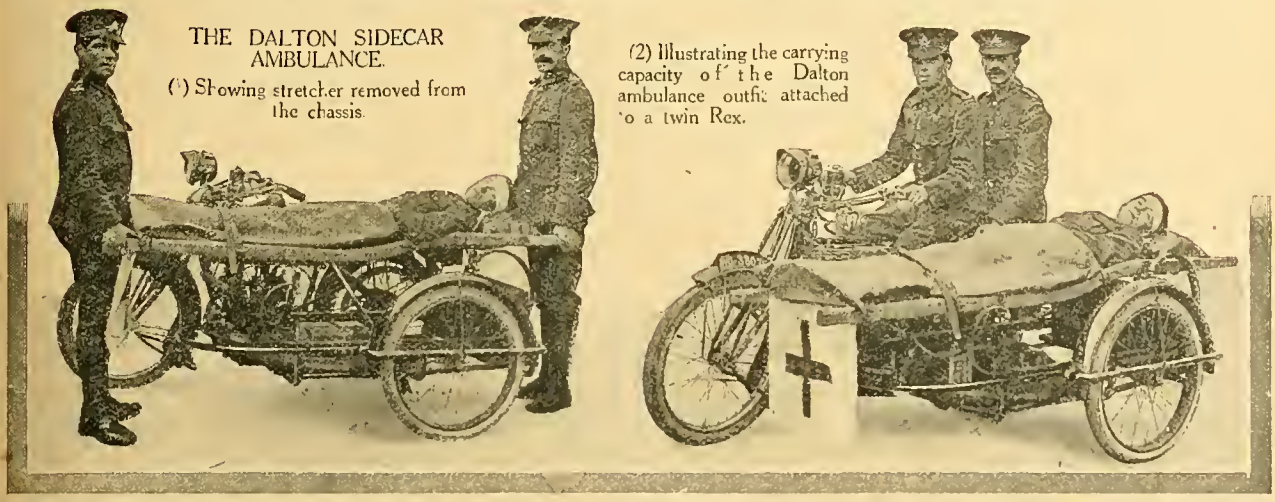


DAWN ON THE EAST COAST.

Many motor cyclists are at the present time employed in the defence of our shores, the North Sea Coast being specially guarded

SIDECARS FOR RED CROSS WORK.

A New Form of Ambulance likely to Prove of Great Utility.



THE DALTON SIDECAR AMBULANCE.
(1) Showing stretcher removed from the chassis.

(2) Illustrating the carrying capacity of the Dalton ambulance outfit attached to a twin Rex.

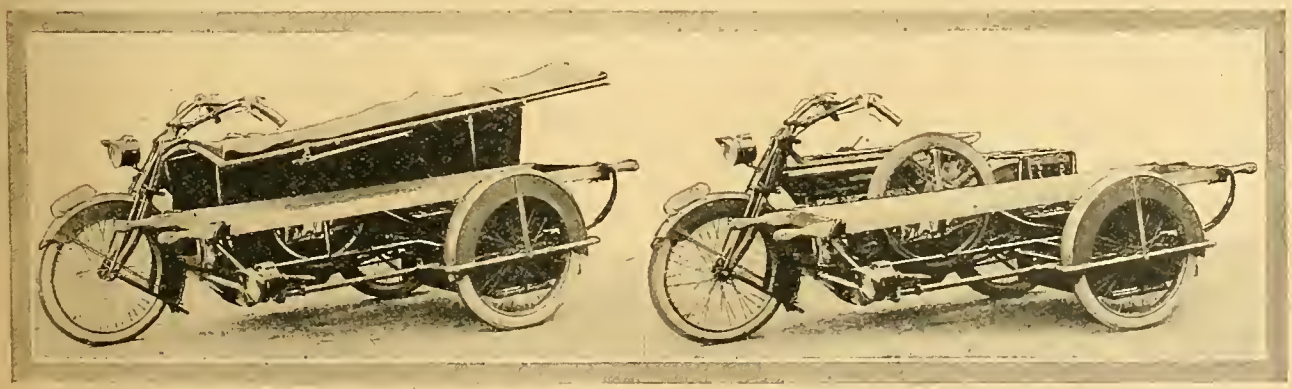
RAPID and comfortable removal of the wounded is one of the most urgent necessities imposed by the horrors of modern warfare. Over anything like rough country the large well-sprung motor car ambulance is pre-eminently the best method to adopt, but the motor cycle can fulfil exceedingly useful service, especially in meeting the boats coming with wounded to transfer them from the quayside to the hospital. The excellent roads in England are well-suited for such machines, and we are glad to see quite a number of well-thought-out outfits appearing from various factories. Smooth running is, of course, of paramount importance, and to that end we should suggest that low compression twin-cylinder engines would be the most advantageous to use. Speed in the way we understand speed in regard to motor cycles is not desirable, for, of course, a speed of twice that of a horse is fast for an ambulance, though moderate for a motor cycle. And, needless to say, no possible risk should be run with such a burden, and such a machine should be equipped with the best and most sensitive system of springing of the stretcher as it is possible to obtain. If the sidecar wheel could also be sprung, so much the better, for what would pass as unnoticeable shocks to a healthy, sound man might well be intolerable to one even slightly wounded.

The 8 h.p. Leader.

We illustrate two aspects of the new sidecar ambulance produced by the Leader Motor Works, Station Road, Bristol. The power unit is an 8 h.p. Precision, and an excellent feature is the fitting of detachable and interchangeable wheels, the method of carrying the spare wheel being particularly neat. Considerable space is provided in a large locker at the rear of the sidecar chassis for bandages, surgical appliances, etc., while a spare two-gallon tin of petrol is also carried. The stretcher is carefully sprung fore and aft, and a removable cover to protect the injured from the elements is well carried out. This can be used as a roof as shown or drawn right down to afford entire protection. Two of these ambulances have already been delivered to the Bristol Motor Cycle War Committee, and others, we understand, are in course of construction.

The Dalton Ambulance.

Our illustration shows a chassis designed by Mr. F. G. Robinson, late of the Bramble Co., for the manufacturers, H. J. Dalton and Co., Croft Road, Coventry.

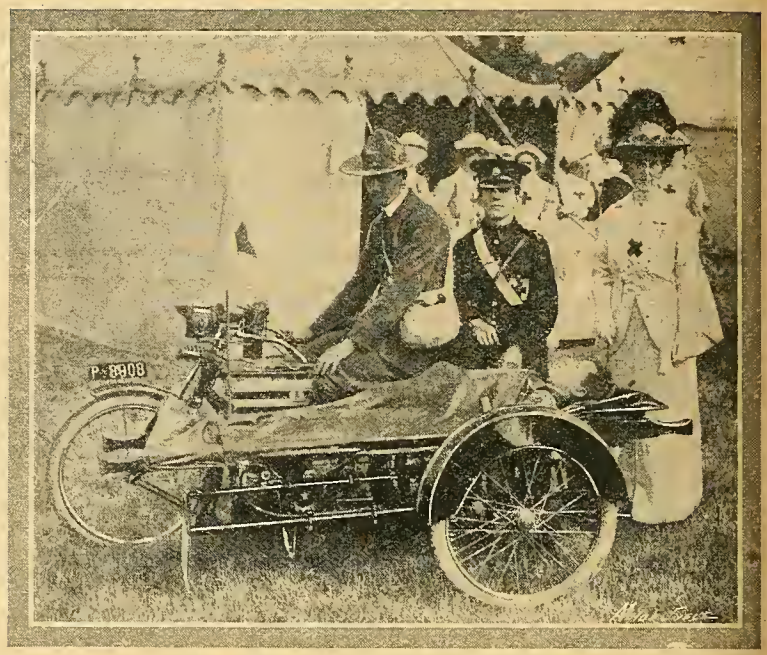


A sidecar ambulance outfit produced by Eli Clark, of Bristol. The cover in the left hand illustration is arranged to fold down on each side.

Sidecars for Red Cross Work.—

The chassis is stoutly constructed and the wheel is carried between two tubes so as to be easily detached, and is extremely strongly mounted. Below the chassis provision is made for carrying tyres, spares, and petrol, and at the back is fitted a roomy receptacle for medical appliances. The stretcher is strongly made and clips to the chassis at four points, and is sprung on a pair of long laminated springs. The construction is simplicity itself, and every detail is well made. An interesting point in connection with the Dalton is that it is probably the first sidecar ambulance to be inspected by the War Office, the designer having driven the machine to London for that special purpose. The sidecar we inspected was attached to a 7 h.p. Rex, and we are told that, after maintaining a high average speed for the best part of 100 miles. the passenger was as comfortable as if in a luxurious sidecar.

The above do not exhaust the number of ambulance sidecars which have been produced, and we are in a position to state that more than one eminent firm have on the stocks examples of this kind of vehicle.



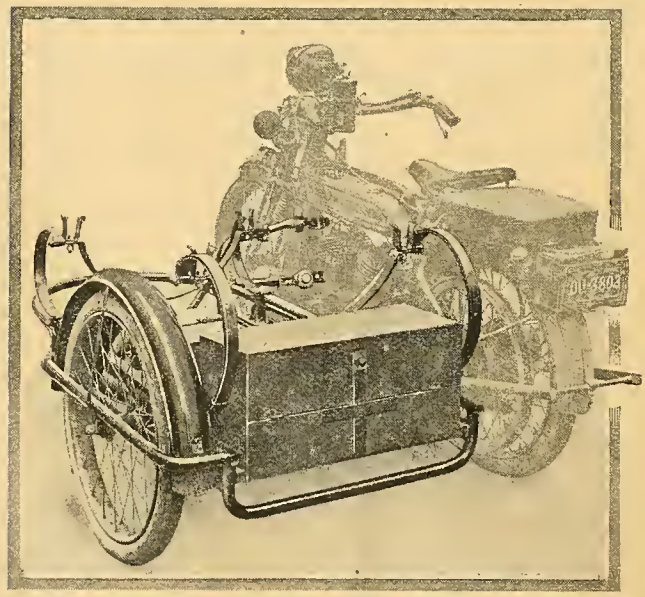
SIDECARS FOR RED CROSS WORK.

The Gloria sidecar ambulance attached to a Triumph motor bicycle. Standing on the right of the machine is Lady Rowley, who is said to have originated the idea of a motor cycle ambulance.

To Capture German Commerce.

Important Action taken by the Board of Trade.

IN connection with the campaign undertaken by the Board of Trade to assist British manufacturers and merchants to secure trade formerly in the hands of German or Austro-Hungarian firms, the Board has received a very large number of enquiries for names of sellers or buyers of articles of which sources of supply or markets have been interfered with by the war.



The locker provided for medical appliances on the Dalton ambulance sidecar.

Special arrangements have been made in the Commercial Intelligence Branch of the Board of Trade for dealing with the enquiries, and lists are being prepared and circulated of articles which enquirers desire (*a*) to purchase and (*b*) to sell. The first lists are now ready, and may be obtained on application to the branch. An enlarged sample room will also be established very shortly for the purpose of exhibiting samples of German and Austrian or Hungarian goods or materials which have competed with British products at home or abroad, especially those which are necessary for the continuance of British manufacture, but which it is now impossible to obtain from their previous sources.

Firms who may wish to exhibit goods are invited to make application to the Commercial Intelligence Branch. It should be expressly understood, however, that the *exhibition is intended exclusively for samples of goods which have formerly been obtained in Germany and Austria-Hungary alone, and which firms may now desire to purchase in the United Kingdom.* Notice will be given of the opening of the exhibition.

A catalogue library will also be opened, and firms who may not desire to exhibit samples are invited to furnish catalogues of goods formerly received by them from Germany and Austria-Hungary; these catalogues to be classified by trades in order to be readily accessible to enquirers.

The address of the Commercial Intelligence Branch is 73, Basinghall Street, London, E.C.

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The 3½ h.p. Sunbeam

is the most suitable and reliable motor bicycle for the war

because of the power of its engine, and its ideal system of transmission.

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The plugs used by

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REX Sidette, 6 h.p., 3 sp., soiled; cost £85	£75 0
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564.	1910	3 h.p. **WANDERER**	£22 1
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	1913	2¼ h.p. **LEVIS**	£22 1

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601.	1911	3⅜ h.p. **SCOTT**	£32 1
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180.	1912	6 h.p. **CLYNO**	£39 1
391.	1913	3½ h.p. **MATCHLESS-J.A.P.**, twin	£40
193c.	1912	3½ h.p. **P. & M.**	£40
	1912	6 h.p. **CLYNO**	38 Gn
	1914	2¼ h.p. **CONNAUGHT**, 3-speed	£37
721.	1911	6 h.p. **ZENITH**, twin	£36
599.	1912	3½ h.p. **TRIUMPH**, 3-speed	£32 1

£40 — £50

738.	1913	2⅜ h.p. **DIAMOND**, New	£45
505.	1912	6 h.p. **ZENITH**, Montgomery Sc.	£47 1
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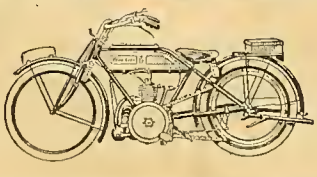

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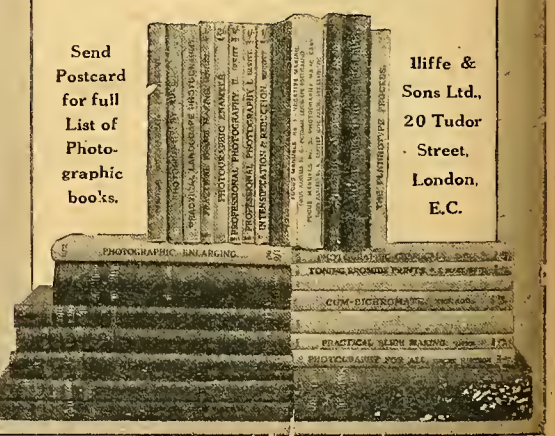


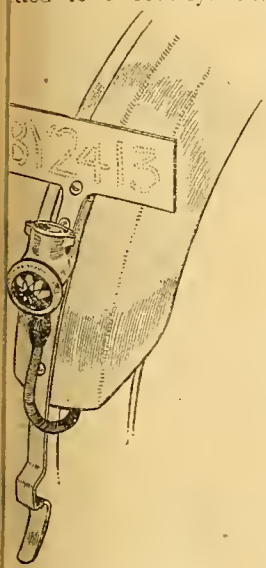
Iliffe & Sons Ltd., 20 Tudor Street, London, E.C.

ANOTHER ELECTRIC LIGHTING SET.

A Well-arranged Equipment Fitted to a Four-cylinder Henderson.

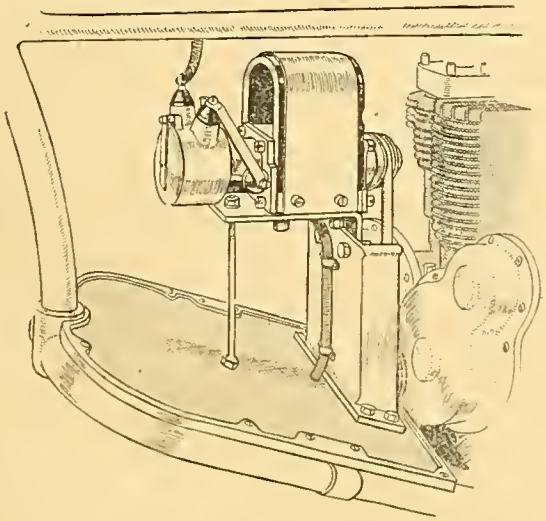
ON the higher-priced and luxurious motor cycles of to-day electric lighting is making great headway, and although prophecy is always dangerous, we feel fairly safe in asserting that in the near future on all really high class machines such installations will be demanded by a fastidious public.

One of the latest sets we have examined is that fitted to a four-cylinder Henderson by the agents, Messrs. Robertsons and Co., Great Portland Street, W. The generator is mounted at the forward end of the engine on a small platform, and is driven by a belt from a pulley arranged on the end of the crankshaft. The construction is quite on accepted lines with that of similar machines, and the workmanship throughout is excellent. The battery is placed in a neat position underneath the footboards, and is practically unnoticeable. A powerful head light is fitted as well as an effective electric horn. The tail lamp is a very sound piece of work, and is mounted rigidly on the rear mudguard. There is a window let in it for illuminating the number plate, and it can also be viewed quite easily from the saddle to see if it is in proper working order. The wiring is carried out by utilising a telegraphic cable, and is taken underneath the rear mudguard and along the top of the frame. It is, therefore, placed out of the way and does not impart a ragged appearance to the machine at all. The whole system works on a low voltage, the globe supplied to the head light working on a pressure of two volts. It is possible to illuminate the lamps without the aid of the dynamo, if necessary, as a cut-out is provided. This mechanism also prevents the battery from becoming overcharged. The general arrangement and appearance is excellent, and a somewhat blank space peculiar to the Henderson machine is filled up in such a way as to give the forward end quite a complete finish. The rear lamp is also of very solid construction, being made of cast aluminium, and should not be affected in any way by vibration.



Henderson tail lamp.

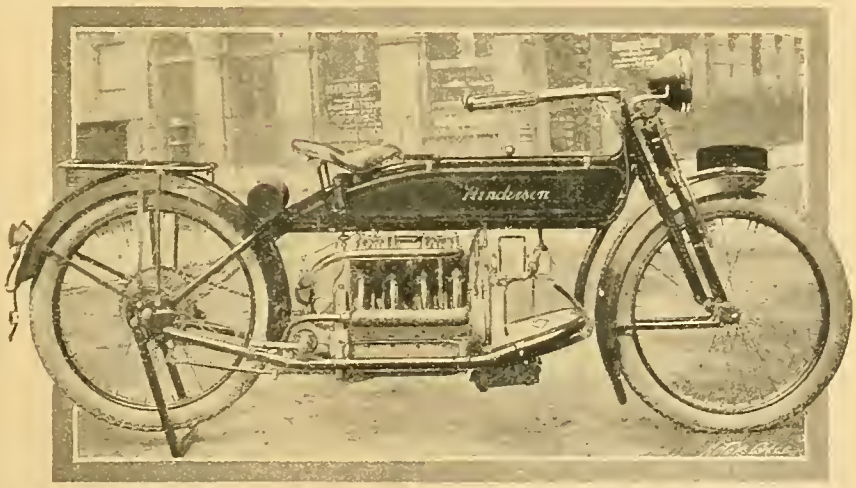
So far, this lighting set has not been arranged on any other machine, but later on, when the above firm have had sufficient experience with this particular set, they will doubtlessly provide sets for other types of motor cycles.



The belt-driven dynamo mounted in front of the engine.

A SIDECAR QUICK-FIRER.

A FEW days ago we noticed in London traffic a machine fitted with a patent sidecar chassis on which a quick-firing gun was mounted on a special bracket. The usual type of body and springing had been dispensed with and in its place was an ordinary pan saddle with a motor cycle type of back rest. This was placed in such a position that the passenger on the sidecar could operate the machine gun whilst sitting there. The whole of the suspension was very carefully carried out. There was also a large number of cases of ammunition carried under the axle in a steel framework, which was suspended by several coil springs.

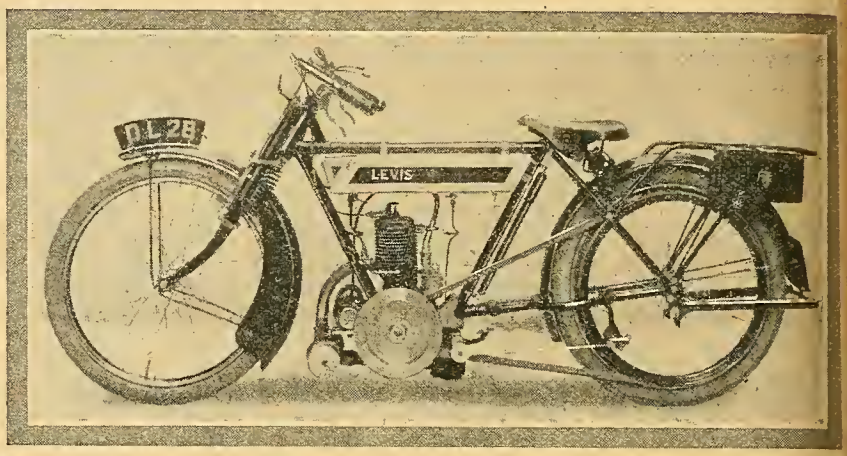


The "electrified" four-cylinder Henderson, now more than ever a car on two wheels

THE LEVIS "POPULAR" MODEL.

A Fascinating Little Machine in which Simplicity is the Keynote.

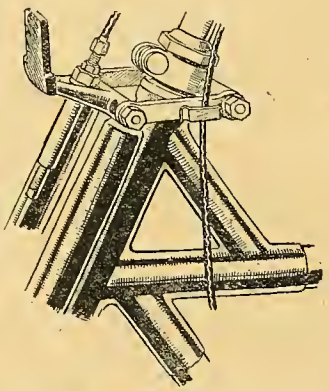
IT was our good fortune on the occasion of a recent visit to the Levis works at Stetchford to obtain one of the new 1.9 h.p. "Popular" models, of which a brief description appeared in *The Motor Cycle* of 20th August, for a short trial on the road. The little machine is fitted with the 2¼ h.p. engine, 62 mm. × 70 mm. bore and stroke, giving a capacity of 211 c.c. A fixed point U.H. magneto is used, and a choice of carburetters allowed the purchaser. The wheels are shod with 24in. × 2in. tyres, and a direct belt drive is employed.



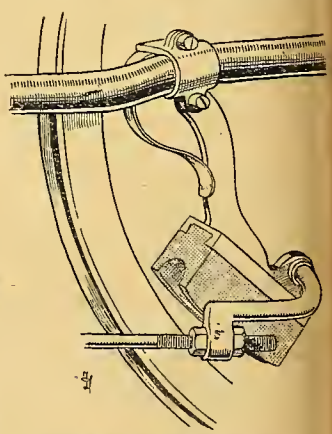
The flywheel side of the "Popular" Levis, showing its remarkable simplicity and low build.

An Appeal to a Large Class of Buyers.

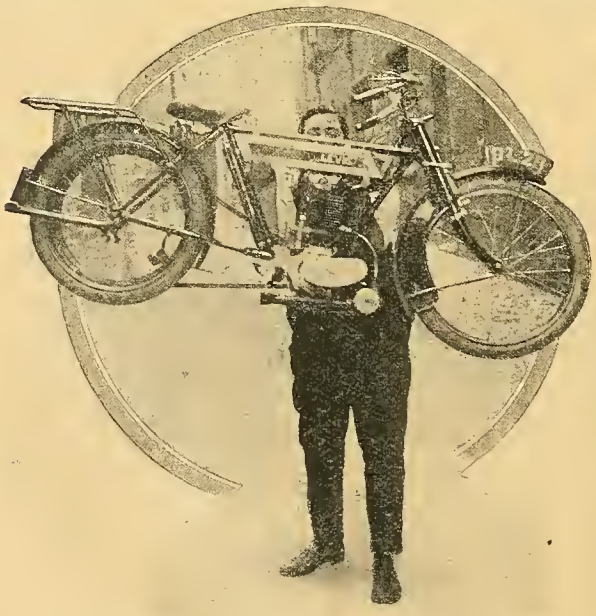
A motor cycle of this type is bound to cause considerable interest to a large section of the community who are hesitating on the brink of purchase, for it is almost impossible to conceive anything more simple in the way of a self-propelled vehicle. The moving parts of the engine, crankshaft, piston, and connecting rod, are all stoutly constructed, and have large bearings, while the well known makes of the accessories fitted may be relied on not to play tricks. A direct belt drive at the worst can only slip or break, and both of these contingencies are minimised by the even pull of the little engine. In fact, though the roads were covered with water from a heavy storm when we left the works, not a sign of belt slip was noticeable. The first point to strike one is the size of the complete machine, which is so small as to make one wonder if it were possible to ride in comfort. This point was very soon settled, for though the writer stands well over six feet a perfectly normal and comfortable position was assumed. This gives serious food for thought as a great many larger machines are not provided with anything like so comfortable a position. In such a low-priced vehicle one does not expect many refinements or much power, but we were really surprised at the flexibility, speed, hill-climbing powers, and detail work of the little Levis.



Steering head lug on the Levis "Popular" model. Note also the clip on the fork link for Bowden wires.



A neat return spring on rear brake of the Levis "Popular" model.



Demonstrating the light weight and handiness of the Levis "Popular" model.

Lightness and Simplicity the Keynote.

Lightness is the keynote of the construction, but this lightness has not been obtained at the expense of strength. On the road the control is particularly simple, for once the engine has been started the air lever may be opened wide and left alone except at a mere crawl, leaving only the throttle for the regulation of speed. Lubrication is on the usual Levis principle of feeding oil to the cylinder and main bearings. A simple adjustment is provided for the flow of oil, and, once set, it is only necessary to turn on the tap when starting and to shut off at the end of a run.

Levis "Popular" Model.—

We feel sure that the Popular model will prove fully equal to its name, for it is a most fascinating little mount. If we have a grumble it is at the size of the saddle, but one cannot expect a luxurious pan seat at the price, and for anything except long touring it is amply large enough. There is no doubt that a machine of this type will open up the delights of the open road to a vast number of potential riders, who have hitherto been debarred by questions of price or frightened by the supposed complications of the larger and more luxurious machines. And many users of heavy high-powered machines would find in the little Levis an excellent tender to their more ambitious machine which would be invaluable for short runs to and from business or to the golf links, or for a variety of other purposes, which will readily occur to the mind, just as the owner of a large car finds utility and pleasure in the employment of a little car to supplement and save its larger brother on many occasions.

Speed Trials at Mablethorpe.

Joint Meeting to be held by the Lincolnshire A.C. and Grimsby & District M.C. & L.C.C.

Joint speed trials will be held on Saturday, September 12th, on the Mablethorpe Sands, by permission of the Mablethorpe Urban District Council, commencing at two o'clock prompt. The classes will be as follow:

Event 1.—Touring solo machines under 350 c.c.
Event 2.—Touring solo machines under 600 c.c.
Event 3.—Touring solo machines under 770 c.c.
Event 4.—Touring solo machines under 1,000 c.c.
Event 5.—Touring two-stroke machines under 350 c.c.
Event 6.—Touring sidecar machines under 600 c.c.
Event 7.—Touring sidecar machines under 1,000 c.c.
Event 8.—T.T. solo machines under 350 c.c.
Event 9.—T.T. solo machines under 600 c.c.
Event 10.—T.T. solo machines under 1,000 c.c.
Event 11.—Team race of three machines.

First prize for four starters, second prize for six starters. Two special prizes will be given by Messrs. M. Jennison and B. Rhodes. Entries close September 8th. Only members of the Lincolnshire A.C. and the Grimsby M.C. and L.C.C. are eligible to compete. The sands are perfectly safe for speeds up to 90 m.p.h.

For entry forms and further particulars apply to either B. Rhodes, Moortown, Lincoln, or M. Jennison, 114, Victoria Street, Grimsby.

GERMAN TEN COMMANDMENTS.

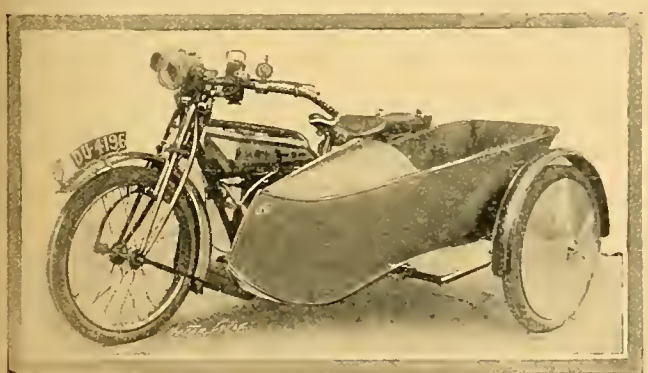
Many thousand copies of the ten German commandments given below have been distributed throughout Germany during the last two or three years:

1. In all expenses keep in mind the interests of your own compatriots.
2. Never forget that when you buy a foreign article your own country is the poorer.
3. Your money should profit no one but Germans.
4. Never profane German factories by using foreign machinery
5. Never allow foreign eatables to be served at your table.
6. Write on German paper with a German pen, and use German blotting paper.
7. German flour, German fruit, and German beer can alone give your body the true German energy.
8. If you do not like German malt coffee, drink coffee from German colonies.
9. Use only German clothes for your dress, and German hats for your head.
10. Let not foreign flattery distract you from these precepts; and be firmly convinced, whatever others say, that German products are the only ones worthy of citizens of the German Fatherland.

WOLVERHAMPTON INVITATION PAPERCHASE.

A paperchase will be held on September 5th in which the following clubs have been invited to participate: the Sutton Coldfield and Mid-Warwickshire A.C.; Birmingham M.C.C.; Kidderminster M.C.C.; and Derbyshire and North Stafford A.C. Cups will be presented to the winning team. The start will be from the Talbot Hotel at 2.30 p.m.

There will also be held on September 19th a twenty-four hours reliability trial for the Cork Cup, open to members of the Wolverhampton Club only.



A disc wheel sidecar on a T.T. Rudge which has been universally admired. It is owned by Mr. V. A. Holroyd, works manager of Rudge-Whitworth, Ltd.

IRISH HILL-CLIMB.

The Dublin and District Motor Cycle Club held a handicap hill-climb on Saturday last at Glencullen Hill. The original idea was to have a number of classes, but these were amalgamated, and the three best men on handicap competed again for the three prizes, a new handicap being framed on their times in the first run off. The results were as follow:

SOLO CLASS.

Rider and machine.	Actual time.	H'cap time.
J. Healy (2¾ Enfield), 10s. ...	... 52⅖s.	... 42⅖s.
J. A. H. Waters (2¾ Douglas), 10s.	53⅗s.	... 43⅗s.
R. Armstrong (2¾ Enfield), 10s. ...	58⅖s.	... 48⅖s.
Dr. Sheill (3½ Rover), 8s. ...	... 47⅘s.	... 39⅘s.
P. J. Fox (3½ Rudge) 5s. ...	... 47s.	42s.
W. A. Campbell (3½ Rudge), 4s. ...	50s.	... 46s.
R. White (3½ Rudge), 2s. ...	... 50⅖s.	... 48⅖s.
F. Holmes (3½ Rudge), 2s. ...	... 41⅘s.	... 39⅘s.
T. E. Greene (3½ Rudge) scratch ..	40s.	... 40s.
P. J. Brady (3½ Rudge), scratch ..	46s.	... 46s.

SIDECAR CLASS.

Rider and machine.	Actual time. m. s.	H'cap time m. s.
A. W. Mooney (6 Bradbury), scr.	1 0⅘	... 1 0⅘
G. Roche (3½ Rover), 9s. ...	1 14⅖	... 1 5⅖
W. J. Towell (3½ Sunbeam) 9s. ...	1 41	... 1 33
J. Levins (6 Bradbury), scr. ...	1 36⅘	... 1 36⅘

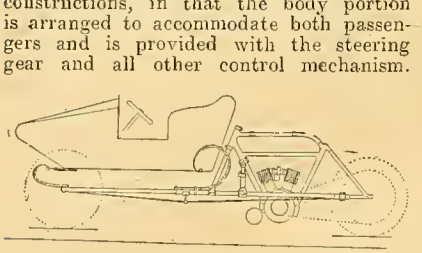
The final between the three fastest men on the handicap resulted as follow:

Rider and machine.	Actual time.	H'cap time
A. W. Mooney (6 Bradbury sc.), 19s.	57⅖s.	... 36⅖s.
Dr. Sheill (3½ Rover), 6s. ...	... 46s.	... 40s.
F. Holmes (3½ Rudge), scratch ...	41¼s.	... 41¼s.

Messrs. N. E. Drury and R. P. Hurse took the times.

An Interesting Tricar.

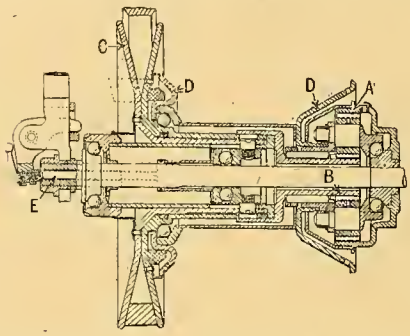
This tricar differs from most previous constructions, in that the body portion is arranged to accommodate both passengers and is provided with the steering gear and all other control mechanism.



The motor cycle seat and handle-bar are therefore removed and the machine driven from inside the body. The body is spring supported from a flat frame, which can be bolted to the motor cycle frame after the front wheel has been removed. The front of the body is flat or otherwise arranged to encourage a draught of air on to the engine.—L. Ainsworth, No. 12,842, 1913.

Reducing Gear.

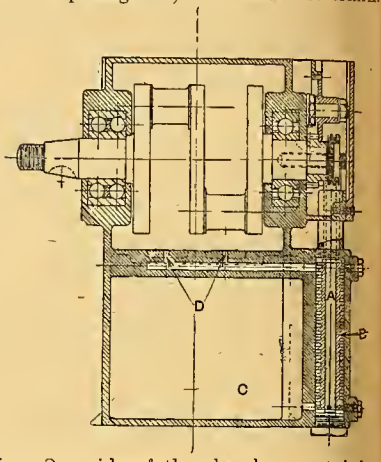
With transmission gearing of the variable pulley type it is not easy to obtain a very low gear. To obviate this an epicyclic gear is arranged in the hub shell. The internally toothed ring A is locked to the frame of the machine, and the sun pinion B is driven by the belt pulley C, and the planet pinions are connected with the hub shell D. The pulley C is formed with a fixed and a movable flange, the latter being operated by the rod E passing through the hollow spindle.



By means of the epicyclic gearing a big gear reduction is obtained. — Rudge-Whitworth, Ltd., and F. Pountney, No. 10,242, 1913.

Douglas Lubrication System.

Driven off one end of the crankshaft is a vertical spindle A, around which is secured an archimedean screw B. The housing in which the screw works is connected by a passage with the oil sump C so that as the engine runs oil is forced into the passages D, into which the crank-



dip. One side of the chamber containing the archimedean screw may have a transparent wall so that the operation of the device can be seen.—W. Douglas, No. 1,744, 1913.

A Business Combine.

The Forward Motor Co., Summer Hill, Birmingham, inform us that they are absorbing the business of the Challenge Manufacturing Co., Birmingham.

Rear Lights for the War Office.

We are informed that Messrs. Westwood Rim and Patents, Ltd., Lawden Road, Birmingham, have received large orders from the War Office for their Westwood reflex rear lights.

Wakefields and the War.

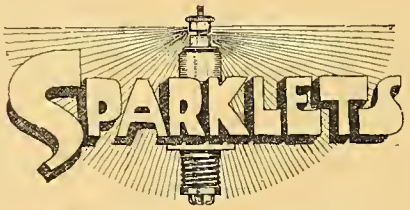
Messrs. C. C. Wakefield and Co., of Wakefield House, Cheapside, London, E.C., are keeping on full pay all members of their staff who are serving with His Majesty's Colours, and will reinstate them on the termination of the war.

War, Work, and Wire.

Messrs. Bowden Wire, Ltd., London, give notice that, with a view to making as little hurtful as possible to their workpeople the temporary reduction of hours which they have found necessary, they have decided to close their offices, warehouses, and works on each Saturday until further notice.

Racing in South Africa.

A large crowd witnessed the race meeting, decided by the Orange Free State A.C., at Bloemfontein, and some fine racing was witnessed. The chief event was the fifty miles race for the Continental Trophy, which was won by W. Campbell on a T.T. Triumph. The actual distance was 52 miles, and Campbell's time of 56m. 56s. beat the South African record. In the Open Five Miles Handicap, Campbell again won from scratch, L. A. Howie (Triumph) being second, and E. Hoehne (Triumph) third.



Tyres for a Powerful Twin.

It is interesting to note that the powerful twin-cylinder Zenith-Green, to which we referred in our issue of August 20th, is fitted with 3in. Palmer cord tyres.

The Petrol Position.

The two leading petrol companies inform us that they have made no change in the wholesale price of their spirit. The Motor Trade Association has agreed to its members retailing spirit at a profit of 3d. per gallon over the wholesale price.

Business Better than Usual!

Kemp's Vulcanising Co., Ltd., Hardman Street, Manchester, report that since the war commenced they have not only experienced business as usual, but even expanding business, particularly in respect of the manufacture of ebonite goods in which they formerly found our enemy a competitor.

A Market in the Philippines.

Advices from the Philippine Islands tend to show that the native Filipinos are taking largely to the motor cycle. At present the demand is mainly filled by American manufacturers, but the desire of the local riders is for a light to medium weight machine, and as this is not usually a characteristic of American motor cycles this should prove a good opening for British trade.

Clutches for Cycle Cars.

An order for fifty chain-drive Mabon multiple disc clutches, manufactured for cycle cars, has just been executed by the Mabon Motor Works, Woodside Gardens, Bruce Grove, Tottenham, London, N. The Mabon clutch is largely used on motor cycles.

Cheaper Sidecars.

In order to keep the works busy, Messrs. W. Montgomery and Co., of Coventry, have decided to allow 15% discount off all sidecars purchased during the war.

The Godiva Sidecar Co. is also offering special inducements as regards terms, having a small stock to dispose of.

Generous Offers.

The Endrick Engineering Co., Olton, Birmingham, have, we understand, offered the War Office a number of Endrick decompressors free of cost, and will hold a stock at the disposal of the military authorities.

Messrs. Morgan and Maxwell, motor agents, of High Road, Streatham, undertook at the beginning of the war to store, clean, and insure motor cycles belonging to members of the naval and military services free of charge until hostilities have ceased.

All about the Rudge Multi.

A most tastefully got-up little booklet has been issued by Messrs. Rudge-Whitworth, Ltd., Coventry, entitled "An Expert on the Rudge Multi." This consists of a beautifully reprinted extract from this journal together with photographs of the technical points of the Rudge Multi. Excellent photographs of C. G. Pullin, the T.T. winner, and T. E. Greene, holder of world's records on a Rudge Multi, are also given.

HUTCHINSON

WARNING

SALVAGE STOCK *from* OUR RECENT FIRE.

THERE is no guarantee whatsoever on any tyre sold below our retail prices.

TYRES from the Salvage Stock from our recent fire may be offered you below our published retail prices. Deterioration arising from the effect of heat and water on rubber and canvas may not be apparent, but is undoubtedly present, and our guarantee does not apply.

THE WAR.

Supplies as Usual.

Send for latest Catalogue.

HUTCHINSON TYRE CO., 70, Basinghall Street, LONDON, E.C.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

☞ DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S. 6h.p. Combination, also 2¾h.p., 2-speed, shop-soiled only; must clear; what offers?

A.J.S. Commercial Sidecar, £15; write for catalogue. —The Great A.J.S. agents, The Walsall Garage, Walsall. [X8433

1914 6h.p. A.J.S. Combination; exchange part payment.—Hilton and Son, Foxhall Sq., Blackpool. [X8881

A.J.S., 1914, 750 c.c. combination, and 750 c.c. solo in stock.—Crow Bros., 190, High St., Guildford. [6475

2¾h.p. 3-speed A.J.S. and Watsonian coachbuilt sidecar, new June, only done 1,400 miles; £50.—John Aldrich and Co., Diss. [6676

1914 6h.p. twin-cylinder 3-speed A.J.S., immediate delivery from stock, enquiries invited; £73/10.—Carnforth Motor Co., Carnforth. [6526

1911 A.J.S. Lightweight, 2-speed, free engine, Palmer cord, Bates, recently overhauled throughout by makers; £22/10; take cycle part.—Dangerfield, Lion Works, Barlaston. [X8773

Alldays.

ALLDAYS, 1911, 3½h.p., 2-speed model, just overhauled, in good condition; take £19 for quick sale.—A. Holland, Clarendon St., Coventry [X8874

Ariel.

ARIEL 6h.p. Combination, new; price £86/10; exchanges entertained.—Bunting, Harrow. [X8868

To Qualify as

THE SMARTEST DESPATCH RIDER

Get the Best and most suitable Motor Cycle and

GET IT AT

HAUCHOPE'S

Our offers to-day comprise the finest Bargains in all Best makes of Motor Cycles, including the most suitable Models for Military Motor Cycle purposes complying with all government requirements at prices that cannot be beaten and every Machine fully guaranteed.

ASK FOR TO-DAY'S LIST FROM WHICH THE FOLLOWING IS A SMALL SELECTION.

8820.	5-6 h.p. 1912 **T.T. MATCHLESS** ..	£22	10
8824.	2¾ h.p. 1912 model **"K" DOUGLAS**	£31	10
8825.	6 h.p. 1914 **A.J.S.** and sidecar	£67	10
8826.	2¼ h.p. model **"R"** 2-sp **DOUGLAS**	£38	0
8827.	2½ h.p. 2-speed **WOLF**, 1914..... 6 h.p. **A.C. SOCIABLE**	£24 / £57	0 / 10
8323.	3½ h.p. 1912 **LINCOLN ELK**	£20	0
7665.	3½ h.p. **QUADRANT** and Sidecar..	£12	10
8786.	5 h.p. 1910 2-speed **V.S.** and Sidecar	£27	10
8789.	3½ h.p. 1914 2 speed **DOUGLAS** and Sidecar	£65	0
8790.	2¼ h.p. 1910 2-speed **F.N.**	£18	0
8792.	3½ h.p. 1913 3-speed **ROVER** and Sidecar	£48	0
8793.	3½ h.p. 1912 2-speed **B.S.A.**	£32	10
8795.	2½ h.p. 1914 2-speed 2-stroke **CONNAUGHT**	30 gns.	
8802.	7 h.p. 1914 Electric Starter **INDIAN**	£57	10
8808.	3½ h.p. 1914 **TWIN-BROUGH**	£32	10
8809.	8 h.p. 1913 **ZENITH** and Sidecar	£60	0
8238.	8 h.p. 1913 2-speed **BAT** and S'car	£52	10
8175.	6 h.p. 1913 2-speed **N.S.U.** and S'car	£50	0
7537.	7 h.p. 1912 2-speed **INDIAN**	£37	10
7575.	3½ h.p. 1909 **TRIUMPH**.....	20 gns.	
7702.	8 h.p. 1912 **ZENITH** and Sidecar	£49	0
8762.	6 h.p. 1913 3-speed **BAT**.....	£47	10
8765.	2¼ h.p. 1914 2 stroke **LEVIS**	£27	10
8772.	6 h.p. **ROVER CAR**	£25	0
8773.	3½ h.p. 1912 2-speed **SINGER** and sidecar	£38	10
8781.	3½ h.p. 1913 **T.T. RUDGE**	£28	0
8782.	3½ h.p. 1912 **T.T. TRIUMPH**	£25	0
8784.	3½ h.p. 1909 **BRADBURY**	£17	0
8759.	2½ h.p. 1914 2-speed **CLYNO**	£38	0
8753.	4 h.p. 1914 3-speed **TRIUMPH** and Bramble Sidecar	£69	0
8737.	6 h.p. 1912 **ZENITH** and Canoelet	£45	0
8732.	3½ h.p. 1914 2-speed **P. & M.** and coach-built Sidecar	£69	0
8710.	4 h.p. 1914 3-speed **TRIUMPH** and Gloria coach-built Sidecar	£63	0
8708.	2¾ h.p. 1910 **DOUGLAS**	£17	10
8705.	3½ h.p. 1912 F.E. **RUDGE**	£27	10
8702.	2 h.p. 1912 **MOTO-REVE**	£14	0
8682.	6 h.p. 1913 2-speed **V.S.-J.A.P.** and Sidecar	£45	0
8671.	7 h.p. 1911 2-speed **INDIAN** and Sidecar	£35	0
8654.	3½ h.p. 1910 standard **TRIUMPH**..	£22	10
8640.	3½ h.p. 1912 F.E. **RUDGE**	£27	10
8592.	3½ h.p. 1908 **QUADRANT**	£17	10
8568.	3½ h.p. 1910 **BRADBURY**	£20	0
8561.	3½ h.p. **VINDEC** and Sidecar	£17	10
8554.	8 h.p. 1913 2-speed air-cooled **WILLIAMSON** and Sidecar	£50	0
8551.	2¾ h.p. twin **FAIRY**	£12	10
8502.	3½ h.p. 1908 **TRIUMPH**	£20	0
8412.	3½ h.p. 1908 **TRIUMPH**	£20	0
8367.	8 h.p. 1912 3-sp. **CHATER-LEA** and Sidecar	£55	0
8359.	6 h.p. twin **BROWN** and Sidecar	£22	10
8338.	3½ h.p. 1910 **BRADBURY**	£22	10
8336.	2¾ h.p. **F.N.**	£13	10

9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone: Holborn 6777.
Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

Ariel.

1912 Ariel, 3½h.p., free engine, variable gear, good as new; best offer near £20.—Holden, Forte, Box hill, Surrey. [6655

3h.p. Ariel, low-built, mag., B. and B. carburetter, good running order; £10.—Apply, Rackham, Gilwern Abergavenny. [6700

1914 5-6h.p. Ariel and Sidecar, 3-speed, all accessories, speedometer, etc.; £80.—1, The Broadway Muswell Hill, N. [6695

ARIELS delivered from stock; unlimited tuition free —Lamb's, 151, High St., Walthamstow, and 50 High Rd., Wood Green. [6615

ARIEL, late 1912, variable gear, Cowey, all spares, and sidecar, perfect; cost £80, accept £35.—232, Lancaster Rd., N. Kensington. [6640

ARIEL, 1913, 3-speed model, kick starter, decompressor little used, capital order throughout; worth £40 easily, price £32/10, cash only.—Laytons, Biccester Oxon. [X8900

ARIEL, 3½h.p., 1914, 3-speed counter-shaft, kick start Paragon £17 sidecar, P.H. lamps; cost £80; any trial; nearest £63.—Austin, 49, St. Leonard's St., Bromley-by-Bow, E. [X8920

ARIEL, 1914, 3-speed, counter-shaft, with Phœnix £11/6 torpedo sidecar; £60, cost £76; not done 500 miles.—260, Coldharbour Lane, S.W. 'Phone Brixton 2042. [6570

ARIEL, 3½h.p., counter-shaft 1914 3-speed, free engine, kick starter, and Ariel coachbuilt sidecar £55; excellent condition, just overhauled by makers.—26, Beech Rd., Bournville. [X8860

Auto-Wheels.

AUTO-WHEEL, been very little used; £10/10; exchanges entertained.—Bunting, Harrow. [X8861

AUTO-WHEEL, Modele de Luxe, made by B.S.A. Co. £18/18, latest model; immediate delivery; easy monthly payments.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6666

AUTO-WHEEL makes pedal cycle a motor cycle supplied and fitted, £16/16 cash, or easy monthly payments; immediate delivery.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6665

Bat.

BAT, 1913, 5-6h.p., 3-speed, splendid order throughout; £40, bargain. — Stour Cycle Depot, Stourbridge. [X8830

BAT, 6h.p., 3-speed, 1913½, Armstrong clutch, T.T., Middleton coachbuilt, perfect; £52.—Searle, 218 Westbourne Grove, W. [6726

8h.p. T.T. 1912 Bat-Jap, side valves, only been about 1,500 miles; bargain, £38.—Seen at Lawrence's Cycle Agent, Henley-on-Thames. [X8750

6h.p. Bat, 1913, 3-speed Armstrong, grey finish, perfect condition, little used; owner abroad.—Wilson Holmfield, Meols Drive, Hoylake. [6701

BAT, 8h.p., 2-speed, 1912, chain drive, spring frame, and sidecar, tyres good; £32/10.—Middleton, 218, Westbourne Grove, W. [6725

1913 6h.p. Bat-Jap, Canoelet coach sidecar, hood, screen, 2 speeds, chain, kick start, clutch, faultless; £49.—Blencathra, Highfield Rd., Walton-on-Thames. [X8864

BATS.—A few various models, which have been used for trial purposes, all are in splendid condition; to be cleared cheap:—Bat Motor Manufacturing Co., Penge, S.E. [6765

BAT, 1914, 4½h.p., 2-speed model, perfect for sidecar or solo work, brand new, but slightly shop-soiled; catalogue price £57/10, cash price £50.—Layton's, Bicester, Oxon. [X8906

Bradbury.

BRADBURY, 3½h.p., 1912, 2-speed; exchange Douglas, or sell £24.—C. MacLeod, Dalvey, Forres. [X8685

BRADBURY and Sidecar, 1912, 2 speeds, F.E.; cheap.—58, Hazeldene Rd., Goodmayes, Essex. [6756

BRADBURY, 6h.p., 3 speeds, shop-soiled only; owner wanted.—Turpins 22 and 29, Preston Rd., Brighton [0510

BRADBURY and Sidecar, 1913½ (2-speed, F.E.), accessories; bargain, £42.—76, Dalling Rd., Hammersmith. [6696

BRADBURY, 1912, 3-speed, kick starter, with cane sidecar; bargain, £40, or offer.—85, Broomwood Rd., Clapham Common, S.W. [6698

BRADBURY, 1914 (April), 6h.p., coachbuilt sidecar, hood and screen, Lucas lamp, horn, Cowey speedometer, electric rear lamp; buying car; cost £103, £85.—Young, Benarty, Cambuslang. [X8887

BRADBURY, 4h.p., late 1912 model, free engine, 2-speed gear, lamp, and horn, etc., perfect condition; owner must sell; £37, or near; no reasonable offer refused.—Captain Byng, Coombe Priory, Shaftesbury. [6664

MOTOR CYCLES FOR SALE.

Lea-Francis.

LEA-FRANCIS, 1914, 3¼h.p., perfect condition; £48; owner volunteered for active service.—31a, Broomfield Rd., Chelmsford. [6660

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 54, Gt. Titchfield St., W. Regent 4999. [0448

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HARRY WALKER'S for the famous Levis's.—Official Agency, Muswell Hill, N. [6540

BABY Levis, 1913¾, perfect, new tyres, accessories; £22.—Hammond, 8, Spain, Petersfield. [6613

LEVIS, 1914, 2¼h.p., capital condition; cost £33/10, cash price £24.—Laytons', Bicester, Oxon. [X8908

LEVIS, 1913, 2¼h.p., good order throughout; rock bottom cash price £16/10.—Laytons', Bicester, Oxon. [X8909

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LEVIS, 2½h.p., excellent condition, footboards, new Michelins, accessories; £27.—60, Upper St. Mary's Rd., Bearwood, Birmingham. [X8739

Lincoln Elk.

ONE 3½h.p. Lincoln-Elk, 1912 model; £20 net.

ONE £14/14 Bramble Sidecar, shop-soiled only; £10/10 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C [0537

LINCOLN-ELK, 1914, 2-speed, 4½h.p., and Middleton sidecar, splendid condition; cost £55, accept £32.—Apply, 7, Essex Rd., Hoddesdon, Herts. [X8735

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LITTLE Giant.—Immediate delivery.—Sole Agents Preston district, Holden, Long Lane, Ashton. [X8686

L.M.C.

L.M.C., 1914, 4h.p., 2-speed, in stock, £63; also Grosvenor sidecar, £11/10.—Hall, 12a, Waterloo Rd., Blyth, Northumberland. [X8897

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MATCHLESS, 6h.p., 1910, single gear model; clearance price, bargain, £22.—Laytons', Bicester, Oxon. [X8917

MATCHLESS 1912 8h.p. Combination, 2-speed, very powerful; £40, bargain.—Stour Cycle Depot, Stourbridge. [X8832

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

3h.p. Matchless, September, 1912, 2-speed, Montgomery light sidecar, several extras; 42 gns.—C.S., 31, Pearl St., Saltburn-by-Sea. [X8734

1913 8h.p. Matchless, sidecar combination, fully equipped, little used; £55.—Universal Motors, 18, Brown St, Piccadilly, W. [X8791

1911 8h.p. Matchless, racing model, Cowey, etc., new belt and hack tyre, excellent condition; £30.—Clayson, 27, Bridge St., Northampton. [X8893

MATCHLESS, 1913.—We have 3½, 6, and 8h.p., with or without sidecar, to clear at bargain prices. Colmore Depot, 49, John Bright St., Birmingham. [X8756

1913 Matchless, 8h.p., 2 speeds, counter-shaft, chain drive, Gloria Projectile sidecar, F.R.S., perfect order, and nice appearance; cost £100, accept £60.—P. T. Hobbs, Blandford. [6709

3½h.p. Matchless Combination, 1913, 2-speed, Hutchinson's tyres, 2 belts, lamp, horn, speedometer; any trial; £34, bargain.—46, Mooltan St., Lillie Rd., Fulham. [6741

MATCHLESS, 1913, 8h.p., 2 speeds, kick starter, complete with luxurious coachbuilt sidecar, turnout recently cost £90, sacrifice £55, perfect.—Colmore Depot, 11, Colmore Row, Birmingham. [X8822

APRIL (1914), 7h.p. Matchless, standard model, 8B., coach combination, chain drive, 3 speeds, free engine, not done 2,000; cost £100, accept £85.—6,630, *The Motor Cycle* Offices, Coventry. [X8920

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3½h.p. Minerva Magneto Motor Cycle, perfect, £10; sidecar, 50/-.—Ison, Filemaker, Bloxwich. [6743

Moto-Reve.

MOTO-REVE, 2½h.p. twin, perfect running order; £15.—3, The Parade, Twickenham Rd., Isleworth [X8875

MOTO-REVE. 1911, 2¾h.p. twin, in exceptional condition; £12.—Aitken, 1, King St., Acton. Tel.: Chiswick 1578. [6732

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2½h.p. 1911 Motosacoche, Druids, Bosch, complete, in good order; £11.—Davis, Nethertote, Slinfold, Horsham. [6705

MOTOSACOCHE, 2½h.p., 1913, new tyres; any trial; accessories; unique bargain, £18/10.—8, Pollards Hill North, Norbury. [6687

MOTOSACOCHE, 1914, 3½h.p. twin, 2-speed, chain drive; list price £60; not run 10 miles; special bargain, £52.—Alexander's, 115, Lothian Rd., Edinburgh. [6588

New Hudson.

1914 3½h.p. New Hudson, 3-speed, and sidecar, coachbuilt; £55.—1, The Broadway, Muswell Hill, N. [6691

1913 Late New Hudson, 3-speed, coach sidecar, new condition; cost £80, accept £52/10.—Mack, 81, Lower Clapton Rd., N.E. [6550

NEW Hudson Lightweights delivered from stock; unlimited tuition free.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [6616

NEW Hudson, 1912, 4h.p. J.A.P. engine, 3-speed gear and clutch, overhauled, excellent condition; £26, absolute bargain.—G. E. Flooks, 14, Church Rd., Watford. [X8841

NEW Hudson, 1913, 4h.p., counter-shaft model, 3-speed, with Canoelet sidecar, and all accessories, splendid condition; accept £42.—Sutcliffe, 5, Dunkirk Crescent, Halifax. [X8879

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ONE 2h.p. N.S.U. Single-cyl. Lightweight, complete with 2-speed gear and free engine, 1913 model, shop-soiled; £30 net.

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ONE 3h.p. N.S.U. Twin-cyl. Motor Cycle, complete with under-geared pulley, 1912 model; £25 net

ONE 3½h.p. N.S.U. Single-cyl. Motor Cycle, complete with h.b.c. 2-speed gear and free engine, 1914 model, shop-soiled; £48 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0538

N.S.U., 3½h.p., 2-speed, new engine, except crank cases, new tyre and belt, enamelled French grey, perfect condition; £25.—Wily, Orchardleigh, Broadhampton, Totnes. [6661

N.S.U. 6½h.p. Twin, new last March, with hand-controlled 2-speed gear, Millford coachbuilt sidecar, complete with 3 Lucas lamps, speedometer, all accessories, perfect condition; offers wanted.—Seen at Eagles and Co., Acton, W. [X8938

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N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

N.U.T., 1914, 3¼h.p. twin, 3-speed, clutch, and kick starter, T.T. bars, guaranteed in perfect order; £38.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0492

Paragon.

1914 2½h.p. 2-speed 2-stroke Paragon, purchased August 7th, 1914, £26, or offer; 1912 Rudge, F.E., condition excellent, all accessories, £28, or offer.—Enterprise Garage, Dugdale St., Nuneaton. [X8899

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Peugeot.

7 h.p. T.T. Twin Peugeot, dropped Chater frame, Druids, Bosch, Senspray, excellent tune; offers or exchange 2-stroke.—4, Broadway, Addiscombe, Croydon. [6760

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P. and M., 1911, 1913 torpedo sidecar, like new; £32.—T., 41, Ashford Rd., Cricklewood. [6739

1914 3½h.p. 2-speed Phelon and Moore, enquiries invited; £65.—Carnforth Motor Co., Carnforth. [6527

P. and M., new July, 1913 (1912 model), splendid machine; must sell; offers.—Griffin, Gordon Villa, St. Helens. [6619

P. and M., 1914, 3½h.p., 2-speed, kick starter, perfect condition, like new; £52.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0552

Precision.

PRECISION, 1914, nearly new, 2¾h.p., F.E., 7 speeds, Dunlops, B. and B.; cost £42, accept £24.—8, Heath Gardens, Twickenham. [6641

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3½h.p. Premier, in splendid running condition; £17, a bargain.—Apply, Fullbush, Yateley, Hants. [6621

2½h.p. Premier, late 1913, 3-speed, good lamp and horn, speedometer, not done 1,000 miles; £31/10. —Below.

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1913 Premier, 3½h.p., 2-speed, counter-shaft, excellent condition; £27/10.—Frederick Leek, Alsager, Cheshire. [X8900

PREMIER, 1914, 3½h.p., 3-speed, clutch, and coach sidecar, perfect; £55.—Adams, 216, Westbourne Grove, W. [6727

3½h.p. Premier, 3-speed, kick starter, 1914, new 2 months ago, coachbuilt sidecar; £56.—Cooke, 7, Dale St., Burton. [X8742

1912 3½h.p. 3-speed Premier, new coachbuilt sidecar, splendid condition; £35.—Hilton and Son, Foxhall Sq., Blackpool. [X8880

1913 3½h.p. Premier (purchased 1914, still guaranteed) counter-shaft 2-speeds, coachbuilt sidecar; £47.—23, Christ Church Rd., Hemel Hempstead, Herts [X8942

PREMIER, 3½h.p., 1912, 3-speed, Armstrong Mark VII., and wicker sidecar, lamps, horn, accessories, etc., in excellent condition; £30.—3, Alfred St., Blackpool. [X8882

PREMIER, 1914, 3½h.p., 3-speed counter-shaft, brand new, shop-soiled; £57/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

PREMIER, 1912, 3½h.p., 3-speed, and clutch, in splendid order throughout, ridden solo only, thoroughly overhauled, and guaranteed perfect; £32 cash, or easy terms arranged.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0480

Quadrant.

QUADRANT, 3½h.p., perfect condition; £9.—Napper, 336, East St., Old Kent Rd. [6772

Regal.

REGAL Green, 3¾h.p., 1913, water-cooled, 3 speeds, and clutch, splendid order, ridden solo only; £35. —Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0478

Rex.

3½h.p. Rex, in good condition, Amac; £9/10.—J. Procter, Ghyll Head, Windermere. [X8764

1911 8h.p. Twin Rex, fine condition, faultless; £30; seen any time.—92, High Rd., Streatham. [6651

REX Sidette, 1914, coachbuilt, splendid condition; £55, offers.—22, Victoria Terrace, Leamington. [X8898

REX Sidette, 1914, 6h.p., 2 speeds, coach body, hardly soiled; £64.—Bastones, 228, Pentonville Rd., King's Cross, London, N. [6412

1911 Rex, 5-6h.p., 2-speed, free engine, new pulley and belt, very little used, good sidecar machine; £28.—32, Castle Rd., Scarborough. [X8793

6h.p. Rex Combination, 1912, 2 speeds, free engine, new lamps, tyres, Whittle; £40; exchange lightweight.—8, Chatsworth Rd., Gorton, Manchester. [X8921

REXES.—New 1912 2-speed twin, reduced to £45/10; new 1913, £53/2/6; new Sidette, £65/9.—Halifax Motor Exchange, Westgate, Halifax. [0489

TWIN Rex, free engine, pedal starter, F.R.S. 78/6 lamp, Smith's speedometer, Service belt, canoe sidecar; £32; any trial.—14, Victoria Park Sq., Bethnal Green. [6722

REX 1913 Combination, 6h.p. twin, 2-speed, free engine, coachbuilt sidecar, accessories, excellent condition; £48; exchange considered. — A. Holland, Clarendon St., Coventry. [X8876

HOLIDAY Turnout.—1912¾ 4h.p. Rex, sidecar, 3-speed, free engine, good condition throughout; cost £60 new year ago; bargain £38, nearest cash offers. —Oglanby, Spennymoor. (D) [6636

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N.S.U., 4 h.p., 2-speed, twin	£22 0
N.S.U., 3 h.p., 2-speed, as new	£27 10
N.S.U., 3½ h.p., 2-speed, spring forks	£19 10
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Rex-Jap.

LATE 1913 6-8h.p. Jap-Rex, Bosch, pan saddle, new head light, spare belt, fine condition; £29, lowest.—80, Bispham Rd., Southport. [8901

8h.p. Rex-Jap, late 1912, No. 18. Mills-Fulford sidecar, also all accessories; owner has no further use; what offers?—Woolbrough, 80, Cotham Rd., Bristol. [6624

REX-J.A.P. 1912 De Luxe Model, 8h.p., 2-speed coachbuilt sidecar, in very good order; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0551

REX-J.A.P., 1913, 8h.p., De Luxe model, torpedo coachbuilt sidecar, overhauled and guaranteed perfect; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0431

REX-J.A.P., 1913, special finish, 19 gn. sidecar, splendid combination, speedometer, lamps, all accessories, and spares; cost over £110, will accept £76; after 8 o'clock.—52, Brownswood Rd., Finsbury Park. Trial run. [6721

REX-J.A.P. de Luxe, 8h.p. twin, with sidecar, September, 1912, with speedometer, and all accessories, only run 5,000 miles, in splendid condition; cost over £100 when new, £45, no offers.—Seen by appointment, Harrison, 50, Oxford St. [6641

Roc.

ROC, 4h.p., 2-speed, F.E., Bosch, Druids, fine order £10/10.—45, Church Rd., Acton. [X8851

Rover.

ROVER, 1914, 3-speed model, new, slightly soiled offers.—Eagles and Co., Acton. [X8931

ROVER, 3½h.p., mag., good tyres, splendid order £14/10.—11, Squarry St., Tooting. [X8851

1914 3-speed Rover and Sidecar, tested only, dri feed, lamp, horn; 50 gns.—Howley, Devizes. [X8831

3½h.p. Rover, very good condition, spring forks, 2 and B., Badcock's by pass, takes sidecar; £5/10 —138, Catherine St., Leicester. [X8781

ROVER, 1914, free engine, T.T. model, brand new shop-soiled only; list £55, accept £45.—P. J Evans, John Bright St., Birmingham. [X8801

ROVER Sidecar Combination, latest 1914, slightly shop-soiled; list £75, accept 60 gns. to clear.—P. J. Evans, John Bright St., Birmingham. [X8801

LATE 1913 3-speed Rover and Rover sidecar for sale fitted lamps, generators, spares, etc., in perfect condition; £45.—Blunt, Bray's Lane, Stoke, Coventry. [X8751

£42.—1913¼ Rover sidecar combination, 3 speed thoroughly overhauled, new Kempshall tyre, new Pedley belt, done 3,000, tools, accessories, absolutely perfect condition.—8, Beaufort Rd., Reigate. [X8781

1913¾ 3½h.p. Rover, 3 speeds, with coachbuilt Rover sidecar, complete with lamps, speedometer, horn, luggage grid, petrol carrier, spare tubes, etc., very little used, splendid condition; £55.—19, Park Rd., Coventry [X8741

1913 Rover Combination, 3 lamps, speedometer, accessories, including spare tyre, tube, and belt new Dunlop heavy tyre, inner tube on back wheel, new belt, excellent touring condition; bargain, £48/10 cash —Oakes, 56, Portway, Frome, Somerset. [X8771

1912¾ Rover, 3-speed model, with latest drop frame in magnificent condition throughout, Miller lamp set, rear light, horn, spare valve, etc., new extra heavy Bates just fitted to back wheel; accept £35; would entertain lightweight part.—Ivydene, Dukesthorpe Rd Sydenham, S.E. [X8931

Rudge.

1914 Rudge Multi and Sidecar; £55.—1, The Broadway, Muswell Hill, N. [6691

1912 Rudge, 3½h.p. T.T.; owner going abroad; sacrifice £20.—Sturley, Banbury. [X8771

RUDGE Multi, excellent order, new tyre and belt £27.—Jackson, New Rd., Kendal. [X8681

1913 5-6h.p. Rudge Multi, little used, and perfect £40.—Walker, Fishburn, Ferryhill. [X8921

RUDGE, 1912, T.T., in good condition, very fast £19.—Wilkins, bootmaker, High St., Edgware. [X8811

3½h.p. Rudge Multi, 1913½, clutch model, with tool and accessories; £35.—Manning, 53, Park Rd Coventry. [X8401

RUDGE, 3½h.p., Dunlop tyres and belt, Miller, Cowey fast and reliable, perfect condition; £33.—Brooke Sturry, Kent. [X8771

RUDGE, 1913, T.T., special, spares, accessories, perfect; £30.—Jones, Inglenook, Hainault Rd Leytonstone. [6731

RUDGE, 1912-13, clutch model; 25 gns.; condition as new.—Longman, 1, King St., Acton. Tel. Chiswick 1578. [6731

1914 T.T. Rudge Special Competition Machine, only done 300 miles; £35.—Thompson, 408, Commercial Rd., Portsmouth. [6711

MOTOR CYCLES FOR SALE.

Miscellaneous.

CHATER-LEA, 3½h.p. J.A.P., B.S.A. carburetter, tyres good, and sidecar, or separate; £16/10.—Lake, 218, Westbourne Grove, W. [6728

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SEND for motor cycle clearance list. Douglas, Triumph, Rudge, Rover, Singer, Norton, etc., and sidecars.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [0581

1914 Rex-Jap, Douglas, Williamson, Bradbury, and Sun Villiers machines; special exchange quotations; test this.—Halifax Motor Exchange, Westgate, Halifax. [0446

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morrie Garages, Oxford. [0314

CHATER-LEA, 1913, 8h.p. J.A.P., 3-speed gear box, chain drive, all accessories, lamps, horn, watch, speedometer, many spares, and coachbuilt sidecar, splendid outfit; cost £110, sell £59.—9, Kent Gardens, Ealing, London. [6429

3h.p. A.J.S., and sidecar, just delivered, 84 gns.; 7h.p. 1914 Indian, electric starter, £52; 5h.p. A.J.S., 35; 7h.p. 1913 Ariel, with sidecar, £42; 3½h.p. Excelsior, £20; 3½h.p. Rudge, £24; 2½h.p. Singer, with 3 speeds, £24.—Meldrum, Esplanade, Dundee. [X8768

PROMPTTEST Delivery of any make of motor cycle on our easiest deferred payment system. Exchanges entertained. Our experience at your disposal. Tuition free. Please favour us with a postcard.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [0533

DON'T Forget we are open to spot cash offers, or will take easy payments; no extras; payable half down and the balance in 6 monthly instalments till our stock is cleared. Clyno, 1912, 6h.p., 2-speed, and sidecar, £42; Premier, 1912½, 3½h.p., 3-speed, fine order, £36/10; also another, 2-speed, at £35; Brown 1913 V twin, 3-speed, 3½h.p., scarcely used, £36; M.M.C., 3½h.p., in beautiful condition, £16/10; Zenith-Gradua, 3½h.p., with sidecar, £38/10; Baby C.I.D. 2-seat car, complete hood, screen, lamps, horn, £58/10; Bradbury, 1912, 3½h.p., T.S.U. 2-speed, with Bradbury sidecar, £33/10; also another, 1911 model, with spare F.E. wheel, £27/10; Humber, 3½h.p., 1911, 2-speed, fine order, £28/10.—Note the firm, Lamb's, 151, High St., Walthamstow. [6618

MORGAN and Maxwell.—We have a large stock (over fifty) of machines, in A1 condition, at exceedingly moderate prices to clear. They include Ariel, Antoine, Bat, B.S.A., Bradbury, Chater-Lea, Douglas, Enfield (fine twin sidecar combinations), F.N., Humber, Indian, Champion, J.A.P., L.M.C., Moto-Reve, New Hudson, Premier (two, one lightweight, one 3½h.p.), Rex (several fine Rexes), Rudge, Scott, Singer, Triumph, Zenith. Two good cycle cars for sale cheap. We can give quick delivery of new mounts. Write for details of the M. and M. 2-stroke. Magnetos, clutches, 2 and 3-speed gears, engines, air and water-cooled, Binks, B. and B., Senspray carburettors, decompressors, cheap sidecars, lamps, belts, etc. All rock bottom prices. Come to us if you want a machine for military use. We will give you a specially low quotation.—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham, London. [X8825

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MOTOR CYCLES, ETC., FOR HIRE.

FOR Hire, sidecars, 7/6 per day. £1 per week.—Rey, 378, Euston Rd., and 173, Gt. Portland St., W. [4975

MOTOR Cars and Cycle for hire, day or week; terms on application.—Rey, 378, Euston Rd., and 173, Gt. Portland St., W. [4974

TRICARS FOR SALE.

5h.p. Star Tricar, good running order, w.c., 2-speed, free engine, good tyres, chain drive; £8 cash.—Chase, Sawbridgeworth. [6685

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ANNUAL Clearance Sale of second-hand and shop-soiled sidecars, chassis, bodies in cane, wicker, and coachbuilt, wind screens, Cape hoods, aprons, luggage grids, etc. Be in time for the snips.

HOW are These for Bargains?—1912½ 2¾h.p. Royal Enfield, unscratched, cost £53/10, first offer over £30 secures; 1912 3½h.p. Rover, 2-speed, with brand new 26/16 coachbuilt sidecar, machine used for trials only, cost over £80, accept £50. [X8872

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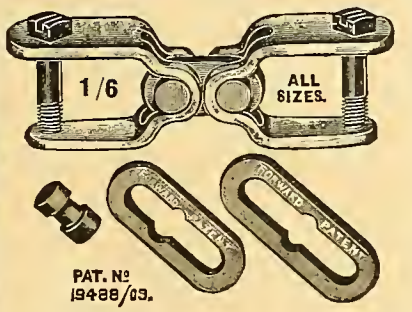

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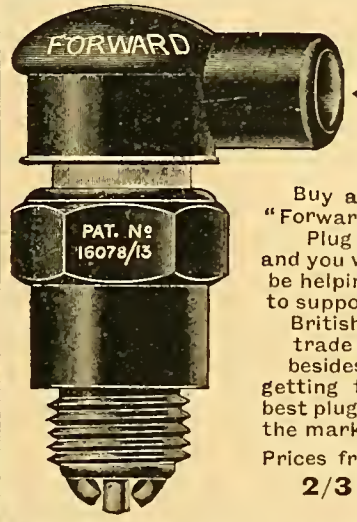

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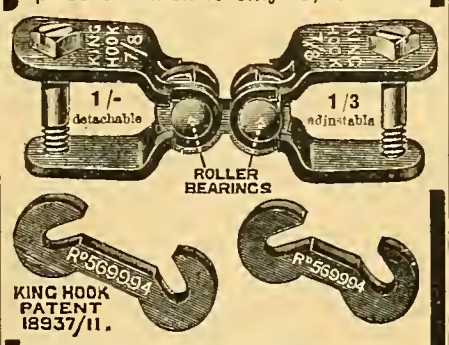

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TERRIFIC Speed at Highgate. Mr. —— riding flying Middleton entered trap at 45, saw copper, stopped, turned round, flew out of trap at 60 m.p.h. Policemen jumped on pavement, women screamed, cows laughed, dogs barked. See local rags

TESTIMONIAL.—Sirs,—Your flyer is I.T. I never need ride alone now, it's a proper bird catcher.

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MIDDLETON'S Agent, Rey, Gt. Portland St., and Euston Rd.

MIDDLETON'S Sidecars, 27, Stroud Green Rd., Finsbury Park, N. 'Phone: Hornsey 1584. [5394

1913 Gloria Sidecar, torpedo cane body, spring wheel, fits Triumph; £6.—Farrar's.

1913 Portland Sidecar, enclosed body, 26in. wheel, extra fine condition; £3/15.—Farrar's.

WE are offering big reductions in Forlow sidecars. Don't miss this golden opportunity.—Farrar's Motories, Halifax. [X8390

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SIDECAR, double seater, quick joints, good order; £3/15.—25, Lavant St., Petersfield. [X8828

GOOD Wicker Sidecar, apron, etc., fit any make; £2.—Toms, Catherine St., Leicester. [X8786

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B.S.A. Canoelet Sidecar, 1914, done 5 miles only; cost £14, will take £10.—R. Dee, 50, Gordon Rd., Herne Bay. [6683

WATSONIAN Wicker Sidecar, lightweight, fittings; accept £5/10; makers' guarantee.—H., King's Ash, The Lee, Bucks. [6752

SIDECAR Combinations.—We have finest stock in the Midlands. Call and inspect.—Colmore Depot, 49, John Bright St., Birmingham. [X8758

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CANOELET, Swan, and Middleton record breaking Sidecars; trade supplied.—Sole wholesale agent London, Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6609

BASTONE'S for Sidecars.—Latest torpedo models from £5/18; bodies from 36/-; cigar pattern bodies, £3/17/6.—228, Pentonville Rd., King's Cross, London, N. [6411

WELDED Sidecars.—Parcells' art catalogue of welded sidecars is the most detailed list issued; 30 models; trade quoted.—Parcells, 78, Charlotte St., Tottenham Court Rd., W. [3760

SIDECARS AND FORECARS.

GROSVENOR Sidecars, lightweight cigar shape model, specially suitable for Douglas machines, £8; coach-built models from £10; catalogue free.—Grosvenor Motor Co., Bradford St. West, Bolton. [X8068

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NEW Coachbuilt Body, Indian red; 55/-.—3, Sussex St., Severn Sisters Rd., nr. Nag's Head. [6768

CYCLE CARS.

1913 G.W.K., perfect, Stepney; absolute bargain, £95.—Rey, 378, Euston Rd., London. [6488

1913 Warne Cycle Car, beautiful condition; real bargain, £55.—Rey, 378, Euston Rd., London. [6489

G.N. Type Sporting 2-seater, perfect, done 700; £35.—Morgan, c/o 460, Dudley Rd., Wolverhampton. [X8837

BEDELIA Cycle Car, very sporty, hood, screen, lamps, tools, etc.; £37.—Brandon, Lyndhurst, Tring. [6757

1913 Humberette, air-cooled model, new 1914 back axle, complete; £80; combination part.—11, Lesley Rd., Southport. [X8903

G.W.K., 1913, 8h.p., 4 speeds, hood, screen, all accessories, grand condition; £95.—P. J. Evans, John Bright St., Birmingham. [X8806

HUMBERETTE, 1913, 8h.p., 3 speeds, complete lamps and all accessories; £75. — P. J. Evans, John Bright St., Birmingham. [X8807

CHATER-LEA 2-seat., 7-9h.p. Peugeot, 3-speed, chain drive, nearly new; 56 gns.; exchange combination. —9, West Hampstead Mews, N.W. [6712

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38. —The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0527

CALTHORPE Minor, 1914, brand new, 10h.p., 3 speeds, ready for the road, shop-soiled only; list 168 gns., accept 150 gns.—P. J. Evans, John Bright St., Birmingham. [X8809

NEW and Second-hand Lagonda, Calthorpe, and G.W.K. light cars, also G.N., Sabella, R.C., and Bedelia cycle cars; inspection invited.—Halifax Motor Exchange, Westgate, Halifax. [0390

ONE A.C. Pattern Cycle Car, 4½-6h.p. water-cooled engine, wants dash and mudguards, new, £30; one Crouch Carette, complete, £55; call and inspect.—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham, London. [X8826

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SINGER Light Car, 10h.p., 1914, for immediate delivery; trade supplied.—Rey, 378, Euston Rd. [6612

6h.p. Peugeot Car, hood, screen, lamps, new Dunlop tyres, 3-speed.—Shreeve, 61, Magpie Rd., Norwich. [6762

DARRACQ Car, 2-seat., scuttle dash, machinery perfect; £50, or exchange furniture.—Midland Motor Co., Oxford. [X8813

FORD 5-seat., late type, in splendid order, mileage 6,000; sacrifice, £58/10.—377, Kingsland Rd. 'Phone: 2891 Dalston. [6748

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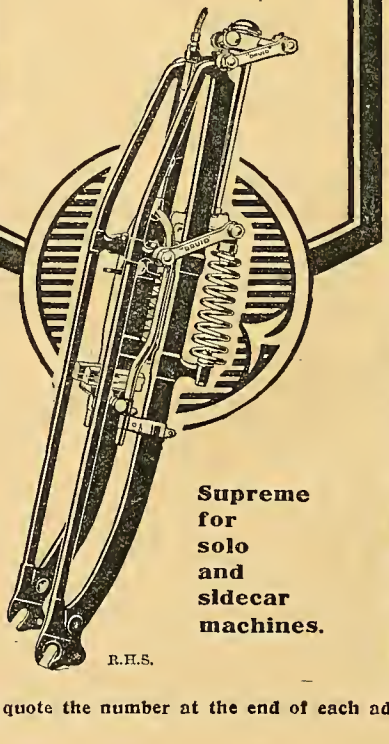

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8h.p. De Dion-Progress Light Delivery Van, good running order; £30; will accept Douglas or Triumph part.—Wilson, 16, Trinity St., Gainsborough. [X874

1911 10-12h.p. Darracq, 2-seat., splendid condition speedometer, Stepney, lamps, spares; £75; exchange 1914 combination.—Rees, Whitehall, Bristol. [X879

6h.p. De Dion Bouton 2-seat. Car, water-cooled, speed, reverse, 1913 Senspray, screen, lamps, horn spares; sell £20, or exchange for motor cycle; seen after 6 p.m.—Stein, 2, Standard St., New Kent Rd., S.E. [663

BARGAINS in Chassis and Char-a-bancs. Daimler Delaunay, and Sunbeam chain-driven chassis, fitted with solid tyres, for sale cheap; Daimler char-a-banc fitted new torpedo body, seat 15, £200; Crossley ditto £175; Star ditto, £165; Delaunay-Belleville ditto, £185 Napier ditto, £150; Unic taxi, 12h.p., £35; Renault landaulet, 12-16h.p., £175; several touring cars cheap 500 solid band tyres, cheap.—Star and Garter Garage Kew Bridge, Brentford. Tel.: 1031 Chiswick. [058

ENGINES.

NEW 1911 6h.p. Rex, mag.; £11.—Maynard, 75 Warwick Rd., New Southgate. [657

3½h.p. Precision, 1911¾, silencer, requires new piston offers.—Oliver, Draper, Hexham. [664

REX Engine. 1911-12, 3½-4h.p., with magneto, nearly new; £8/15.—1, Ebner St., Wandsworth. [X885

3½h.p. Triumph Engine, with carburetter, magneto silencer; seen running; £8/10.—Evers, Wath. [X873

ABSOLUTELY New 5-6h.p. Blumfield Engine Set (less magneto); £11/11.—Farrar's Motories, Halifax. [X838

1911 6h.p. Rex Engine and Bosch mag., nearly new; spot cash offers. — Toms, Catherine St Leicester. [X878

1912 Rudge Engine, Senspray, Bosch mag., bac wheel Dunlop; offers.—Lockyer, Lyndhurst, Park stone Av., Hornchurch. [670

3h.p. Rover Engine, carburetter, silencer, and pip free engine, clutch, perfectly sound; £3/10.—49 High St., Saffron Walden. [X856

BASTONES.—New Rex, 1913, 6h.p. twin engine, wit Bosch mag., £16/15; new Blumfield 3½h.p. single less mag., £8/15.—228, Pentonville Rd., King's Cross London, N. [640

6h.p. Precision Twin, late 1913, new, complete wit Eisemann magneto, and silencer; £17/10, or nearest offer, cost £27.—The St. Vincent Motor and Cycle Co Ltd., 161-169, North St., Glasgow. [X888

3½h.p. White and Poppe Engine, latest model, com plete with Brown and Barlow carburetter, silencer and pipe, mag. platform, cover, and chain, pulley, an engine plates, bearings, all tight, perfectly sound; £5/10 —Walbro Cycle Co., Saffron Walden, Essex. [X855

3½h.p. Fafnir Engine, m.o. valves, fitted with mak and break contact breaker wheel to take mag neto if wanted to be fitted, complete with exhaus pipe and silencer, in good order, no scrap, accep £4/10; Brown-Barlow h.b.c. carburetter to suit, 12/6 coil, 7/6; will sell any item separate.—Dene Moto Cycle Co., Haymarket, Newcastle-on-Tyne. [X888

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IMPORTANT.—Parker and Rice give 12 month written guarantee with each repair.

PARKER and Rice, Johns Place, King St., Acton London.—State your trouble; let us quote you. [297

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ELITE.—Wood-Milne belts, rubber and canvas, 1½in. 1/6 per ft., ¾in. 11d. per ft., ⅝in. 10d. per ft.

ELITE.—Special clearance line of Lyso belts, fully guaranteed by the manufacturers (Avon Indi Rubber Co.), 7ft. 6in.×⅞in., 7/- each; 7ft. 4½in., to suit Triumphs, 6/9; only a few left.

ELITE.—Continental belts, rubber and canvas, 1in 1/6 per ft. (list price 2/2), ⅞in. 1/2 (list price 1/11), ¾in. 1/- (list price 1/7), ⅝in. 10d. per ft. (list price 1/5).

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BASTONES.—Best quality leather and chrome belting, ⅝ 11d., ¾ 1/1, ⅞ 1/2, 1in. 1/4, 1⅛in. 1/6 per foot.—228, Pentonville Rd., King's Cross, London, N. [6409

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LEGOATE, Edinburgh, for tyre value.

LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchers the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties Make the Clincher your safeguard.—See below for approval terms Be assured of prompt despatch.

LEGGATE, Edinburgh. — Clearance.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6; 26×2¼ 32/6, list £2/7/3 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10 The Dreadnought is specially designed for passenger machines, is built of 6-ply fabric and has a tread half an inch thick. An experienced sidecarist says: "Dreadnought is undoubtedly IT."

LEGGATE, Edinburgh.—Clearance.—1914 Clincher De Luxe heavy rubber studded, beaded covers: 24×2 24/6; 26×2⅛, to fit 2¼ rims, 27/6, list £2/1 26×2½, 29/6, list £2/2/9. A customer writes: "Have now run the 26×2⅛ 'De Luxe' tyre which I bought from you 6,896 miles on my Triumph, and the tread still looks quite fit for n considerable mileage yet It is the best value I have ever struck."

LEGGATE, Edinburgh.—Clearance.—1914 Clincher A Won, heavy rubber studded, beaded covers, 26×2 21/-, list 31/6; 26×2¼ 23/-, list 34/-; 26×2½ 23/- list £2/1/6.

LEGGATE, Edinburgh.—Clearance.—1914 Clincher sidecar covers, rubber studded, beaded edge, 26×2¼ and 26×2½. 16/-.

LEGGATE, Edinburgh.—Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅛ 6/6, 26×2½ 7/-; list almost double.

LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against cash, which will be refunded in full if goods not approved of.

LEGGATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh 'Phone: Central 3195. [X8447

TYRES.—Telegrams, Tyres; speciality, Tyres; reduced liste, all makes.—Graham, Vine St., Birmingham. [6437

BASTONE'S.—Hutchinson 1913 T.T. rubber-studded covers, 26×2⅛, fit 2¼ rims, 24/-; Passenger, 26×2 20/-, 26×2½ 28/-.

BASTONES.—Peter-Union make covers, 26×2 12/-, 26×2¼ 15/-, 26×2½ 17/6, 28×2 15/-.

BASTONES.—Michelin 1914 covers, beaded edge, 26×1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18/6, 28×2 16/6: wired edge, 26×1¾ 11/6, 26×2 13/9, 26×2¼ 15/-, 26×2½ 16/-, 28×2 14/9; Michelin tubes in stock.

BASTONES.—Guaranteed red tubes, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.

BASTONES, 228, Pentonville Rd., King's Cross, London, N. 'Phone: 2481 North. [6410

DESPATCH Riders, etc.—Tyre bargains; excellent line of brand new; 7 days' approval; satisfaction guaranteed: 26×2 13/6, 2¼ 15/-; heavy tyres, suitable for 5h.p. machines, special value, 26×2 15/6, 2¼ 17/6, 2½, 21/-; Palmer heavy fabric, clearance, 650×65 21/- each; tubes, heavy red, 26×2 5/6, 2¼ 6/-, 2½ 6/9; butt-ended, 2in. 6/9, 2¼ 7/7, 2½ 8/8. Lamp bargains; head lights plated and oxidised, 10/6 each, cost three times as much; hundreds of others, all leading makes, also accessories; state your requirements.—Armstrong and Co., 17, Goldhawk Rd., Shepherd's Bush, London. [6716

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7ft. x 5ft. x 7ft. „	2	10	0
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ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Send for price list, together with free sample of Elite Sticktight patches.

ELITE.—Kempshall clearance covers, heavy non-skid, 26×2¼ 37/6 (list price 45/-), 26×2½ 40/- (list price 50/-), 650×65 45/- (list price 67/6).

ELITE.—Kempshall clearance covers, heavy anti-skid, 26×2¼, 24/6 (list price 32/6); 28×3 at 35/- (list price 57/6).

ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 28/6.

ELITE.—Dunlop Pillion covers, 1913 stock, 650×65; 27/6, list price 50/-.

ELITE.—Heavy Three Spires covers, 26×2¼, B.E., 15/- (list price 27/6).

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ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2¼ 22/6 (list price 41/3), 26×3 to fit 2½ rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 26×2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

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ELITE.—Michelin clearance covers, beaded edge, 26×2 light 8/9, 26×2½ 13/9; Trident, 26×2½ 24/-; Standard, 26×2¼ 22/6, 26×2½ 24/6.

ELITE.—Clearance Michelin covers, wired on; Standard 26×2½ 26/-, 26×2¼ 24/6.

ELITE.—Clincher heavy rubber studded covers, 26×2¼ 17/6 (list price 34/-).

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ELITE.—Special heavy rubber studded covers, suitable for back wheel of 3½h.p. machines; 15/-.

ELITE.—Clincher 700×80 covers, plain tread 21/6, heavy grooved 25/-; Clincher tubes, 700×80, 6/6, suit 650×65 rims.

ELITE.—Clincher extra heavy tubes, best quality, 26×2¼ 6/6.

ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26× 3 7/6, butted 1/3 extra.

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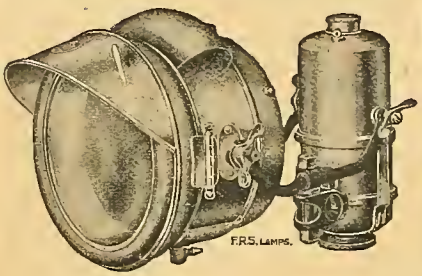

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Lens.	Beam.	Price.
6 in.	1,200 ft.	72/6 and 78/6
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4½ in.	800 ft.	52/6 and 58/6

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"I made the fastest time of the day in the Derbyshire and N. Stafford Automobile Club. It was a very wet day and most of the other competitors suffered from Belt-slip. The B.A. Belt was simply perfect, never slipping at all."

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⅞" **2/3**; 1" **2/6**; 1½" **2/9**; per ft. including fastener.

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STOLEN.

STOLEN,

ON August 19th,

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A 1912 Douglas, bearing trade numbers C.P. 366, and engine number 5747.—Reward for information leading to discovery. [6678

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WANTED.

SPARES. — Morgan and Maxwell, Streatham. [X7877

1914 3-speed Triumph or Rover combination; cash.—186, South Lambeth Rd. [X8859

WANTED, 1913 3½h.p. or solo machine; spot cash.—Fagin, Gordon Rd., Aldershot. [X8759

3½h.p. Engine, or twin, magneto, silencer, carburetter, new or second-hand.—Evers, Wath. [X8736

WANTED, magneto, carburetter, lamp set, tyres.—Precious Co., 303, High Holborn, London. [X8927

CASH Waiting.—Wanted, magneto motor cycles, any condition.—Box 6,629, *The Motor Cycle* Offices, Coventry. [X8851

WANTED, S.H. 3½h.p. N.S.U. frame.—Price and particulars, Williams, 70, Elwick Rd., W. Hartlepool. [X8888

SIDECAR Wanted, lightweight, suitable for Douglas, 2¾h.p.—F.J.R., Ranmore, Park Rd., Kingston-on-Thames. [X8854

WANTED, Gloria sidecar, for cash, or exchange Rudge Multi, excellent order, and cash.—Jackson, New Rd., Kendal. [X8688

WANTED, modern lightweight, cheap for cash.—Full particulars, Melville, 28, Ashchurch Park Villas, Hammersmith. [6767

WANTED, speedometer, speed gear, lamp set, carburetter, clutch; cheap.—Blencathra, Highfield Rd., Walton-on-Thames. [X8863

WANTED, powerful magneto motor cycle; exchange good upright modern piano; design sent.—18, Magdala St., Smithdown Rd., Liverpool. [X8891

WANTED, 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories, cheap.—125, London Rd., Manchester. [0560

WANTED, motor cycles, cycle cars, good cash prices —Wandsworth Motor Exchange, Ebner St., Wandsworth own Station. 'Phone: Battersea 327. [X6518

SPOT Cash Offers for 200 new and second-hand motor cycles, sidecar combinations, and light cars; trade supplied.—Halifax Motor Exchange, Westgate, Halifax. [0388

WANT 1912-14 motor cycle, also accessories, magneto, carburetter, speedometer, and sidecar; cheap for cash.—Grove, 224, Fore St., Upper Edmonton, London. [X8926

SOCIABLE 6-8h.p. Twin, 2-speed, mag., tiller steering; give fullest particulars, also weight and overall measurements.—51, Plymouth Grove West, Manchester. [6695

WANTED, lightweight motor cycle, very low, with sloping bar, less engine, tyres, and saddle, suit 2½h.p. Precision, any condition; cheap.—Anglo, Hopeman, N.B. [6688

WANTED, your present machine in exchange for a 1914 James, Zenith, Levis, Indian, or B.S.A.; good allowance prices.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0409

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell London Motor Salerooms, 80, High Rd., Streatham, London. Catalogues of the new M. and M. 2-stroke on application. [0526

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£5 and 33 gn. Hicks Piano for motor cycle. — 19, Lewis Grove, Lewisham. [X8840

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EXCHANGE 6h.p. 1913 Rex and Millford sidecar, for 2-speed Douglas.—Cross, Jeweller, Rotherham. [X8820

EXCHANGE good typewriter, perfect order, for good rigid sidecar.—18, Magdala St., Smithdown Rd., Liverpool. [X8892

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3½in. Drummond Lathe, 5in. chuck, every accessory, and tools, for Baby Levis.—7, Manifold Rd., Eastbourne. [6648

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No. 108b—**2/-**, Complete as illustrated. with three Flags. Postage 1d.

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No. 108a. Large Motor Cycle Size, **6/9** complete, Postage, 2d.

All with Polished Aluminium Number Plate Clip.

FLAG MASCOTS A SPECIALITY.

Motor Cycle Flags mounted on Nickel-plated Pins, with solid brass ornaments.

Sizes—6" × 4"	..	**10d.** each.	Ordinary Pin.
" 6" × 4"	..	**1/1** "	Stout Pin.
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With Nickel-plated Number Plate Clips, or Handle-bar Clips, **6d.** each extra.

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ENGLISH, FRENCH, BELGIUM, RUSSIAN, Etc.

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6" × 3"	..	Silk.	Stout Pin.

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WE WANT YOU to FIT a
SUPREME Sidecar
TO
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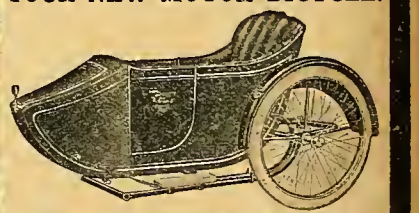

Graceful, Low, Comfortable, refined in every detail, and after once lining up to machine you can detach or attach sidecar to machine in 30 seconds with the Supreme Lightning Connections.

Models from **£9** to **£14**

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An index to advertisements will be found on the page facing the back cover.

Sport and the Crisis.

WITH the cry of the Chancellor to "carry on" ringing in one ear, and the insistent demand of Lord Kitchener echoing in the other for more men for the front, many feel in rather an uncertain position. Those of us who have labour dependent on us, who are married, or have other and near ties which irrevocably bind us to the humdrum civilian life are quite justified, nay more, are obliged to stay. But for those who are young, single, and have no responsibilities, there is but one course—"Go to the Army." It is estimated that there are now in England over three million single men between eighteen and thirty years of age. Every one of these, if medically fit, and if no one's subsistence actually depends upon their earning capacity, is permanently disgraced if he holds back from offering his services. It is nothing short of national disgrace that there should be *married* civilians enlisting while *unmarried* shirkers of their duties lounge at street corners or amuse themselves in idling about the country or attending sports meetings.

These remarks are prompted by the vision of numbers of such young men seen at a recent motor cycle event. Many of the old familiar faces among the competitors were absent—all honour to them for being where they are. We hope that a similar spirit may soon actuate the minds of those who can go but who linger over long before departure. No sport can produce so many eligible recruits as that of motor cycling, and all those young unmarried men who rushed for coveted posts as despatch riders, with the fine emoluments attached, who were too late in the field, should go as fast as their machines can bear them to the nearest recruiting office and enlist as a soldier of the King.

One more word. A great many people seem to labour under the delusion that events in the motor cycle world are merely run to amuse, and that anyone who supports or takes part in them should be at the front, but these people cannot see below the surface. A reliability trial, a hill-climb, a speed event, are merely cogs in the great industrial machine. They may possibly be the lighter side of commerce, but they are none the less commerce. Otherwise, why do manufacturers go to the expense of entering and providing employees to ride and further advertise the results to the world? The answer is obvious, and to practically all *participants* there is a certain responsibility attached in the shape of workmen being employed to reproduce his successful machine and thus cause the circulation of wealth, without which the country would fall. But the idle onlookers do not, for the main part, contribute to this general toil, and are primarily concerned in spending a pleasant afternoon. These are the men who should be swept at once into Lord Kitchener's net. Then, and then only, will the country be proud of them.

A Matter of Conscience.

OF course the actual holding of competitions is a matter of individual club conscience, and we cannot pretend to dictate to such bodies as to what their conduct should be. But we will say that if there is the slightest possibility that the holding of even a few competitions would in any way exert a retrograde effect on recruiting, we would immediately use our utmost endeavours to suppress them. At the same time it must be borne in mind that H.M. the King himself has personally advocated the holding of race meetings and has gone so far as to enter into engagements for his own horses, and many people may well say if horse racing, why not motor cycling? To sum up, we would say that if adequate troops are raised to satisfy the authorities, there is every reason to "carry on" as usual with competitions, but until a public pronouncement be made to that effect, no great number of motor cycle club, or for that matter any other events, can be carried out with propriety.

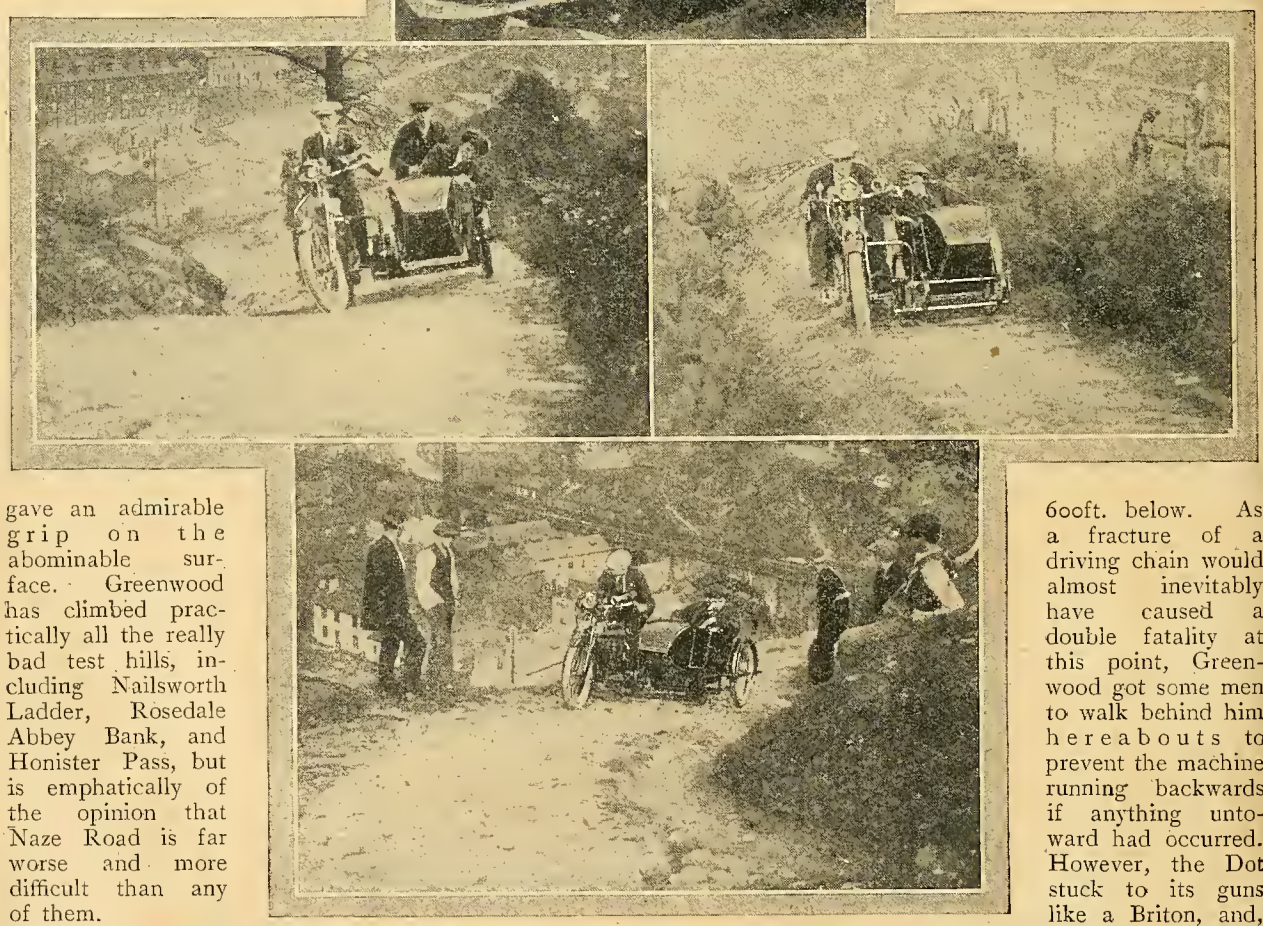
THE VERY LATEST FREAK HILL.

An Account of a Sidecar Ascent of Naze Road, Todmorden.

IN the issue of *The Motor Cycle* of August 13th a letter appeared in our correspondence columns from a reader concerning the discovery of a terrible hill near Todmorden, known as Naze Road. This hill is so severe, and the surface so villainous, that, although technically a main road hill, all goods are carried up on pack horses and donkeys, as it is beyond the power of beasts of burden to draw wheeled vehicles up its stony, rutty gradient.

Hearing that attacks were being made on the hill by sidecar enthusiasts, Maurice Greenwood, the competition rider, decided to attempt the hill on his 8 h.p. Dot sidecar outfit, on which a Jardine gear giving ratios of 4¾, 8, and 14½ to 1 was employed. The power unit was a J.A.P. The tyres were 650 × 65 mm., the rear one being steel-studded, which gave an admirable grip on the abominable surface. Greenwood has climbed practically all the really bad test hills, including Nailsworth Ladder, Rosedale Abbey Bank, and Honister Pass, but is emphatically of the opinion that Naze Road is far worse and more difficult than any of them.

Before attempting the climb, the driver and his passenger walked up the hill for a preliminary survey, and found a number of gutters about six or eight inches deep, which they roughly filled up with stones to prevent the frame of the sidecar being damaged by contact with the ground if the wheel should happen to drop into one of these crevices. The climb starts with a very roughly paved surface, after which it rapidly deteriorates, and the sidecar chassis caught on several of the big boulders sticking out from the track, obstructions which made steering exceedingly tricky, as they flung up the front wheel and wobbled it about badly, despite the efforts of the driver to keep it straight. The first bad bend is a hair-pin with a measured gradient of 1 in 2½, and this is a very dangerous corner, as there is nothing to stop machine and rider toppling over a precipice into a canal 600ft. below. As a fracture of a driving chain would almost inevitably have caused a double fatality at this point, Greenwood got some men to walk behind him hereabouts to prevent the machine running backwards if anything untoward had occurred. However, the Dot stuck to its guns like a Briton, and, despite sparks and showers of stones flying from the



BIRD'S EYE VIEW (AT TOP) AND SCENES DURING THE FIRST ASCENT OF NAZE ROAD HILL, TODMORDEN, ON AN 8 H.P. DOT-J.A.P. SIDECAR.

The Very Latest Freak Hill.—

studded tyre, it gradually forged its way round the bad corner and onwards and upwards towards the summit. Several times the surface became so bad ere the white farmhouse at the top was reached that there was grave fear of the whole outfit overturning and being hurled to destruction down the heights on the passenger's left. Arrived at the summit, the occupants of the farm said that no sidecar had climbed the hill before with the passenger continuously seated in the sidecar.

Out of the Frying Pan—

When the top is reached it must not be imagined that the hardy voyager's difficulties are at an end. In a way they are only just commencing, or, at best, only half way accomplished. Either he must descend Naze Road, an act of folly until brakes are numbered about half a dozen per wheel, or else go on over a rough piece of moor. This Greenwood and his companion decided upon, and soon after had the unpleasant experience of finding themselves upset in a bog, with the outfit sinking before their very eyes. A wild rush to a neighbouring farm to fetch a horse and ropes, and soon the sidecar and machine were hauled to safety on to a piece of solid ground. Arrived back in the valley, the prospectors decided to put the Dot at Watty Scout Hill, which is opposite to Naze Road and runs in the opposite direction. This hill has a gradient of 1 in 3, but was climbed easily enough. Coming down, however, was a different story, for the brake rod broke and the machine shot forward. First speed was jammed in and the machine slowed a bit. The passenger jumped for it, and turned a complete somersault, luckily without serious hurt, and, relieved of his weight, Greenwood managed to pull up after the heels of his boots had been torn off by friction with the ground!

Thus ended about as exciting a day's hill-climbing as anyone could desire. It should be added that no one should try Naze Road with a sidecar without ample power and first-class brakes, tyres, and driving chains. Lack of care with any of these details might easily cause a serious, if not fatal, accident.

Some Lighting Refinements in America.

By ROAD RIDER.

I PRESUME most British riders are aware that the popular illuminant among motor cyclists in the United States is compressed acetylene, stored in cylinders similar to our well-known "D.A.," and known as "Prestolite." But the ingenious Yank is not content with our cruder systems. His cylinder is fitted with a pressure reducing valve; it does not matter how much or how little the careless rider opens the stop-cock, or whether his cylinder contains the full original charge of 6 cubic feet or is down to its last 15 min. In every case the automatic valve reduces the pressure to 2 ounces, and the flame cannot flare or be dim so long as any gas remains in the cylinder. Furthermore, the user does not necessarily dismount to light up at the approach of twilight, for the burner of his head lamp may be fitted with a lighting apparatus at a nominal fee. The lighter may either consist of a spark gap in circuit with the magneto ignition, and operated by a switch on the tank, or, alternatively, a friction striker, similar to those used in petrol pipe lighters, may be screwed to a clip encircling the burner. In respect of weight, cost, and reliability, these refined outfits compare very favourably with the highest ideal electric dynamo.

Some American designers are very outspoken in asserting that the front fork is the only part of the machine on which an electric lighting outfit should be mounted. They claim that this position preserves the delicate batteries, etc., from road shocks, inevitable with a more rearward position; and that motor bicycles already suffer from excess of weight on the back wheel, so that any further weight additions must be thrown forward (several early samples of electric dynamo outfits weigh from 40-70 lb.); moreover, the electrical connections can then be kept short and tidy.

The writer is inclined to regard this doctrine as pernicious nonsense. It is certainly desirable to mount additional weight—if any—on the front wheel from the steering and balancing standpoints; any veteran who remembers the stern-heavy De Dion tricycles will realise how vastly even weight distribution makes for comfort. But it is folly to carry so expensive an item as an electric dynamo in so exposed a position. A lamp nearly always gets damaged in the event of a smash. If a dynamo or battery box is fitted to project sideways or forwards near the prow of a machine, repair bills will rise by leaps and bounds. The Indian position is unsurpassable for a dynamo; its weight is as near the front wheel as possible, but injury in an ordinary tumble is not probable. Designers who employ batteries, and mount them in a rearward position, but without the protection of a rear sprung frame, will soon discover they are asking for trouble; but this is a good thing, for they will all be driven to adopt rear-springing at last, if only to ensure the longevity of their cells.

Three well-known riders in Christchurch, N.Z., who are all mounted on Triumphs. Their names, reading from left to right, are: C. Bonnington, G. B. Brown, and F. Haworth.

THE MOTOR CYCLE MOBILISATION.

A Graphic Description of How the Government Collected Despatch Riders.

BY ONE OF THEM.

THAT the motor cycle is destined to play a prominent part in the present campaign as a reliable and speedy despatch carrier at the front will be judged by the following experiences of one of the special reservists newly enlisted to this branch of service.

It will doubtless come as a surprise to many that the motor cycle has at last come into its kingdom, and has been recognised by the Government as a most valuable asset in modern warfare to such an extent that many thousands of pounds have been spent in originating and maintaining a corps of special reserve motor cyclist despatch riders.

The first I heard of this scheme was on the 5th August at Newcastle-on-Tyne, when I and a friend, like many other young fellows, were looking for a job as volunteers during the war. It chanced that I saw a copy of a circular letter which stated that the Government was forming a corps of special reserve motor cyclists at Chatham, and this induced us to proceed to Chatham immediately and report to the officer in charge of engineers' records at Brompton Barracks. If I had not a machine the Government would supply me with a new one. It also stated that the terms of joining were specially favourable. I was in possession of a 3½ h.p. 1912 Bradbury which had given me a great deal of satisfaction, but my friend, though a keen enthusiast, had no motor cycle at all.

First Come First Served.

Nevertheless, we both took copies of this letter, and, deciding to take the bull by the horns, packed up immediately at short notice, and some three hours later found ourselves in the night train bound for London with my Bradbury in the guard's van. We slept in the train, which was packed with soldiers, as best we could, and arrived at King's Cross in the early morning. From this point the Bradbury conveyed us both to Chatham, my friend riding as a pillion passenger, and so we arrived at our destination at about nine o'clock in the morning.

We soon found that we were amongst the first arrivals when we got to the motor cyclists' recruiting office, as the letter had only been sent out on the previous day. Thus it happened that before the day was out we were attested, medically examined, and finally sworn in. The recruiting office had to cope with about 100 men on the first day, I believe.

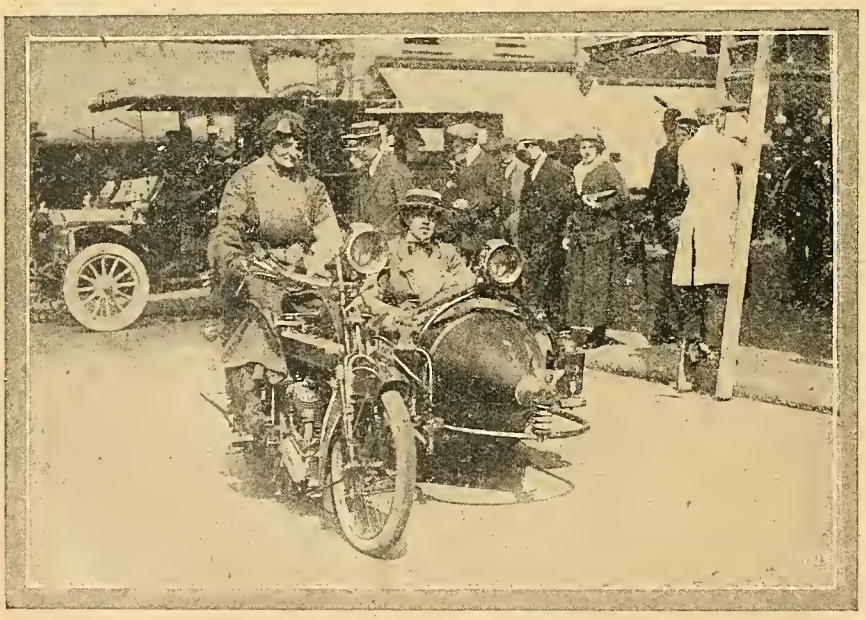
Those men who possessed motor cycles of their own had to give particulars of the same on enlistment. If the machine was deemed suitable for the job and conformed to Government specification it was taken over and bought from the man, so that all the machines used were Government property. My own machine did not quite conform to specification and so was rejected, but this made no difference because it meant that I would be provided with a new machine and that I would get a warrant to send my own home again.

Machines accepted were paid for at the following rates: If the machine was passed and it was a 1914 model, the full price was paid for it. If of an earlier year, 10% reduction was made for the first year and 10% for each subsequent half year, but under no circumstances was the price paid less than 30% off the original price. All men who were enlisted in this branch of the service were ranked as corporals in the Royal Engineers, and drew 35s. per week with a £10 bounty on joining—not bad pay.

We were obliged to find accommodation outside for the first night, and as I had relatives at Maidstone, we made the Bradbury take us both there, which it did without making any fuss about it.

Commencing our Duties.

The next day we did very little beyond watching men pouring in from all parts of the country to the recruiting office. They were much more particular on this day, and rejected men on the slightest pretext. In our case, it had merely been a matter of filling in forms and giving particulars; but now we noticed that such things as not having had previous military training, wearing glasses, slightly stammering, and such things were sufficient to disqualify a man. Again we went to Maidstone for the night, and turned up at Chatham at nine o'clock for parade on the second day, when we had to undergo a little infantry drill, and had a lecture on map reading in the morning. In the afternoon



MEMBERS OF THE WOMEN'S EMERGENCY CORPS.

Several motor cyclist members of this corps have been observed in London traffic handling their machines very skilfully. The outfit is a Chater-Lea with a Gloria Projectile sidecar.

Motor cyclist scouts and despatch riders attached to the Royal Engineers (West Riding Division). The majority of the men belong to Sheffield. This squad appears to be splendidly mounted.

we were despatched to the quartermaster's stores to get our uniform and equipment. Meanwhile several men were detailed off for fatigue work, which consisted of going down to the railway station with the traction engine and waggons and loading them up with crates containing new machines, all Rudge Multis and three-speed Triumphs. Our equipment was very complete, and consisted of the following, among other, articles: Large clasp knife, haversack and water bottle, two pairs of good strong boots, two shirts, three pairs socks, toothbrush, hairbrush, shaving brush and razor, boot brushes, magnificent Webley revolver, Cardigan waistcoat, and many other excellent things beside.

As uniform we got the ordinary tunic with corporal's stripes, riding breeches, puttees, service cap, and brown leather belt with holster for revolver and case for ammunition.

Satisfied with Our Lot.

We went to bed that night with feelings that we were lucky mortals indeed falling in with all these good things. Of course, we had to face the fact that motor cyclist despatch riding is dangerous work, but for the matter of that all volunteer work at the front is dangerous, and on comparing our lot with that of the infantry volunteer we could not help feeling that fate had been indeed kind. To a certain extent we owed our position to promptness of action, since we did not delay a moment after seeing the letter in the first instance.

The next day was Sunday. However, it made little or no difference to our routine. We paraded at nine o'clock and had some infantry drill, followed by a lecture on scouting. Several men went on fatigue duty, bringing up machines from the station and unpacking crates. And during all this time recruits kept pouring in, most of them being university and club men, and men from the various officers' training corps.

We had a big parade late on Sunday evening, when every man was allotted to a definite company. My friend and I were allotted to the second signal company at Aldershot, and were directed to proceed thither as soon as we were able. Thus we lost little time in getting our marching orders.

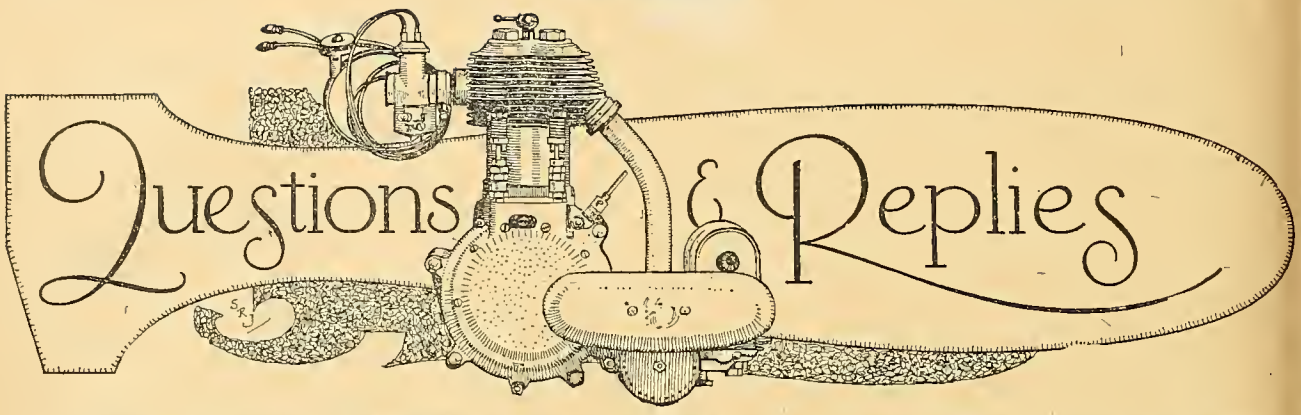
I get my Machine.

Then came Monday. We paraded at 7.30 on Monday morning, and along with others we were sent on fatigue duty, which consisted of unpacking the crates and fitting up the new machines. We set to work with zest smashing up crates and extracting brand new machines, which came forth glittering and shining, masterpieces of modern mechanism From other boxes came hordes of lamps, horns, mirrors, spare tubes, spare belts, spare tube carriers, etc., etc., etc., and it was our job after unpacking to fit each machine up with these. My friend and I, seeing our advantage, each picked out a machine which we intended, if in any way possible, to secure for ourselves, and we set to work fitting these up. To a man who has never been able to afford a new machine you can imagine that this sort of thing would be like a dream, and we both hoped we should not suddenly "wake up." Later on in the day we had an opportunity of allotting the mounts we had chosen to ourselves definitely.

Off to all Points of the Compass.

Chatham had been used merely as a recruiting centre for the special reserve of motor cyclists. In all cases, when a man was completely equipped and provided with a machine, he was attached to some definite company, possibly hundreds of miles from Chatham.

Some men were sent to Stirling, others to Limerick. We were both sent to the same company at Aldershot, and so started off for the great military centre that evening on our new mounts, full of zest for our new life.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A Driving Query.

I have a 1914 two-speed two-stroke. Is it correct to run the engine when the gears are in the neutral position, and on descending a steep hill should the throttle lever be shut off, the air full open, and the exhaust lifter raised, or what should be done?—BEGINNER.

There is absolutely no harm whatsoever in running the engine with the gears in a neutral position. It is not good to run the engine like this too much, as it, of course, would soon heat up to a considerable degree, and the engine should not be raced when not under load. In descending a hill it is usual to leave the air lever in its normal position and to close the throttle and raise the exhaust lifter, but opening the air wide when going down a long hill is quite advantageous from every point of view.

To Improve Petrol Consumption.

I have a 1912 3½ h.p. single-cylinder machine with fixed engine. I ride with a gear of 5 to 1. I have thoroughly cleaned the engine, carburetter, etc., and the machine runs splendidly and roars up the Derbyshire hills. I cannot get more than 70-80 m.p.g. although I drive carefully, with the magneto fully advanced, at about an average of 25 m.p.h. The jet is a 30; the carburetter does not flood, and I consider I ought to get more miles per gallon. To average 25 m.p.h. the throttle is about a quarter open and slightly in advance of air lever. Is this about right?—E.P.B.W.

You might try a smaller jet or lowering the petrol level. On a machine such as you are riding the petrol consumption ought to be about 90 m.p.g., or even more. Of course, it is absolutely essential that the engine is clean and that compression is good. The gear ratio you are adopting is about the best that could be used for a machine of this type. Also see that the inlet pipe unions are quite air-tight and that the valves are really closing. Probably the fitment of a pipe a few inches long to the air inlet of the carburetter would improve the consumption by minimising waste through possible blow back.

Misfiring at Slow Speeds.

I have a 3½ b.p. single-cylinder machine. Can you give me the reason why it misfires at low speeds? I have tried a B. and B. carburetter, also a Senspray, but when running at 8 to 12 m.p.h. it keeps misfiring, but when going at a faster pace it runs perfectly, as is also the case when the carburetter is first flooded for a hundred yards or so, but after that distance it starts misfiring again.—F.M.

The trouble is doubless due to air leakage in the inlet pipe, and we should advise you to test the carburetter union as well as the cylinder union. A good cure for such leaks is ordinary electricians' tape, which if bound round tightly will hold for some considerable time. The reason the engine misfires at low speeds but not at high is because the extra air admitted through the leaks upsets the weak mixture at slow speeds, but is absorbed when the throttle is open.

Machine for Long Cross Country Work.

I occasionally want to make a ninety-seven-mile cross-country journey; the train takes a little over four hours and the times are inconvenient. I shall be glad to know if one of the 2 h.p. two-speed lightweight machines on the market would do the journey in four to four and a half hours? The roads are good main roads, and, with the exception of four or five miles up the Malverns there is nothing particular in the way of hills.—J.B.P.

We do not think it possible for you to complete a ninety-seven-mile journey such as you mention in four and a half hours on such a machine. It is not a very easy matter to average 24 to 25 m.p.h. on any machine, because it means pushing along in parts at speeds of 35 to 39 m.p.h. We should advise you to allow yourself five hours for the journey and use a variable geared machine of not less than 2¾ h.p. The very light low-powered machines are admirable for short journeys, but a larger and more powerful machine is to be recommended for frequent long journeys at legal limit speed such as you wish to undertake, and they are far more comfortable.

Sluggish Running and Knocking.

I should be very pleased if you could help me with the following difficulty I have with my machine. It is a 3½ h.p. 1914 model, single-cylinder, with fixed gear, and the engine knocks at the slightest provocation The knock when accelerating quickly I can, by careful driving, stop, but the trouble is on hills. When more power is wanted I find that, instead of being able to open both throttle and extra air, I can only open the gas and have to shut the air to stop the knocking, and, consequently, only a part of the engine power is developed. The timing of the magneto is exactly as the makers advise, as also is the gearing; the machine has not been touched since it left the works when new, except for cleaning the cylinder. I have tried retarding the spark, but this only causes loss of power, and the engine is then inclined to get warm.—W.G.K.

It is quite possible that the trouble you complain of can be eliminated by changing the plug. If the points of the plug have burned away to such a degree that they become incandescent when the engine is firing, violent pre-ignition would take place and cause knocking. On the other hand, it might be that the bearing of the big end or small end has gone and that rebushing is necessary. Also a slack piston would give you the same trouble. These are, of course, suggestions, because the data you give us is rather meagre, but they are the points to be carefully checked as a start in the search for the trouble.

Heating of Crank Case.

The crank case on the 6 h.p. twin-cylinder engine of my side-car outfit gets hot. By that I mean that it becomes sufficiently hot to render it unpleasant to keep one's hands on it. Is this anything to worry about?—A.J.S.

Heating of the crank case can only take place from two causes, namely, through blowing back of the charge past the piston rings and through conduction. The former, of course, is due to a worn piston or worn rings, and can easily be rectified, but if you have taken the precaution to see to this we should say that

the crank case overheats purely and simply through conduction. Overheating by conduction is caused by overheating in the cylinder. We should therefore think that the carburetter setting is not adjusted correctly, and that you are running on either too rich or too weak a mixture. Probably, if you will check this carefully you will find this to be the case, and when altered will not suffer very much from the overheating you complain of. So long as the crank case does not overheat to such a degree as to burn the oil from the bearings there is absolutely nothing to fear, and if the engine is running and pulling well we should advise you not to trouble about it in any way.

Tuning up an Engine.

I have purchased a good second-hand motor cycle of 2¾ h.p., single-speed, 1910 model. I have taken out all the parts separately from the frame except the crank case, which I did not wish to take off or open for fear I could not put it together again after cleaning. All other parts were very dirty and were cleaned, oiled, and are now in good condition. I am satisfied that I have made a fairly good job of the two cylinders by cleaning, but there was not much deposit, and I am informed the valves were ground within the past two years. The machine ran badly just before taking it to pieces. I took it to a workshop mechanic and he said that there was no oil in the tank, though the glass tube indicated a depth of an inch at the time. However, after putting in oil and looking at the carburetter, etc., he satisfied himself that it was in first-class condition, only that he somewhat feared that there was a leak in the crank case. It went fairly well for the next fifteen miles, though the speed would not exceed about twenty-five miles an hour, and it would fail to get over hills, and, after twenty miles or so, it would almost stop on the smallest gradient, but not for want of oil or petrol. It takes a gallon of petrol to travel only thirty miles, and it does not take much extra air. Would it be wise for me to open the crank case and clean it? I should be glad of your general advice. —W.M.

In reply to your question you do not say whether the engine is suffering from lack of compression. If this is the case it will be extremely difficult to get anything like the maximum power. You also complain that when running some distance the engine gradually comes to a standstill; this is probably due to the fact that the valves are not adjusted correctly and when hot expand down on to the tappet and, therefore, do not close. It would also seem that you are using much too large a jet in the carburetter, and we would advise you to try one very much smaller. Again, it is absolutely necessary that there are no air leaks in the inlet pipe. Consequently observe the union carefully and see whether such is the case. We do not think you would have any difficulty in taking down the crank case, and it would probably be better for you to do so and clean it out thoroughly. At the same time you would find it a help to get the advice of an expert, who would tell you whether wear had taken place on the cams and timing wheels.

A Tour in the Highlands.

Will you very kindly give me an idea for a week's motor cycle tour in Scotland, starting from Edinburgh? I have a 6½ h.p. single-geared machine.—A.E.R.

In the first place, a single-geared machine is not suitable for touring in the prettiest parts of Scotland, where the roads are narrow and the gradients are steep. We do not make a habit of working out tours, but as the Touring Departments of the motoring organisations are likely to be rather disorganised for the present, we would suggest the following: Edinburgh, Granton, Berry to Burntisland, Kinross, Perth, Dunkeld, Pitlochry, Blair Atholl, Dalwhinnie. It is almost worth while staying here a day for the purpose of exploring the country round Loch Ericht. Continue through Kingussie, Carrbridge, Beauly, Dingwall, Alness, over the hills to Bonar Bridge, Lairg, and Scourie. If you want some really wild scenery there are plenty of hilly rough roads. Then go on to Unapool, Ullapool, Strathpeffer, and back to Inverness. Then go along the shores of Loch Ness, etc., along the Caledonian Canal to Fort William, taking the ferry to Ballachulish, go to Tyndrum, go through Kilnember, Kilmemfort, along the eastern shores of Loch Awe, Dalmally, Tyndrum, Killin Junction, Lochcarnhead, Loch Lubnaig, Callendar, Stirling, Falkirk, Linlithgow, and back to Edinburgh.

Quick Starting Wanted.

I have a new 4 h.p. Triumph with sidecar. Can you throw any light on the reason of the following difficulty? Starting with a running mount with any gear in and the clutch engaged, after dropping the exhaust lifter the machine runs, say, six paces without firing and without the compression pulling it up, but after the six paces or so, keeping on the run, the machine will then fire all right and run beautifully. Why is this? The compression is perfect, valves lifting all right and seating all right. The clearance between exhaust valve and tappet is kept small purposely, but still there is a clearance all right, and, remember, the engine is cold on starting.—W.A.C. (QUETTA, N.W.P.)

The slight difficulty in very prompt starting of the motor is probably simply one of control lever position. Your machine is fitted with an admirable half-compression device by means of which the engine should start almost instantly at a walk on low or middle gear. If you have not already done so, try closing the air lever till the engine fires, and then open it up to the proper running position. Directly the engine fires and you are in the saddle, kick the half-compression lever out of action.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose.

READERS' REPLIES.

Rust on Exhaust Pipes.

With regard to the enquiry by "B.E.E." for a preparation to keep rust from exhaust pipes, I believe many owners of conservatories and hot-houses paint their hot water pipes with a mixture obtained by boiling linseed oil and lamp black. I do not know the exact proportions, but I can find out if "B.E.E." thinks it worth trying.—ARTHUR PHILPOT.

A Mysterious Complaint.

I notice on page 286 in *The Motor Cycle* of August 27th there is a query relating to trouble with a horizontal twin 500 c.c. I believe the whole trouble of your correspondent is traceable to the magneto—the last thing in the world one would expect. Here are my reasons: I have a 5-6 h.p. F.N., 1912 pattern, which developed the same symptoms and would not go for more than a few miles without stopping; it, however, got down to about two hundred yards in the end, when I spent about two weeks on and off overhauling everything, but the same game went on, so I decided to take the magneto right off and get at the inside (previously I had cleaned the contacts, etc., and carbon brushes). I found the trouble, viz., water in the armature tunnel caused by the magneto being near the hot engine; the water was caused by condensation of air on the magnets, very much in the manner that an induction pipe "sweats." The "beads" of moisture collected at the bottom of the magneto, and the revolving armature churned them up and they settled across the tunnel, causing loss of current and a weak spark. The reason that the machine started easily was that the water drained to the bottom when the machine was stopped, and, of course, got gradually churned up again in a few miles. I cleaned as much as possible away with a rag, and got rid of the rest by placing the magneto in the gas oven, having previously heated the oven and turned the gas out. This steamed the moisture out quite satisfactorily, and the engine goes better than ever. The power after replacing the magneto was a revelation. The F.N. magneto is fixed on the crank case, and, consequently, gets warmed up to the crank case temperature. On a horizontal twin it is also fixed to the crank case, and the heat tends to dissipate itself through the magneto, and the cold air against the magneto causes the heat to condense.—W.B.

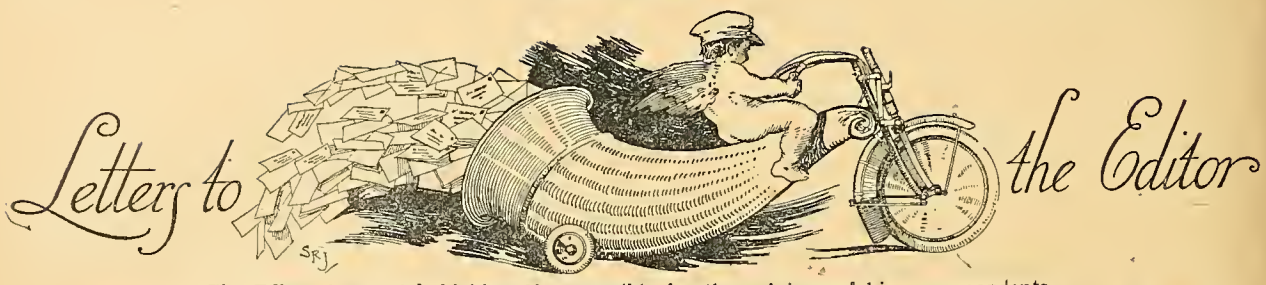
EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"P.L.K." (Durham).—6 h.p. Excelsior. Petrol consumption, power, and absence of vibration.

"J.T." (Newport).—G.N. and Grand Prix Morgan. Hill-climbing, reliability, and comfort.

"J.A.P.R." (Somerset).—2¼ h.p. New Hudson. Reliability, ease of control, petrol consumption, average speed, and hill-climbing powers.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Cutting Down Running Costs.

Sir,—In connection with your recent article on this subject I am sending you my expenses incurred in running 20,000 miles on a 1913 three-speed Triumph.

The figures show how economical a good modern machine is.

	£	s.	d.
Licence, etc.	1	5	0
Refits	12	1	1
Fuel	15	11	2
Lubricating oil	1	17	6
Cycle oil		7	4½
Tyres	14	12	0
Belts	3	4	10
Carbide		4	0
Depreciation	25	0	0
Total	£74	2	11½

or roughly .89d. per mile.

I do not insure against accidents, and what I spend on motor clothing is saved in shoe leather.

Under the heading "Refits" are included costs of all spare parts, new lamp, horn, repairs to three-speed gear and speedometer, and two complete overhauls by the Triumph Cycle Co.

Fuel.—Consisted of 200½ gallons of benzole.

Tyres.—Clincher 2⅜in., which lasted on an average 8,000 miles on the front wheel, and 4,600 miles on the back wheel.

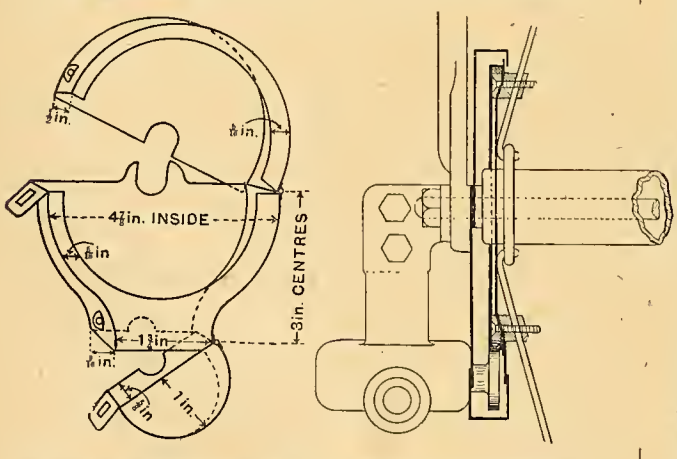
Belts.—Dunlop 1in.; average 6,100 miles per belt.

£25 should cover the depreciation, as the machine has just been thoroughly overhauled and is in perfect order.

I hope to run another 20,000 miles on the machine at a still lower cost. A. W. TOMLINSON, R.N.

A Speedometer Drive Cover.

Sir,—I noticed in a recent issue an illustration of a speedometer drive gear cover. It may interest you to know that about twelve months ago I fixed up a similar arrangement for my Watford speedometer drive. I am enclosing a couple of rough sketches which, I think, are fairly self-explanatory.



The case is made of stout tin plate which will not buckle.

I may say that I had it fitted all through last winter with every satisfaction. The oil I use is a fairly stiff mixture of paraffin candle and vaseline.

In conclusion, I might add that if there is a tolerably good fit between the disc covering the spokes and the inside rim of the case, little water or grit is likely to enter.

J. WARING

How to Avoid Petrol Overcharge.

Sir,—Perhaps by this time the dealers in petrol may have reconsidered matters, but in case any of your readers may drop across one of these gentry who demand some ridiculous price for petrol, might I recommend a useful tip which I myself carried into operation a few days ago at Rugeley?

That was, to threaten to report the vendor to the Motor Traders' Association. This had the desired effect, and scared the gentleman so much that he nearly thrust a tin on me—free—in order to get rid of me!

In this case four shillings per gallon was being asked.

To anyone who is being bluffed in this way, the letters "M.T.A." act as a charm. I hope someone may benefit by using those letters. CE 1942.

The Remuneration of Military Motor Cyclists.

Sir,—As there appears to be a somewhat mistaken idea as to the remuneration of motor cyclists serving with His Majesty's Forces, I should like to draw your readers' attention to the actual facts.

When I joined the 7th Batt. Devon Reg. Territorial Forces I had to sign on for the usual period—four years—and I was then given to understand that I must provide a suitable machine with spare parts—the spares costing £11. I was to receive a bounty of £5 on joining and 11s. per day, made up as follows: 8s. per day on which to run the machine, 2s. per day mess allowance, and 1s. per day pay. I was quite prepared to serve under those conditions, believing it possible to run my machine and maintain it in good order for less than the allowance of 8s. per day, and so augment the actual pay of 1s. per day I quite recognised that 1s. per day was no adequate remuneration to offer a skilled man, for a motor cyclist must be such a man. Since signing on I find that I receive no bounty, as I had not joined before the Mobilisation Order was issued. The order was issued the day before I joined. Several of my friends who joined the day before I did have received the bounty. Further, the War Office have taken over and paid for all our machines and spares, deducting ten per cent. per annum from the first cost. This comes rather hard on some of us, as several of the machines were less than a month old, and the spare parts as specified by the War Office had to be purchased especially for this business.

Motor cyclists enlisting with the Regulars for the period of the war only need not provide a machine—the War Office will do that for them. They receive £10 bounty on joining, pay at the rate of 5s. per day, all expenses, and £5 bounty on leaving.

We motor cyclists in the Territorial Forces have to do all that those attached to the Regulars do, but for a considerably smaller sum. Further, we must serve during the war as the others do, and afterwards must complete our term of service. We motor cyclists of the 7th Batt. Devon Reg. have been asked to volunteer for foreign service, but only at our present rate of pay, 1s. per day. This most absurd difference between the two rates of pay was not made known to us until after we had been serving for some time. We have no apparent remedy. But I should like to warn others who are thinking of joining as motor cyclists attached to the Territorial Forces that they will only receive 1s. per day.

We do not wish to make money in a crisis like the present, but our present rate of pay hardly seems to us an adequate remuneration for men who have had to leave their business. Why should we not have the same as others, when we do the same work? JOHN GIBSON,
Motor Cyclist of 7th Batt. Devon Reg.

No Dearth of Magnetos.

Sir,—I have read with interest your article and letters under the above heading, and in view of the conditions now existing between this country and Germany, suggest it is not a time to be lamenting a possible shortage of German-made magetos. Manufacturers of motor cycles and cars have not hitherto encouraged British firms to manufacture magnetos, but let them do so now, and the motoring world will not regret it. Surely there can be no serious intention of buying the German magnetos, which "during the present crisis" (to quote from one of the letters) are to be made in the U.S.A. and financed with German capital? Shall we in this country strive to keep these firms alive until the tide is turned? I think not.

A few years ago an enterprising British firm realised that this country was practically dependent on Germany for carbons for searchlights, arc lamps, picture theatre lanterns, etc., and so erected carbon works in the Midlands. Up to the present time it has lost £70,000 because it could not compete with German prices. What is the result to-day? This Midland factory is working night and day to meet the demands of the Admiralty, War Office, and a fraction of the orders for street lighting carbons and arc lamps generally.

The shares are not now to be bought. So let it be with our magnetos.

If we must copy, German patents in this country are open to all. MADE IN ENGLAND.

Lady Riders in South Africa.

Sir,—As a reader of your paper, I notice from time to time photographs of lady motor cyclists. Enclosed you will find a photograph of a lady friend of mine (Miss Hilda Arnholz) who is a keen motorist, and is the first and only lady motorist in this part of the country who holds a licence to drive a motor cycle under the new ordinance. The machine is a 1914 3¾ h.p. Elswick three-speed, S.A. gear, and free engine, with sidecar attached. R. BENNETT.
Port Elizabeth, S. Africa.

Miss Hilda Arnholz, the first lady motor cyclist in Port Elizabeth, South Africa, on her 3¾ h.p. three-speed Elswick sidecar.

Competitions and the Crisis.

Sir,—We note that hill-climbs, etc., are still being held notwithstanding the present grave state of affairs, which necessitate the employment of every able-bodied man on national work. The competition rider is surely the very type of man that the country needs, and as reliability trials, hill-climbs, etc., such as were recently held under the auspices of the Coventry and Warwickshire Motor Club, can only be regarded as "business as usual," we fail to see that employment is thereby helped. These competitions can only be regarded with disfavour by the general public, who would willingly support any form of useful endeavour which necessitates employment. No one can say that motor competitions give any extra employment sufficient to justify the bad effect produced. I. B. HART-DAVIES.
J. R. HASWELL.

[We deal with the subject of Sport and the Crisis in a leaderette this week.—ED.]

An Overseas Specification.

Sir,—Allow me through the columns of your most valued paper to give an idea of what would answer the purpose on South African roads, especially when in a boggy state: Engine not less than 3½ h.p., 84 × 90 bore and stroke, single-cylinder, air-cooled, chain drive (if twins, to be vertical, side by side), three or four speeds, free engine, counter-shaft, semi-automatic carburetter controlled from handle-bars, levers to open away from machine (in case of a cropper this would stop engine racing), frame about twenty-four inches, engine crank case clearance not less than seven inches, forced lubrication from foot pump to bearings, front forks sprung after Triumph style, no front brake, back brake to be twin blocks acting on dummy belt drum controlled from left footboard, kick starter, tank capacity two and a half gallons, oil two pints, clearance between inflated tyre and forks not less than 1⅝in., water-tight magneto placed high up, mudguards to be extra wide, wheels 28in. with 3in. tyres, a more rigid type of petrol feed cock, as old style gets scored with continuous use, hence continual leakage, and lastly, "all-black" machine.
Rhodesia, S.A. ALEX. T. SCOTT.

Prices in Australia.

Sir,—I notice in your observations in the Overseas Supplement, May 7th, you mention the fact of a writer in India complaining about the price of accessories. I wish to bring under your notice that the same condition of things applies to Melbourne also; not only in accessories, but motor cycles as well. I think it very unfair that an agent should charge £75 10s. for a T.T. Douglas and £45 for a Calthorpe Junior retailed in England at £48 and 25 guineas respectively. I might mention that the Rover agent finds it profitable to sell the Rover cycle (English price £48) for £61 10s. Why the difference in price in case of the Douglas? The Triumph, Rudge, and other well-known makes (English price £48) sell at £67 10s. I am riding a 2¼ h.p. lightweight at present, but I am looking forward to the time when a Douglas will be sold at a reasonable price.

I certainly think that manufacturers should limit the price of the machines in the Colonies, of course taking the different tariffs, freights, etc., into consideration. I might state that if the English manufacturers allow these conditions to continue they will lose a great amount of trade, as American machines are being sold here very cheaply, although there is a preferential tariff for British-made goods. MELBOURNIAN.
Melbourne, Victoria.

SUMMARY OF CORRESPONDENCE.

We are glad to be able to state that Mrs. Foster Avery and her daughter, whose portrait on their Harley-Davidson sidecar we published on page 296 of the issue 3rd September, as missing in the war zone, are now safe. We have heard from Messrs. Alsford and Tebbutt, motor cycle agents, Southampton, that the two ladies are now on their way back to Philadelphia, and that their machine is being sent back after them. We congratulate the ladies on their escape to more peaceful climes, and also on their good luck in being able to retain their sidecar outfit.

OCCASIONAL COMMENTS
by "IXION"

Comfortable Touring Again.

I have covered a thousand miles in the last fortnight over roads crossing a dozen counties. I was stopped but once, at Aylesbury, where the police were inspecting all driving licences. Petrol was obtainable at practically normal prices in the most remote townlets, and even at night I met no sentries. In other words, touring is quite as safe and comfortable as in peace time, though a hot quest for a motor cycling spy or lunatic occasioned no little inconvenience on certain Midland roads for a day or two.

Rifle Shooting.

I have neither said nor implied that a marksman can be manufactured by putting a man with an air gun to practise solo at short range. Expert instruction is obviously essential to the scheme. But I can cap "Lieutenant's" experience, and perhaps modify the rather pessimistic tone of Mr. Brownrigg's able contribution, by reporting that I won the championship cup of rather a crack battalion on the very first occasion of manipulating a service rifle. Prior to this initial visit to the ranges, I had done a little revolver practice without tuition, and a couple of month's air gun practice under the tutelage of a crack civilian shot. Mr. Brownrigg is certainly wise in recommending the B.S.A. miniature rifle—a magnificent little piece. I mentioned air guns principally because they are cheap. But expert instruction is plainly essential in every difficult sport.

Broken Valve Rockers.

From year to year the most vulnerable detail of a motor cycle engine is eternally changing. For a long spell it was the exhaust valve which gave us the "needle." Now it is most certainly the valve rocker. I have scarcely encountered a case of a broken valve for the last eighteen months, but I have personally suffered three broken rockers, and my circle of acquaintance includes several men who have abandoned their pet makes of machine because of these tiresome fractures. I suspect the root cause is a silly little piece of false economy. I inspected a handful of smashed rockers last week, and they were all made of very low grade metal, which had slowly crystallised till it snapped. Some of these rockers are very long; they are pivoted at one extremity, and the other extremity has to raise a valve, perhaps 1,500 times a minute, against a pretty powerful spring. One does not hear of such weaknesses continuing from year to year in the machines of firms who comprehend the value of a laboratory. I remember that when I rode one of the first batch of the original Rudge machines, the factory experts were always grateful for the receipt of a broken part; a new part arrived free gratis by return post, and the faulty piece went straight to the laboratory, where the metallurgical aspects were carefully studied. That is the way to succeed.

Military Motor Cycles.

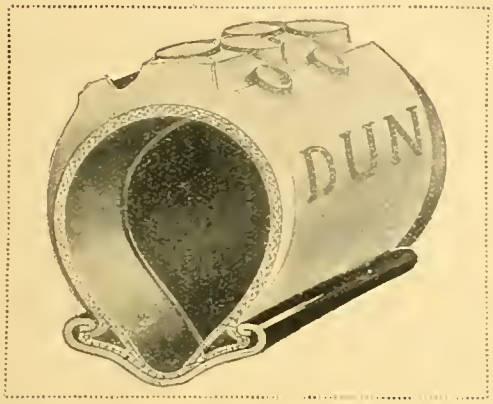
The choice of a machine for military purposes is certainly thorny. Experience leads one to put the highest value on reliability; it is as essential to efficient despatch riding as it might easily be to self-preservation. Second I should place light weight, and third a handle-bar clutch control. Our contributor, "Special Reserve," has emphasised the need of silence—likely to puzzle many volunteers. I should advise the disembowelling of the standard silencers, which may then be retained simply as expansion chambers; the outlet pipe should then be connected to one of the patented silencers, which should completely silence the exhaust, and the interposition of a cut-out between the expansion pot and the efficient silencer would enable full power to be obtained whenever silence was unnecessary. Surely he is in error in recommending an ordinary acetylene lamp; in my experience it is the cause of many petty troubles. Nothing would induce me to take on such work without my favourite cylinder of dissolved acetylene, which never chokes a burner, and provides twenty-four hours of continuous and absolutely reliable illumination with the standard burner. After all the essentials in lighting are reliability and cleanliness.

Oil in Small Quantities.

I suppose there are comparatively few motor cyclists who habitually cover very long distances without calling at home. If there were many of us, one would hear more about the expense of purchasing oil in small quantities. In my home shed I stock a large supply of oil bought in bulk at 3s. 3d. per gallon retail. On tour I have to replenish my tank at the rate of 1s. 6d. per quart, *i.e.*, 6s. per gallon; and as I am a bit of a road burner, and use a good deal of oil in a fast 200 mile spin, I find that oil constitutes no small item of my riding expenses. Passenger machines avoid this outlay, because it is easy to house a gallon can in a sidecar, or a couple of gallon cans on a cycle car; but the solo rider is hard hit whenever he rides for a week without visiting his home base. If I am riding a machine with footboards, I strap a quart can under the boards, but I have not yet employed any economy dodge on a machine equipped with footrests, as the back carrier is never too large to accommodate my personal luggage. I think I must buy a small torpedo tank to bolt on to the main tube. Five times last week I had to purchase oil at the rate of 6s. per gallon, and that drop of Jewish blood which is said to be responsible for the inherent greatness of every Britisher, much resented the impost. I wonder if the oil companies could reduce their terms a little if they imitated the petrol distributers and adopted returnable cans with substantial screw stoppers, guaranteeing purity by means of a wire and lead seal?

THE

DUNLOP



TYRE

A success of no ordinary character has been attained by the 1914 improved Dunlop motor-cycle tyre

Apart from its excellent structural design and its beautiful finish — points which every motor-cyclist can see for himself — this year's Dunlop tyre is the good thing it is because of its distinctive composition.

The special quality of rubber employed gives it a peculiar hard-wearing property, which is so exceptional that thousands of miles of work occasion only slight loss of rubber. Anyone who is driving on the improved Dunlops will corroborate this.

Write or ask your Agent for free Dunlop booklet, "All about Cycle and Motor Cycle Tyres."

IN TIME OF WAR. Dunlop motor-cycle tyres can be obtained with the same facility as before the war through the usual agents.

By buying British-made goods you help to support the industries and the workpeople of your own country.

THE DUNLOP RUBBER CO., LTD., *FOUNDERS OF THE PNEUMATIC TYRE INDUSTRY.*

Aston Cross, Birmingham; Alma Street, Coventry. Branches—London, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

DUNLOP SOLID TYRES FOR HEAVY COMMERCIAL VEHICLES.

In answering this advertisement it is desirable to mention "The Motor Cycle."

B3

QUADRANT

The mount supplied to the War Office—

the Quadrant 4½ h.p. solo — is identical in all essential details with the machine we offer you.

"There's no query about Quadrants" and the confidence of the War Office is further proof of that.

Distinguished by absolute reliability it is an ideal mount for "active service" and, under war conditions, will emerge from the severest tests triumphantly.

Note these details — **4½ h.p. Armstrong 3-speed Gear and Free Engine — Dunlop Tyres and Belt — Bosch Magneto — Senspray Carburetter — Quadrant Spring Forks —**

And these prices —

Solo 45 Gns.—Combination 55 Gns.

And then — let us send you descriptive folder.

QUADRANT WORKS, LAWLEY STREET, BIRMINGHAM. London Dept.—73, Gt. Queen Street, Kingsway.

"THERE'S NO QUERY ABOUT QUADRANTS."

MATCHLESS

BUSINESS AS USUAL

The Matchless Commercial Sidecar Combination

is stronger, more powerful, and easier to control than anything of a similar nature on the market.

EARLY DELIVERIES GUARANTEED.

Price £90. ASK FOR FULL PARTICULARS. FREE TRIALS ARRANGED.

H. COLLIER & SONS, LTD. PLUMSTEAD · S.E.

CLUB NEWS.

Middlesbrough and District M.C.C.

Some fifty members have placed their services, as local despatch riders, at the disposal of the recruiting offices in the district.

Nottingham and District M.C.C.

At a specially convened meeting of the committee it was unanimously resolved that, owing to the war, the competitions for the Dennis Bailey and Campion Challenge Cups be held over for the time being, and, further, that the energies of the members, more especially those over recruiting age, be directed to the serving of the local recruiting officers and the Red Cross and distress committees. The offer of services has been accepted and members are being called upon for duty in connection with the above.

A HEAVY SIDECAR LOAD.

E. Hayes, of East Ham, who has now covered 2,000 miles on his 6 h.p. Sunbeam, the last 500 of which has been completed with a tandem sidecar, the outfit carrying six passengers

Dublin and District M.C.C.

A reliability trial was held on Saturday afternoon for the cup presented by the late Mr. F. J. Walker. The event took place over a circular course in Co. Wicklow, which was traversed twice, and as a margin of ten minutes per lap from the scheduled time was allowed without penalty, the result will probably depend on the flexibility test held on the long hill. In the restarting test on the Devil's Elbow, all the competitors succeeded in getting within the standard times fixed. In the flexibility test the best performances were as under :

	Slow.	Fast. Difference.
	m. s.	m. s.
A. W. Mooney (6 Bradbury sc.) ...	6 59 3/5	1 4 — 5 55 3/5
G. Roche (3½ Rover)	5 44 2/5	43 — 5 1 2/5
J. Doloman (3½ Rover)	3 7	47 — 2 20
R. H. Hurse (3½ Rover)	2 55	54 2/5 — 2 0 3/5
W. A. Campbell (3½ Rudge) ...	2 27 1/5	38 2/5 — 1 49 2/5
J. Browne (3½ Rover)	2 53	1 7 2/5 — 1 45 3/5
T. Toole (3½ Rover)	2 37 2/5	52 2/5 — 1 45

Leicester and District M.C.C.

The Leicester and District M.C.C. held its hill-climb on the 27th ult. at Beacon Hill, with the following results :

FORMULA.

TWO-STROKE MOTOR CYCLE, ETC., CLASS.

1. W. Williams (Triumph).
2. H. Bowerman (Velocette).
3. W. R. Hunt (Triumph).

LIGHTWEIGHT CLASS.

1. S. M. Gunn (2¾ Douglas)
2. R. King (2¾ Douglas).

BIG TWIN CLASS.

1. S. Briggs (5-6 Campion).

SIDECAR CLASS.

1. S. M Gunn (2¾ Douglas).
2. S. Briggs (5-6 Campion).
3. W. Chapman (A.J.S.)

T.T. CLASS (TIME ONLY).

1. C. H. Walter (3½ Rudge) ... ... 51 2/5s.
2. M. H. Simpson (3½ Rudge) ... ... 52s.
3. W. Lee (3½ Singer) ... ... 57s.

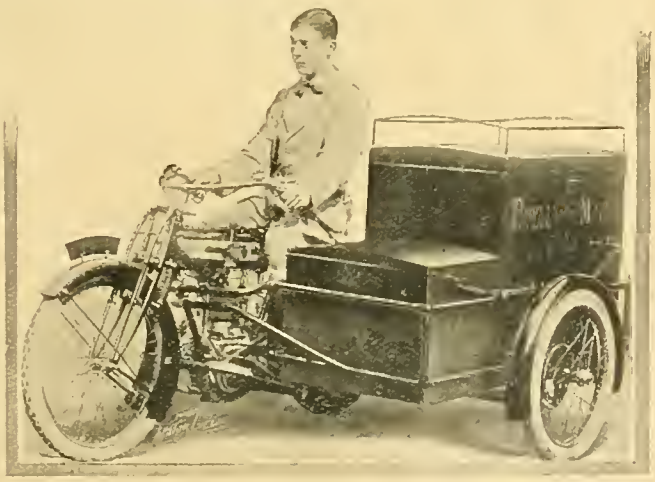
OPEN CLASS (ANY CAPACITY).

1. S. Briggs (8-10 Campion) ... ... 49 3/5s.
2. M. H. Simpson (3½ Rudge) ... ... 51 2/5s.
3. C. H. Walter (3½ Rudge) ... ... 52 1/5s.

After the events had been run off S. Briggs did an exhibition climb on his 8-10 h.p. Campion in 44 secs., a fine performance, closely approaching Lee Guinness's record at the Leicester Automobile Club climb over the same course.

THE 3½ h.p. ROVER SIDE CARRIER.

THE General Post Office is one of the largest users of sidecarriers, and we illustrate one of the latest 3½ h.p. three-speed Rovers supplied for carrying parcels and mails. Two of the particular features calling for notice in this outfit are the suspension of the load on the cradle chassis, and the well-known sidecar brake. There is no doubt that being able to brake both rear wheels on vehicles of this description is an important point, especially in a hilly country where heavy loads are being carried. The springing of the load is admirably carried out by means of long side springs shackled at the rear, the result being that the body rides without perceptible movement, either empty or when fully loaded. The importance of this will easily be realised when it is remembered that such a vehicle would be largely used for the delivery of small parcels frequently containing fragile material, and in many cases over the rough and stony roads and lanes of inaccessible rural districts.



Good springing is a feature of the Rover side carrier.

THE TRADESMEN'S SIDECARRIER.

Satisfactory Progress of the Commercial Sidecar. The Vehicle in Use.

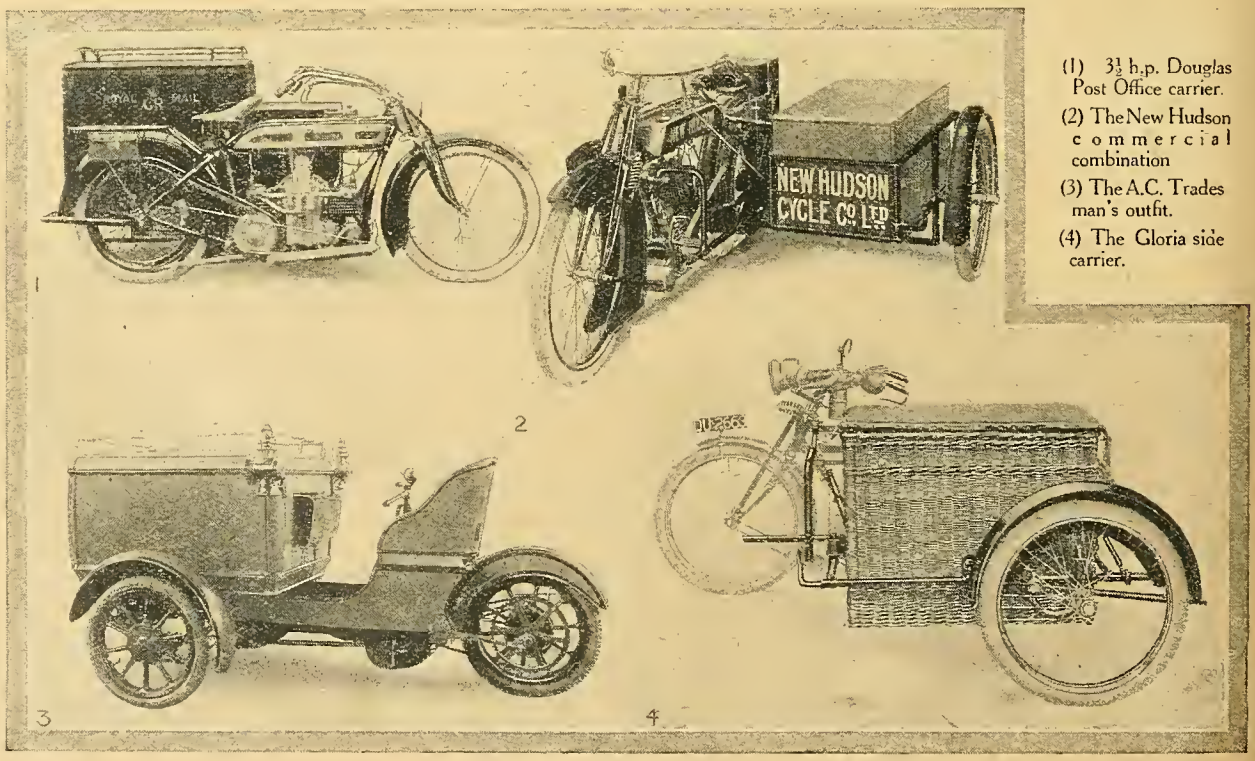
THE remarks in our issue of August 20th last on the utility of commercial sidecars, were evidently made at the right moment, for at once there has been increased activity in this field, and several makers are finding the sidecarrier a profitable line. As we have already pointed out, the fact of tradesmen being suddenly rendered horseless automatically created an opening for a mechanical means of transport, which should be light, low in cost, and cheap to run. In the sidecar these demands are fulfilled to the letter, and already the more enterprising tradesmen have adopted the sidecar vehicle, manufacturers in most cases being in a position to deliver promptly. Last week we noticed in London and the leading cities of the Midlands quite a number of these handy sidecarriers flitting about the crowded streets, nipping in and out of the traffic without any difficulty, and, of course, grappling with hills with ease. The low petrol and oil consumption of a good motor cycle are points strongly in its favour.

Sidecarriers in Actual Use.

For the benefit of tradesmen who may be thinking of taking up the sidecarrier we illustrate with this article a number of different examples of such vehicles in actual use on the road, from which it will be seen that there is no end to the many services into which they may be pressed. Though, of course, the carrier is particularly adapted to the conveyance of light goods over scattered areas, and consequently appeals most strongly to butchers, bakers, grocers, drapers, fishmongers, and the like, the carrier is used for many other purposes; even farmers and milkmen have found it a satisfactory means of conveyance, and it has become the rule for motor cycle manufacturers to use one or two of their own products for the conveyance of heavier goods, such as small castings, tyres, wheels, frames, and such like. Some of the last named machines we have seen propelling most abnormal loads. In running these machines the maker is killing two birds with one stone, for very often the vehicle used for this sort of work has a number of new departures embodied in its design which are undergoing test.

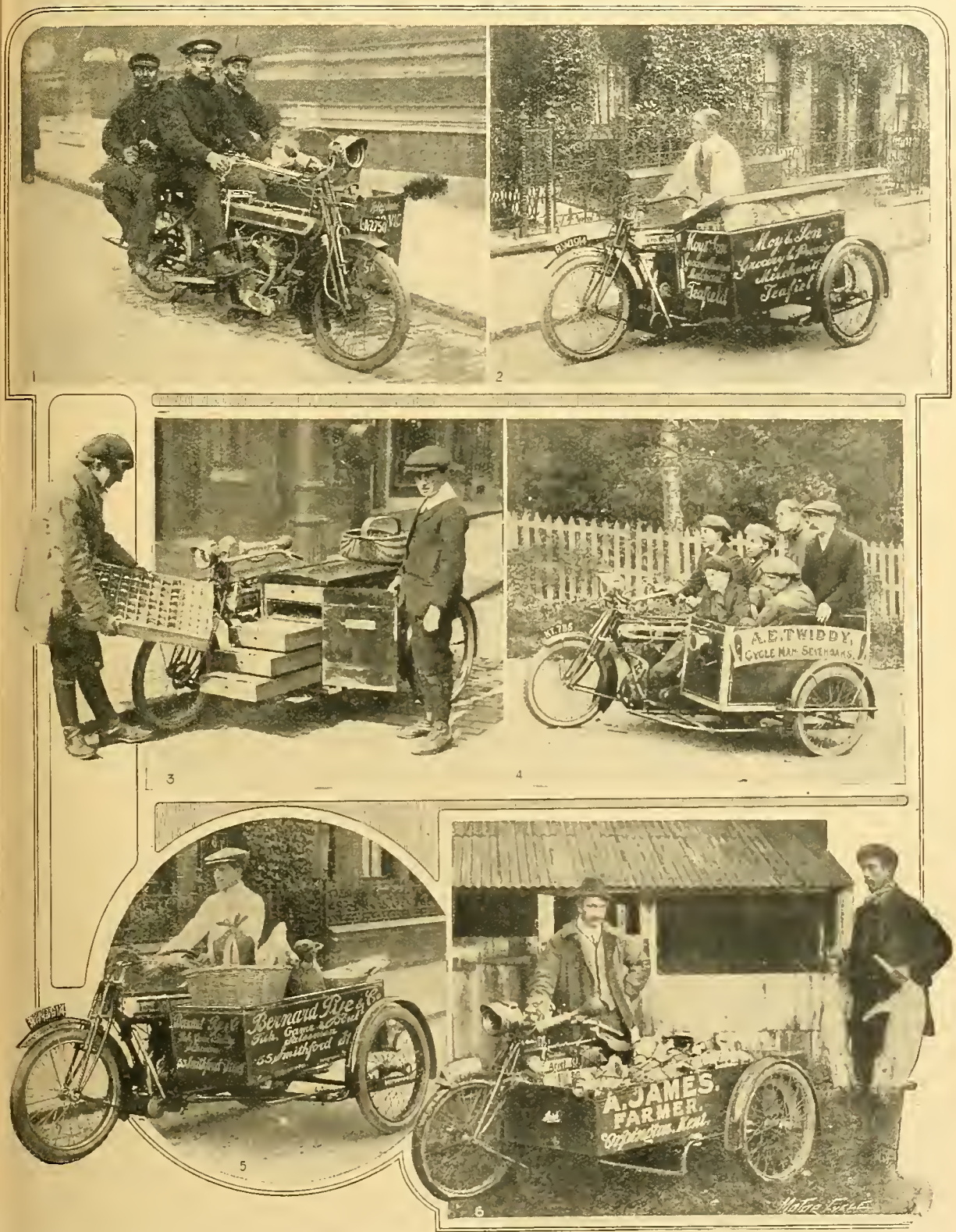
Notes on General Design.

A word as to the design of sidecarriers may not be out of place. Either single or twin-cylinder machines will be found to give every satisfaction, and the power should vary between 3½ h.p. and 6 h.p. A change-speed gear and a good clutch are absolute necessities, for in traffic it is necessary to stop and start frequently, and, besides, occasional stops have to be made in the middle of a hill. A low-compression engine is desirable, owing to the amount of engine running with the car stationary, which would become a nuisance in various ways with a high-compression motor. The low gear ratio should not be higher than 12 to 1, which gear with a good clutch will enable a standing start to be made on almost any gradient with a full load. The question of silence is, of paramount importance, in view of the fact that a tradesman's vehicle will be used mostly in traffic. The springing of the body will naturally depend upon the class of goods to be carried, and a tradesman in ordering should state clearly the weight of the average load he expects to carry.



(1) 3½ h.p. Douglas Post Office carrier.
(2) The New Hudson commercial combination
(3) The A.C. Tradesman's outfit.
(4) The Gloria side carrier.

Sidecarriers in Use Under Varying Conditions.



(1) A chimney sweeper who plies his trade by means of an 8 h.p. Chater-Lea sidecar.

(2) The grocer on his round with a 5-6 h.p. Rudge sidecarrier.

(3) Efficiency of springs on the modern sidecar is demonstrated by the fact that it may successfully be used for the conveyance of eggs.

(4) A motor cycle agent testing the climbing powers of his twin Premier sidecarrier on a Kentish hill.

(5) A game dealer with a Rudge. Expeditious delivery is the heart and soul of a tradesman's business.

(6) The farmer loading up his Ariel sidecarrier for the nearest market.

HOME FROM ANTWERP.

An Interesting Chat with a Motor Cyclist from the Beleaguered City.

LAST week we had the pleasure of a chat with a gentleman from Belgium, who had just come out of the war zone, and who was just going back into it. This was Mr. Leonard Frank Plugge, who is attached to the English Consulate at Antwerp. Mr. Plugge, though of Belgian extraction, is of English birth, and an English subject, being born in London, and is a student of Brussels University in the Section of Mines.

We met Mr. Plugge and his father at the Rudge-Whitworth works, where he was having his 5-6 h.p. Rudge-Multi tuned up to take back to Antwerp. Mr. Plugge informed us that there was no difficulty whatever in reaching Antwerp direct by sea at the present time, and, although he did not minimise in the least the deplorable ravages inflicted by the Germans in Belgium, he was entirely confident that the ultimate end of the war would be disastrous to our enemies, and stated that opinion on the Continent, as far as he could gather, was quite his way of thinking Both he and his father said that they feared the tales of German atrocities were only too true, but both spoke with confidence of the ability of Antwerp to withstand a heavy German attack.

Mr. L. F. Plugge, who is attached to the British Consulate at Antwerp, on his 5-6 h.p. Rudge-Multi sidecar.

Motor Cycles and Warfare.

We were informed that there were not many motor cycles in use by the Belgian Army, and that a large number might usefully have been employed in the earlier stages of the war, and our informant said that from news which he had gathered, motor cycles were playing an important part in the British operations, and were undoubtedly proving their worth and utility in every direction

Mr. Plugge came over from Belgium and landed in company with a party of Belgian refugees at Rochester, where, he said, they were most hospitably entertained by the civic authorities, but while they were fleeing from their country he was returning to Belgium, and said that he would be quite pleased to get back again.

Registration in Belgium.

Reference to the illustration will show the curious Belgian number plates, the numbers of which are about three or four times larger than those employed at home. Motor cycles in Belgium, we were informed, are numbered up to a thousand, after which they beg again with the letter "A" prefixed, and in due cour with the letter "B," though up to the present th have not got further than being in the second tho sand. Cars, on the contrary, have nothing but number, and no letter is ever employed, with the resu that some enormously long numbers are met wit running into five figures. Mr. Plugge told us that t F.N. works at Liège had been totally destroyed, ar corroborated the story of the heroic stand by fema employees at the F.N works at Herstal, suburb of Liège, detai of which we have alread given in *The Motor Cycl* He further added th he had no doubt wha ever that they gave th Germans a warm time as they were fully a capable of fighting as th men.

The Raiding Zeppelins

The Zeppelins, whic have raided Antwerp o one or two occasions an dropped bombs on th city, did not seem t have created much of a impression on our i formant's mind, and h described the bombs a extremely ineffectual causing more noise tha actual damage, and sai their effect was ver different from that of shell from a howitzer. The roads in Belgium generally, we were told, were now in a perfectl appalling condition, being absolutely broken up b the passage of troops and heavy lorries and guns The Germans had made enormous use of moto vehicles of all descriptions in their forced marche through Belgium, we were informed. By these mean they managed to convey their entire army, with al the attendant baggage and provision trains, at th wonderful average speed of nearly forty miles a day

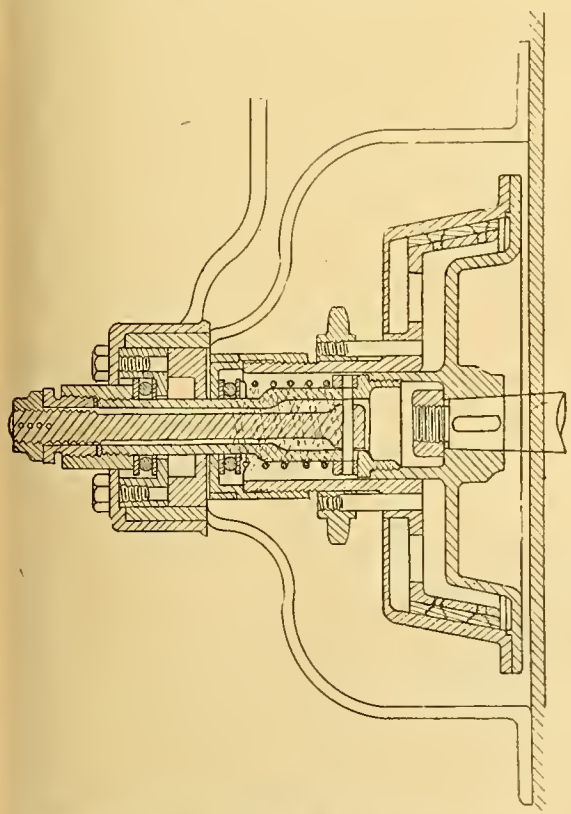
MOTOR CYCLISTS AS SOLDIERS.

PROBABLY no class of young man is mor eminently adapted for warfare than the averag motor cyclist. He is, in the main, young sound, and, by virtue of youth, generally free fron family responsibilities. We feel that, although muc has been done by motor cyclists to assist the Army more might yet be done. Most of these young me belong to a class with possessions worth defending Let them then defend them. The noble respons made by the working classes, who are not blessed wit much of this world's goods, should set a shinin example to these more fortunate young men.

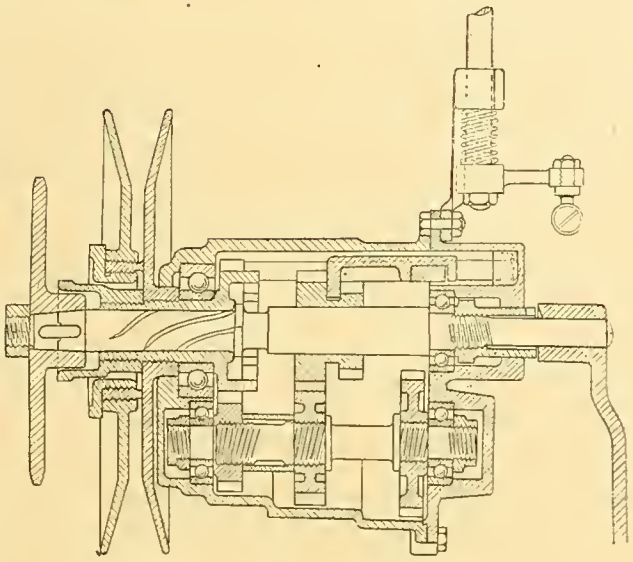
The Juckes Three-speed Countershaft Gear.

AMONG the many countershaft gears which have made their appearance on the market the Juckes two and three-speed gears, manufactured by the Efficient Motor and Engineering Co., Bilston Road, Wolverhampton, have much to recommend them to public favour. The three-speed gear is, perhaps, the most interesting type, and is constructed on car lines throughout and manufactured of excellent material and of strong though not unduly heavy parts. Both main and layshafts run on ball bearings, and the large diameter driving pulley is carried on the same side of the box as the chain wheel. The change of ratios is made by sliding a single member, consisting of two gear wheels, laterally along the main shaft, rotary movement of the sliding member being prevented by feathers on the shaft. The low and middle ratios are brought into use by the engagement of two pairs of gears, while top is engaged by dogs formed with the constant wheel and one gear of the sliding member. The box is clamped to the bottom bracket by bolts and a substantial top plate, and a sensible inspection plate is fitted to the side so that it is a simple matter to fill up the box with lubricant. The starting arrangements are entirely enclosed, and consequently free from grit and foreign matter.

The gear is intended for use in conjunction with a large leather-faced cone clutch fitted on the engine shaft, which is so lightly constructed that it causes no trouble to the engine bearings, while end thrust is



General arrangement sectional view of Juckes patent free engine clutch for three-speed gear box.



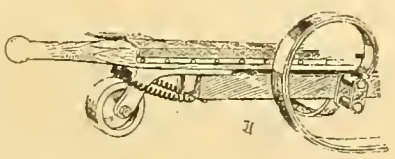
Sectional side view of Juckes patent free engine clutch

taken up by suitable means and does not in any way affect the engine. The clutch is entirely enclosed, and is supplied complete with the control pedal neatly mounted on it, and an additional attachment may be obtained by means of which it is easy to fit up a handle-bar control.

The two-speed gear is also soundly constructed, and both types have shown up well in open competition. We recently had an opportunity of examining the gear fitted to the latest pattern Wolf motor cycle at the Wulfruna Works, Wolverhampton. The gears are very neatly mounted and are a standard fitment to the machine.

ATTACHMENT OF SIDECAR AMBULANCE.

IT is important that the stretchers on sidecar ambulances should be attached in such a manner that there is no possibility of them working loose, and at the same time that a minimum of time and exertion should be occupied in removing them. To this end Messrs. Rudge-Whitworth, Ltd., have devised an exceedingly neat and safe attachment, which is shown in the accompanying sketch. The stretcher is fitted with four castors, to enable it to be easily slid on to a shelf in a large ambulance, and it is attached to the sidecar chassis by means of four spiral springs in the form of loops, which slip over the castor at each corner of the stretcher. This is absolutely secure, and at the same time it is only a matter of a second to push the spring down over the castor, the action of which facilitates such movement



Method of attaching Rudge ambulance to chassis.

THE AUTOMATIC CARBURETTER.

An Article in Praise of the One-lever Instrument.

THE development of the motor cycle in the matter of carburation has been slow, not so much from the point of view of efficiency, but from the point of view of the rider's convenience. It is an undeniable fact that the motor cycle carburetter as at present fitted to the modern machine is a very efficient article, both as regards power and economy. Motor cyclists, however, want more than these points. In fact, they could do with a little less of both, provided they could render their machines more flexible, more controllable, and more convenient to drive. These most desirable attributes are to be obtained at the expense of a very slight loss of power and possibly a slight increase in fuel consumption, but the advantages gained are so great that we are confident that the ordinary rider and the man who uses his mount for business purposes or in the service of his country will be prepared to sacrifice just a shade in ultra-efficiency. During the last two years we have tested a number of automatic carburetters, some good and some otherwise, but despite the failings of these we feel confident that the automatic carburetter is the motor cycle gas producer of the future, just as it is at the present time with the motor car. We do not pretend that the perfect carburetter is to be found even on the most expensive car, but we do affirm without hesitation that the car carburetter is very much nearer perfection than that on the motor cycle. It must be remembered that the automatic carburetter is not suitable for every type of motor cycle, as it can only be used when the "pull" on the carburetter is more or less continuous, a condition which does not obtain in the case of the single cylinder, is better in the case of the V twin, far better with the horizontally opposed twin, and ideal on the four-cylinder.

Advantages not Fully Realised.

Considering the number of multi-cylinder machines on the market at the present time it is rather astonishing that makers have not given the automatic carburetter closer attention, but on second thoughts it will be seen that the blame is to be placed on the actual user for not creating the demand, probably due to the fact that he has not yet realised its advantages. For the past two years the writer has specially gone out of his way to try the best forms of automatic carburetters with the idea of giving readers the benefit of different experiences. These have resulted in his coming to the conclusion that the good points in this type far exceed the bad ones, that the manufacturers have not given them a second thought because the non-automatic type can be supplied in quantities at a very low figure, and the motor cyclist has not yet learned the joys of a gas producer which, when the throttle is closed, does not stop the engine altogether, but lets it tick over at a very low number of revolutions.

Carburetters and Design.

It has not yet been realised that the automatic carburetter has a very important bearing on the design of the motor cycle. It is well within the bounds of possibility that the ultra-lightweight would never have attained the popularity it has if the automatic carburetter had come to the front earlier, as the demand for the small machine is the outcome not so much of the excessive weight of the 500 c.c., but of its lack of flexibility and controllability. It has been the besetting sin of designers to copy rivals too closely, to avoid originality, and not to take the car as a model.

Speed, not Flexibility, the Goal.

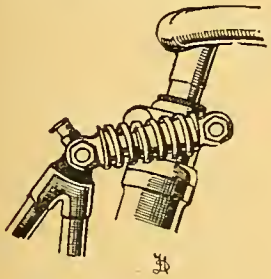
Too much attention has been given to making the machine attain the maximum amount of speed, while the desirable attribute of being able to travel slowly on top gear has been very largely neglected. Those who have had machines which would not slow down nicely in traffic or on greasy roads can fully appreciate these remarks, and many as a last resource have got rid of their high-powered mounts. The amount of efficiency lost with an automatic carburetter is very slight; how little can be gathered from the fact that we climbed the worst hills in the recent A.C.U. Six Days Trials on a 3½ h.p. twin fitted with a carburetter which is to be found on the best cars sold in the United Kingdom, while the consumption was by no means excessive. The benefits which the more modern type of carburetter offer are to be appreciated not only by the inhabitant of the large town but also by the military motor cyclist, who has to pass large bodies of troops on the march at slow speed. In conclusion, it is sufficent to say that the automatic carburetter has arrived, and it bnt remains for the purchaser to ask for it, for the manufacturer to pay attention to his demands, and to fit it as a standard.

Members of the motor cycle section of the 10th Royal Scots Territorial Cyclist Battalion, whose headquarters are at Linlithgow. The photograph was taken in camp, in Ayrshire, just before mobilising for active service.

AMONG THE ACCESSORIES.

Terry's Spring Links.

SOME months ago we received from Messrs. Herbert Terry and Sons, Ltd., of Redditch, a pair of their spring links for trial purposes. These were immediately attached to the forks of a two-stroke lightweight, which has been in daily use ever since. The machine has been ridden over every kind of road, including some of the most



Terry's spring link.

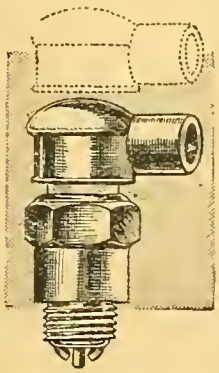
severe trial routes, so that the springs may safely be said to have undergone a thorough test. In every way they have proved a success. The fork springs, which were on the light side, used to cause an unpleasant jar when a bad pot-hole was encountered, and this shock has been quite eliminated, besides many other minor but unpleasant road shocks. It has often been suggested to us that side play would develop in the telescopic joints, but after nearly 4,000 miles hard road use we can truthfully state that there is no perceptible difference from the original state. It is most interesting to watch the action of the springs over rough ground, and one can see at a glance the amount of shock one is saved by the addition of this simple little accessory.

We append a photograph of a pair of springs which in all probability saved their owner's life, for he charged into a horse and cart which was standing on a sharp bend and was seen too late to avoid a collision. It will be noticed that the links have been torn ont of their sockets, and the gradual stretch of the springs greatly minimised the force of the concussion.

A pair of Terry links which emerged, as shown, from a severe impact.

A Well Protected Plug.

The accompanying illustration shows the latest form of the forward waterproof sparking plug, which, it will be noted, is fitted with a terminal which totally excludes dirt, rain, and mud from the insulator.



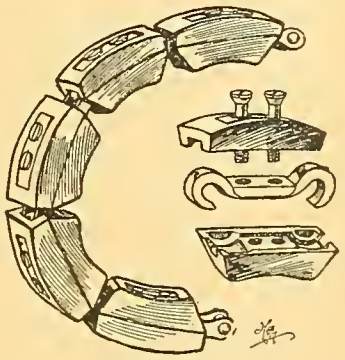
The Forward plug with waterproof cap

Handy Box of Patches.

The advantage of being able to carry half-a-dozen assorted patches in a handy tin in which they will be kept in good condition is evidently realised by the Severn Rubber Co., Ltd., Newhall Street, Birmingham, who have just placed on the market a small tin box containing six Severn special patches, which retails at sixpence per tin.

The Lily Patent Chain Belts.

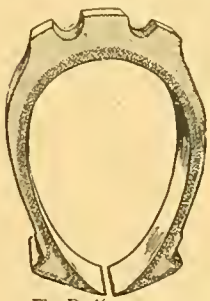
We have on previous occasions referred to chain belts manufactured by Mr James Haslam, Goodson Road, Fulham, S.W. On this belt, known as the Lily, the links consist of steel embedded in rubber, and thus protected from wet and grit. The joint is effected by hooks instead of links, embedded in a similar manner, and these are supplied in several sizes, so that varying lengths of belting may be obtained. The inventor claims that the belt cannot be stretched.



A chain link belt

The Redfern Tyre.

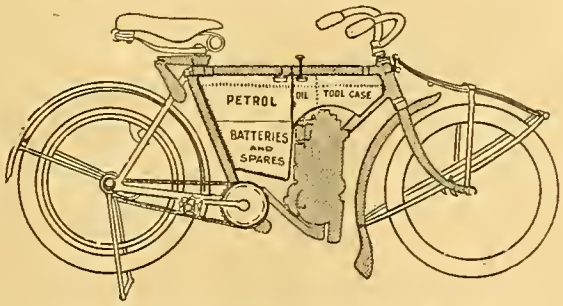
The accompanying sketch is of a tyre section taken from a cover manufactured by Messrs. Redfern's Rubber Works, Ltd., Hyde, Cheshire. The cover is of the three ribbed variety, of a pattern which we know to be exceedingly good, both as regards wear and absence of side-slip, and in its design care has been taken to form the contour of the tread in a rounded fashion, as this has been found by experiment to give better wear than the flat type tread with square spaces between the ribs. It will be noticed that the grooves or space between the ribs on the Redfern tyre are semi-circular in shape. The design of this cover is registered, and it is made in 26×2, 26×2¼, and 26×2½ for 2¼in. rims. These tyres have been used successfully in the Jarrott Cup competition and the London-Edinburgh run.



The Redfern motor cycle cover.

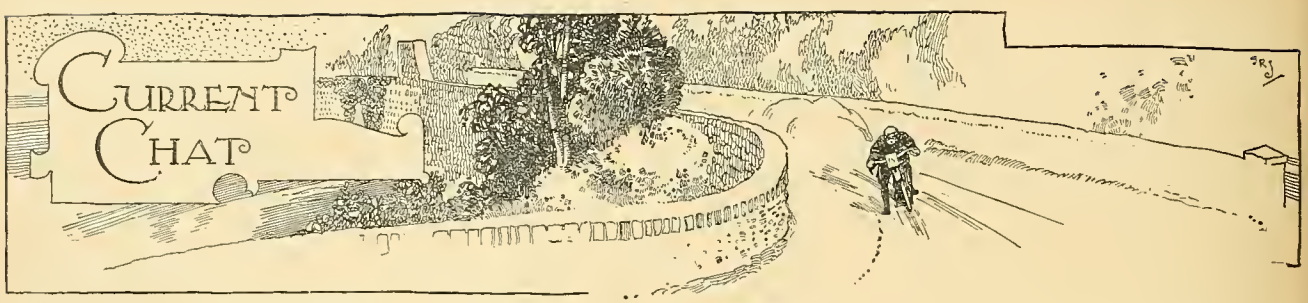
DESIGNED FOR RAILWAY TRAVELLING.

AN original little featherweight motor cycle has been constructed by a French private owner named Mignan. The engine is 60×70 mm. bore and stroke with an outside flywheel and battery ignition. The principal feature of the machine is that the large tank containing petrol and a compartment for the battery and coil is divided vertically into two parts and hinged, which allows it to be detached and folded and carried under the arm, should the rider wish to travel by train and take the machine with him. The front part of the tank is a tool case, the oil compartment is in the centre, and the petrol compartment at the back. The batteries, trembler coil, and spare parts are carried in the lower portion. The engine is reminiscent of the Clement-Garrard, and is fixed to the frame by one lug which renders removal a simple matter. A special spring fork with a flat leaf spring, and provided with safety tubes, is a feature of the machine, the action being clearly brought out in the line drawing which we publish. The main reason for providing removal of the petrol and battery partitions is that in France the machine then becomes an ordinary cycle, which may be carried as passenger's luggage for any distance by rail by payment of a registration fee of a penny.



Mignan's featherweight machine with detachable tank and engine.

The weight of the complete machine is in the neighbourhood of 70 lb



TIMES TO LIGHT LAMPS.

Sept.	10th	...	...	7.27
,,	12th	...	...	7.22
,,	14th	...	...	7.17
,,	16th	...	...	7.12

A Novelty in Trials.

Something in the nature of an innovation in motor cycle trials is likely to be held on September 26th, when the Streatham and District M.C.C. propose holding a trial for military motor cyclists. Subject to the final rules being approved, the A.C.U. have decided to grant the usual permit.

Motor Cyclist Messengers.

From several sources we learn of the great reliance placed on motor cycle despatch riders at the front. One of *The Daily Mail* correspondents states that the enemy have learned our bugle calls by heart, and consequently nearly all messages are carried by hand and motor cyclists are entrusted with this important work. This is an immense testimony to the reliability and ability to get anywhere on motor cycles, as, of course, they often have to operate over the roughest of open country.

Motor Cycle Imports and Exports.

The Board of Trade returns for the month of August, 1914, are now to hand, and show that, despite the war, there is still a large trade being done by British manufacturers of motor cycles. In August, 1,324 motor cycles of an export value of £55,511 were sent out of the country, bringing the grand total for the first eight months of 1914 to 14,231 motor cycles, value £612,951. Imports of motor cycles for August, 1914, totalled 97 machines, value £3,831.

The Triumph Co., Ltd., and its Shareholders.

Last week a statement was made in one of the evening papers to the effect that the capital of the Triumph Cycle Co., Ltd., was mainly German, and that the shares were mainly held by Germans. We are informed by the Triumph Co. that this is an absolute misstatement. Over 95% of the capital is British, and in the hands of British subjects. Those who know the Triumph Co. scarcely need reassurance in this matter, and there is no doubt that they have done more for the British motor cycle industry than any other firm in this country, because they stuck to the manufacture at a time when the motor cycle movement was at its lowest ebb, and when other cycle firms were dropping out of it.

The Motor Cycle Industry and Recruiting.

A paragraph has appeared in the press this week speaking in disparaging terms of Coventry as a recruiting centre, and making the remark that, whereas in London one sees hundreds of men in khaki, one hardly ever sees a Coventry man in uniform, and winds up by querying whether Coventry is going to ignore Lord Kitchener's appeal for men, added sarcasm being imparted by the printing of "men" in capital letters. Anything more absurd it is impossible to imagine than this paragraph, which is a gross insult to the motor cycle industry, for, as a matter of fact, we are informed by the Chief of the Recruiting Station at Coventry that recruits at a rate of a thousand per week have been accepted, and, further, that they are of the very highest type. The statement that men are not seen in khaki only accentuates the lack of knowledge of local conditions displayed, the simple reason being that none of the recruits are equipped in Coventry itself,

SPECIAL FEATURES.

NEWS FROM THE FRONT.
SIDECARRIERS FOR TRADESMEN.
THE LATEST FREAK HILL.

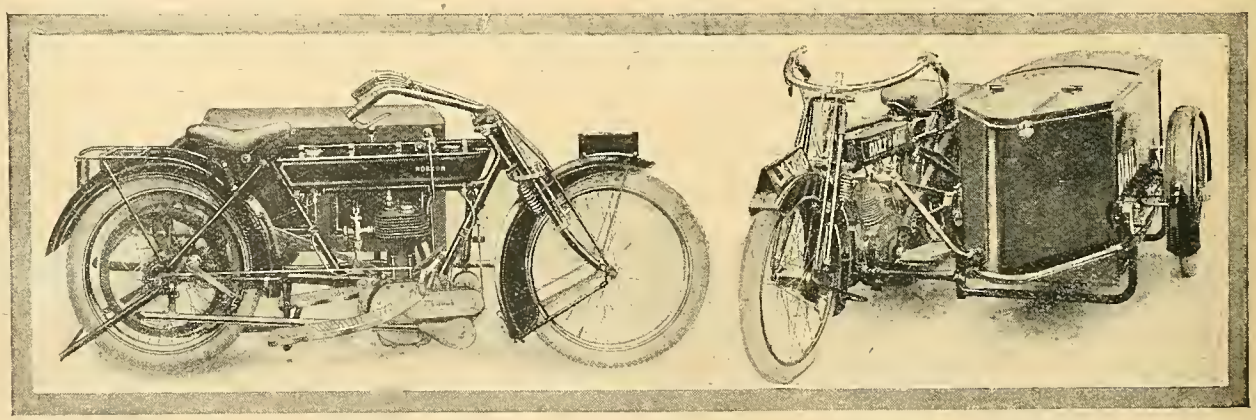
but the moment they are enlisted they are drafted to the various depots in the surrounding district, where they receive their kit and uniform. Further, it may be mentioned, that owing to the great congestion on the recruiting office at Coventry a large number of Coventry men are joining at Nuneaton and Warwick, and leaving direct for the Army Service Corps with the machines they are accustomed to drive. Incidentally, it may be stated that, by two days after the declaration of war, Coventry had sent off three thousand reservists.

Directors at the Front.

It is not often one finds such a degree of patriotism as that shown by the directors of Messrs. Burney and Blackburne, Ltd. Messrs. Cecil Burney, Alec Burney, and C. Q. Roberts, three directors, volunteered for the front, and the latter's brother, A. Q. Roberts, has also gone.

Speed Judging Test.

The Finsbury Park C. and M.C.C. held a speed-judging test on Saturday last over a fifteen mile course near Radlett. The schedule speed was eighteen miles an hour, and the use of speed indicators and watches was, of course, prohibited. One mark was deducted from a possible hundred for every half minute early or late on each of the six sections. The winner proved to be C. W. Cooke (ninety-two marks), while J. Evans (eighty-nine marks) was second. The former thus wins the Touche Cup for the best aggregate score in the above event.



THE SIDECARRIER IN USE. On the left is the Norton, and on the right one of *The Daily Mail* Rex carriers

The Autumn One Day Trial.

The Auto Cycle Union has decided to proceed with the organisation of the Autumn One Day Trial to be held on October 28th. The centre from which this trial will be held will probably be Worcester.

Spares for War.

We are informed that following upon a large order for P. and M. machines from the War Office, Messrs. Phelon and Moore, Ltd., have just completed a further order for spare parts for the War Office, which, if built into complete machines, would be sufficient to manufacture nearly thirty-five motor cycles. The spare parts are being packed in three representative assortments to be held in reserve at three places abroad for the use of the Expeditionary Force.

The Show Question.

The question as to whether or not the Olympia Motor Cycle Show shall be held this year has been deferred for settlement until the end of the present month. At that meeting the Managing Committee will consider the suggestion of *The Motor Cycle* that the car and motor cycle shows be amalgamated this year in view of the state of the country. A number of manufacturers, it may be mentioned incidentally, have favourably commented upon our suggestion to amalgamate the shows in 1914.

Home from the Wars.

We learn that the three electrically-lighted Matchless sidecar outfits, which had to be left behind in France by R. E. Guest and the brothers Collier after the abandonment of the F.I.C.M. Six Days Trial, have turned up again at the Matchless works at Plumstead. There was no means of ascertaining from what place they were sent, but it may be imagined that Messrs. Collier and Sons were none the less pleased to see their valuable property again, even if it were a little the worse for wear through what had evidently been a rough journey.

Rifle Practice.

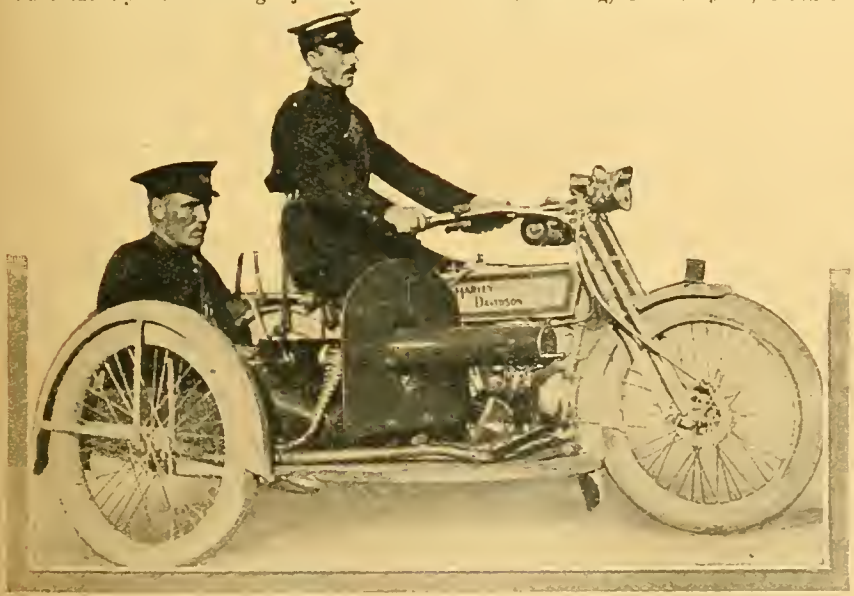
Considerable enthusiasm is being shown in the new rifle section of the Coventry and Warwickshire Motor Club. An instructor has been appointed, and the use of the Humber rifle range has been offered every Wednesday evening by Mr. Niblett, works manager of Humber, Ltd. Already the members are proving themselves proficient in the handling of a miniature rifle.

Out Again.

Last week we met W. Creyton, the Manxman, who was formerly with the Triumph Company, but latterly with Abingdon Ecco, Ltd. Creyton, it may be recalled, suffered a rather severe accident, due to a tyre bursting, whilst practising for the T.T. Race. He has been out of hospital now for three or four weeks, and we were glad to learn that he was ready for work again.

Identification of A.A. Members.

Members who have been constantly stopped and interrogated when touring have appealed to the Automobile Association for advice. Driving licences are not always accepted as a means of identification, for the reason that there is nothing on these documents to connect them with the persons carrying them. The Association is authorised by the Local Government Board to issue international travelling passes, which contain descriptions of the motor cycles to which they apply, and identify drivers by means of photographs attached. The pass is issued by the Association after examination of the motor cycle and driver. For this purpose it is only necessary for the driver to attend with his machine at the head office of the Association in London, or at any A.A. branch office. If none of these places be convenient, the examination may be carried out at one of the following towns where examiners have been appointed: Bournemouth, Carlisle, Darlington, Hull, Ipswich, Llandrindod Wells, Middlesbrough, Newcastle-on-Tyne, Oxford, Reading, Southampton, Stockton-on-Tees, Swindon, and West Hartlepool. For a motor cyclist the fee is 10s. 6d. Any international pass so issued may be taken advantage of when foreign touring again becomes possible, as it is valid for one year, and can be renewed without further examination at a cost of 3s. 6d., provided that application for renewal be made before the expiration of the pass.



Quartermaster Sergeant H. R. Northover, of the 90th Canadian Militia, with the Harley-Davidson sidecarrier and Maxim gun.

Vigilance on the Roads.

As showing the care exercised by the authorities in guarding the roads, we hear that W. Whitaker, a member of the Woolwich, Plumstead and District M.C.C., was stopped no less than twenty-one times on a recent journey from Dover to Woolwich. Near Ashford he noticed a steam roller held up, and the driver and his mate asked to prove their *bonâ fides*.

Americans after German Trade.

The Board of Trade has issued a circular in which the following appears: "According to telegrams from New York, United States of America firms are preparing to send a veritable army of commercial travellers to South America, especially to Brazil, Argentina, and Chile, with a view to capture of German trade in those markets."

High Speeds in Australia.

Some excellent speeds were recorded in the ten mile road race held near Donnybrook by the Victorian M.C.C. E. Tyler covered the distance at the rate of 60½ m.p.h., which constitutes an Australian record for an out and home course, and, considering the nature of the Australian roads, this speed is remarkable. The open event was very keenly contested. Results:

OPEN EVENT.

		Start.	Riding time.
		s.	m. s.
1	S. Nunan (3½ Triumph)	65	10 57
2.	Eric Tyler (7 Indian) ...	scr.	9 54
3.	E. Mayman (3½ Triumph)	60	11 0
4.	H. Jenkins (7 Indian) ...	scr.	10 7

NOVICE RACE.

1.	H. Pannach (7 Excelsior)	scr.	10 37
2.	H. Hawkins (3½ Rudge)	60	12 2
3.	M. Entwistle (6 J.A.P.)	20	11 35
4.	J. Mayman (3½ Triumph)	70	12 40

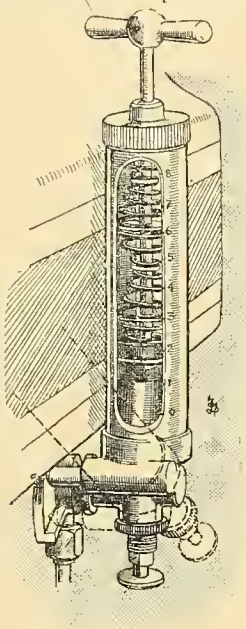
Sidecarriers for Maxims.

The illustration shows Quartermaster Sergeant H. R. Northover of the Ninetieth Regiment Canadian Militia, known as the "Little Black Devils." He also holds the rank of regimental armoury sergeant, and is the designer of the new fighting machine shown in the picture. The Harley-Davidson, which is handled in this country by Robertson's Motor Agency, 157, Great Portland Street, W., is fitted with a most flexible engine and, according to our informant, can travel at four miles an hour or can be hurried to a distant point at considerably over forty on favourable ground. During the manœuvres, when word was received that the Ninetieth would probably be in the first division from Canada to be sent to Europe, the motor cycle artillery was driven for two and a half hours through lines of people extending from the path to the middle of the road, and travelled through water and ploughed fields with the rest of the artillery.

THE LATEST IN LUBRICATORS.

An Ingenious Device combining Drip and Straight Through Oil Delivery.

MESSRS. ROTHERHAM AND SONS, LTD., whose name is famous as a watch manufacturing firm as well as makers of ingenious accessories for cars and motor cycles, are often responsible for interesting novelties, and their name is a guarantee of fine workmanship. The latest device produced by the firm is an unusual form of drip feed lubricator



A new Rotherham oiler, showing volute springs and graduated barrel. The dotted lines indicate position of barrel when set to return charge to tank.

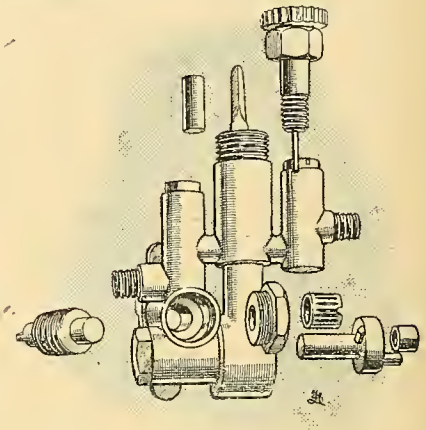
which incorporates several features distinct from the ordinary type.

The pump barrel is carried at the side of the tank and is pivoted at the bottom so that it may be swung through a small arc. Normally it is held vertical by a spring plunger, and in this position the pump is connected to the engine and forces the oil through a valve by means of which the pace of the feed can be regulated, while a light application of the finger to a push button underneath allows a charge to run straight through and, a point of great importance, in no way disarranges the setting of the drip for the next charge.

Should part of a charge remain in the pump at the end of a run, by the simple expedient of pulling the barrel backwards through the arc already mentioned the oil is allowed to flow back direct to the tank, cleansing any sediment in its passage. An innovation in design is the use of six volute springs behind the plunger instead of the usual single spiral; this allows a longer working stroke per barrel length, and the springs compress into an extremely small compass and also provide a steadier pressure, so that the speed of the drip does not fall off so quickly as with a single spring. The barrel is of glass, and a white metal disc between the two leather plunger cups is easily seen, and the speed checked as it passes numbered graduations on the outside of the barrel holder. We have seen the pump in use and were extremely impressed with its possibilities.

A Mechanical Feed Pump.

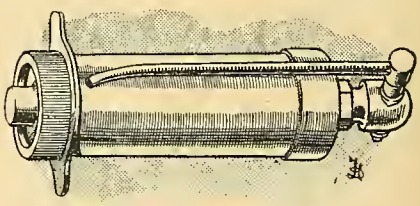
A pump of a very different type is the mechanical feed pump which has been in use by several well-known riders for some time. Harry Reed employs one of this type on his Brooklands 8 h.p. Dot. The drive from the camshaft is conveyed through a worm reducing gear to a spring returned plunger in the central barrel. Each of the two side barrels contains a simple non-return valve, and the oil is fed direct from the tank to the desired spot at a regular speed, which, of course, increases or decreases with the engine speed. A simple adjustment for the flow is provided by a milled nut acting through the return spring.



Rotherham's mechanical oil feed. The working parts are shown exposed.

A Clever Petrol Squirt.

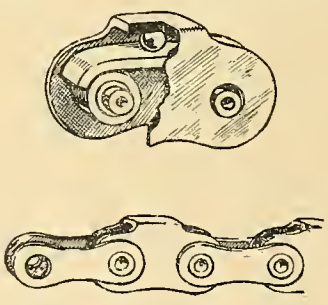
Another neat accessory is the tool kit squirt, which consists of a metal container, inside which lies a thumb-operated plunger, the nozzle at the bottom being pivoted. To fill or eject liquid the nozzle is turned outwards, but when turned back along the container the receptacle is closed and is claimed to be petrol-tight. When tested at the works we found it was even airtight, and if the plunger were depressed and the nozzle turned back the return spring was unable to overcome the vacuum.



Rotherham's self-filling squirt

THE CUSH CHAIN.

CHAIN drive is steadily gaining in public favour, but those who are accustomed to the belt maintain that it can never be so sweet and flexible. This point is open to doubt, and it is in an attempt to attain this end that Mr. H. Blocksidge, of 14, Frederick Place, Clifton, Bristol, has devised what is known as the Cush chain. Mr. Blocksidge is well-known among West of England motor cyclists, and his experience is long and varied, so that his assurance that the results obtained from his patent chain are excellent carries some weight. The idea of the device is to provide a certain amount of flexibility in the chain without spoiling the driving pitch, and his method of attaining this end can be clearly followed from the appended sketch. Every other link is formed in an arch, and the roller pins are allowed to float in enlarged holes in the side members. They are normally held in their lowest position by a strong leaf spring held in position under the arch by a steel ball engaging in recesses or dents. The springs are turned over at the end so as to maintain the correct pitch as far as possible under all circumstances. Yet it will be seen that under sudden loads, such as when the engine is running slowly on a high gear, the chain will stretch slightly and take up the jar. An additional advantage is that the arch and springs protect the rollers from mud, and the links are practically self-cleaning. Should the springs weaken after prolonged use, they may be renewed by slipping a dented flat spring over the standard curved one and thus bringing the pressure up to the normal state once again.



The construction of the Cush chain.

It may be added that exhaustive experiments have been carried out on a 3½ h.p. single-cylinder machine and sidecar, and we are told that not only has the chain stood up perfectly, but that the increased comfort provided by the Cush chain is very noticeable. All parts are carefully hardened.

" . . . repair outfit . . a needless encumbrance "

Messrs. W. & A. Bates, Ltd.
Leicester

Taunton Devon,
Aug 26th 1914

Dear Sirs,

I should like to inform you of the high esteem in which I hold your tyres

I have run them on my T.T. Triumph over the worst road surfaces in Devonshire at forced high speeds, during the worst of weather, for over 2,500 miles without a single puncture and the tread is now as good as ever on both rear and front tyres

Bates' excellent tyre service is liable to breed contempt as a puncture repair outfit seems a needless encumbrance

When re-fitting tyres I shall always emphasize "must be Bates."

I will send you my rear cover for your inspection if it is of any use to you, they seem fit for another 2,000 yet

Wishing you every business success with your tyres which are the highest pinnacle of efficiency.

I beg to remain
Yours fraternally,
(Signed BERT OSTLER

Note the centre of the tyre section illustrated, it is dome shaped, extremely thick, and takes all the heavy wear.

On each side are scientifically designed ridges. Note how these ridges grip the road and prevent sideslip when your mount heels over. If the machine doesn't heel, the ridges don't grip, therefore don't wear.

They are there when wanted.

Send for the Bates' Book, "Truth and Tyres."

It's full of useful tips, and hows and whens and wheres — things that every motor cyclist wants to know.

It will be sent free for the asking. Just your name and address on a postcard, that's all.

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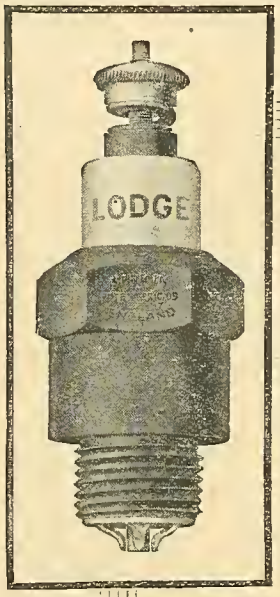
Bates SUPER RUBBER. Tyres



¶ Hitherto we have refrained from recommending motorists to use Lodge plugs simply because they were British made.

¶ Our aim has always been and always will be to make the **best** plug in the world.

¶ We understand, however, there is at this present juncture a special desire of motorists to know which accessories are really British Accordingly we have pleasure in stating that

LODGE PLUGS

are made in England, : by an English firm, : with English capital.

AS USED BY ALL H.M. GOVERNMENT DEPARTMENTS.

Standard model, as illustrated, **4/-** each, of all dealers,

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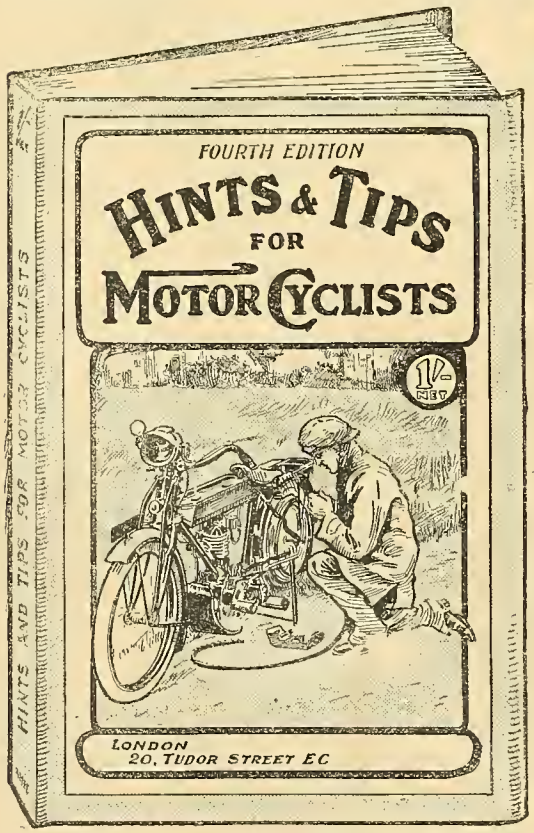
THE LODGE SPARKING PLUG Co., Ltd., BIRMINGHAM.



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Revised, Enlarged, and brought up to date.

"Hints and Tips for Motor Cyclists" contains what may be termed the cream of all motor cycling knowledge up to date. The book gives hundreds of useful "wrinkles" and little items of information concerning the running, management, and repairs of motor cycles, culled from the experience of many years of riding, and covering every detail of the machine. The arrangement is simple and straightforward and reference is simplified by an extensive index and marginal subtitles on every page. Invaluable to the new rider.

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from Iliffe & Sons Ltd., 20, Tudor Street, London, E.C., and all Booksellers and Railway Bookstalls.

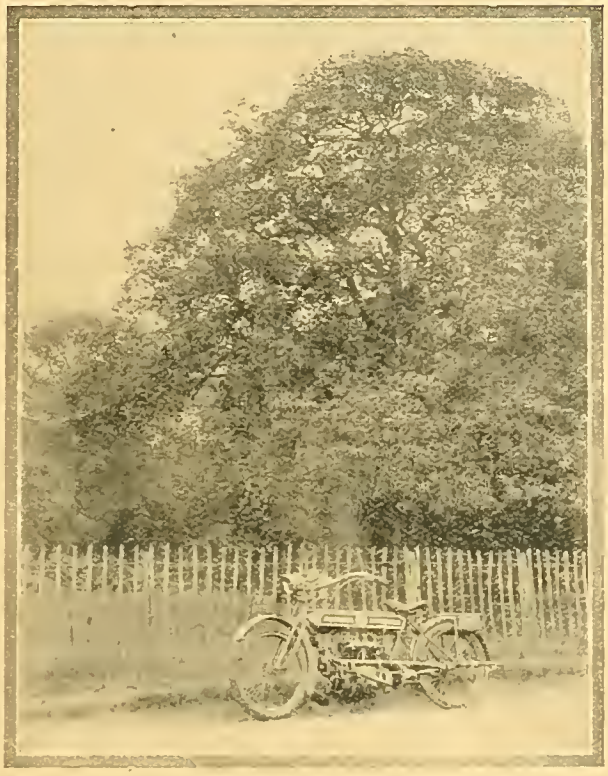
The Latest 7 h.p. Four-cylinder F.N.

A Powerful and Flexible Machine: Mechanical Inlet Valves and Special Lubrication.

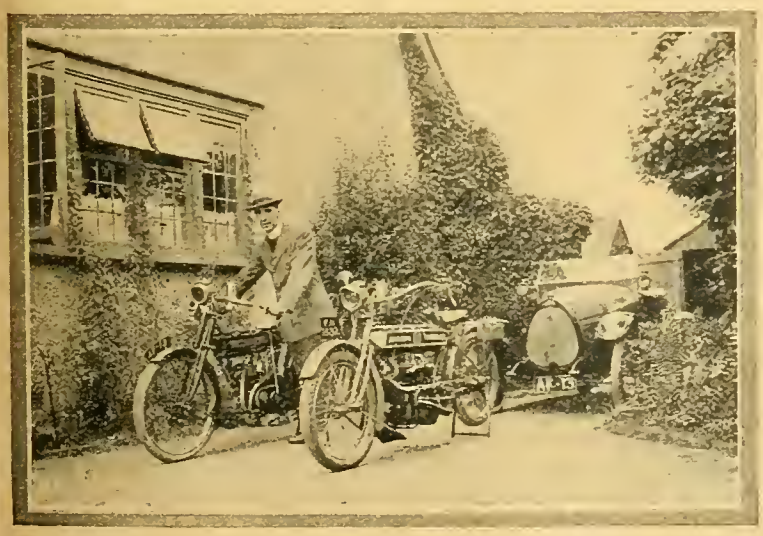
SO much has been heard about Liége of late and the gallant defence its suburb Herstal made against the Germans, that a few lines concerning the well-known products of the Belgian small arms factory, which is situated in that locality, and, as is well known, took no small part in the proceedings, will be of interest. Thanks to the courtesy of Mr. Gelder, the manager of the F.N. motor agency in London, we were given the opportunity of testing both models, the 2½ h.p. and the 7 h.p., though, owing to its being the newer of the two, we intend to deal more fully with the latter. The smaller of the two machines is a thoroughly handy and practical little mount, of medium weight, and of moderate horse-power, capable of an unlimited amount of hard work, and possessing the admirable wearing qualities for which the F.N. is famous. Our experience with it was in the streets of London, in which it acquitted itself splendidly and was a most appreciable help to us in our work. We were much interested and pleased at the smoothness and silence of the bevel drive on this machine.

Novel Points in Motor Cycle Practice.

The 7 h.p. is a great contrast to the latter. In the first place, it is an entirely new model which was only introduced at the beginning of the year, and about which as yet little has been written. At the time of its appearance at the Show it created much interest on account of the many novel features it embodied, features not necessarily new in themselves, but novel in motor cycle practice. It was the first machine to emanate from this factory which was fitted with a four-cylinder engine equipped with mechanically-operated inlet valves, and the first motor of this type to be fitted with a mechanical system of lubrication. Add to these the gate change, the three-speed sliding gears, and the multi-disc clutch, we find points which at the time of its introduction could not be said to conform to the practice usually followed by motor cycle manufacturers. As may be imagined, with all these refinements a machine of 7 h.p. is by no means a lightweight, in fact the new four-cylinder F.N. makes no pretence of being anything but a heavy mount, and in this short article we will endeavour to show, as we have done on previous occasions, that weight matters very little on a motor bicycle.



A fine old oak between Leatherhead and Chessington.

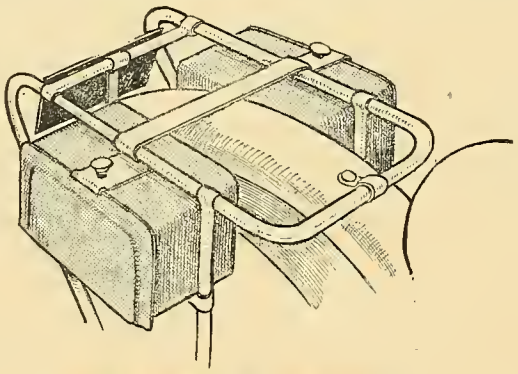


Preparing to start

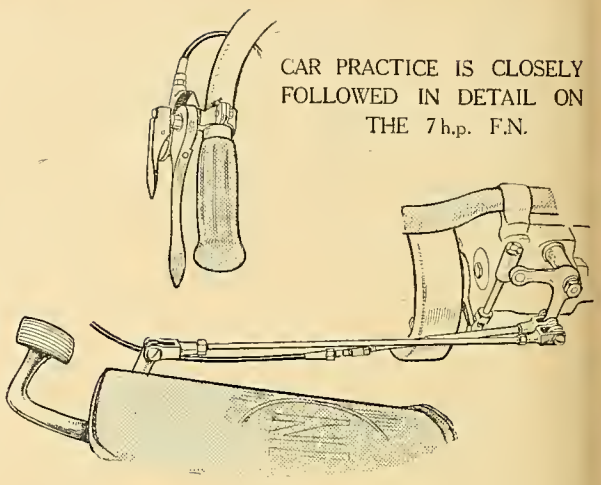
It is only when the machine has to be wheeled about or pushed from place to place that the extra weight is at all noticeable, and it was with the intention of trying to prove this fact that we purposely had the sidecar, with which the machine was fitted, removed. Once on the road the weight was absolutely forgotten, exactly as was anticipated. Even from dead cold the engine would start on the first or second depression of the excellently designed foot starting device. The clutch was a little difficult to free owing to its having an extra plate, but when once warm it gave no further trouble in this respect. Changing up was not quite so easy as changing down. If no real difficulty was experienced, and it must be pointed out that the machine we were using was by no means a new one, and had seen much service. It had been originally ridden by Gosse, who had accompanied us on it most of the way of the last London-Edinburgh run.

The Latest 7 h.p. Four-cylinder F.N.—

We found the engine to be extremely flexible and capable of the most extraordinary powers of acceleration, which were more strongly developed than in any other machine we have yet ridden. It is with no exaggeration that we say that when the throttle was opened the saddle seemed inclined to slide from under us. The sense of such enormous power was delightful, and, of course, greatly increased the pleasure of driving. It was not until we had left the great city behind that we were fully able to appreciate the wonderful turn of speed the machine possessed, or to appreciate to the full the marvellous acceleration, but it suffices to say that we were entirely satisfied in both these respects. We lunched with our friend the Rev. E. P. Greenhill in the country, who afterwards set out with us on his twin 3½ h.p. Motosacoche to climb one or two of the best known Surrey test hills. Not far from his house is Wray Lane, at the top of which we arrived. We descended to the bottom and by doing so were able to realise its severity, and then turning round sailed up without any run. The F.N. took it in excellent form, climbing all but the last portion on top gear, the second being only requisitioned for the last few yards, which are really steep. Next we went down Reigate Hill and made our way to Betchworth, whence Pebble Hill is reached. This was taken on the run, and two-thirds were covered on top speed, the rest was finished on second at certainly not less than twenty-five miles an hour, a feat which pleased us greatly. The return journey was made through Leatherhead, where we said good-bye to our companion, and Surbiton. We found the spring forks very efficient and the machine steady and most comfortable to ride. In traffic the hand-controlled clutch was a delight to operate, the brakes were smooth in action but powerful, and the machine as a whole most satisfactory, while despite its weight and power it was very tractable. What contributed in no small measure to its extreme comfort were the 650 mm. × 75 mm. Engelbert tyres fitted, which, like the F.N., are of Belgian manufacture.



Metal tool boxes on the four-cylinder F.N



CAR PRACTICE IS CLOSELY FOLLOWED IN DETAIL ON THE 7 h.p. F.N.

Hand and foot-gear control on the 7 h.p. F.N

German and Austrian Motor Cycle Trade.

AN exceedingly interesting table of figures, showing the number and value of motor cycles exported from Germany and Austria-Hungary, and the country of their destination has just been issued by the Commercial Intelligence Branch of the Board of Trade. The figures given for Germany are those of 1912, and for Austria-Hungary those of 1913. Of course, the totals are vastly inferior to those of Great Britain, but all the same quite a decent total is shown by Germany, which it is well worth an effort by our manufacturers to pick up. The total exports of motor cycles from Germany in 1912 amounted to 3,084 complete machines, valued at £124,600. The best customer was Russia, who absorbed 577 machines, but this market is likely to prove unfruitful in the near future. Denmark comes next with 503 machines. The United Kingdom took 214 German motor cycles in 1912

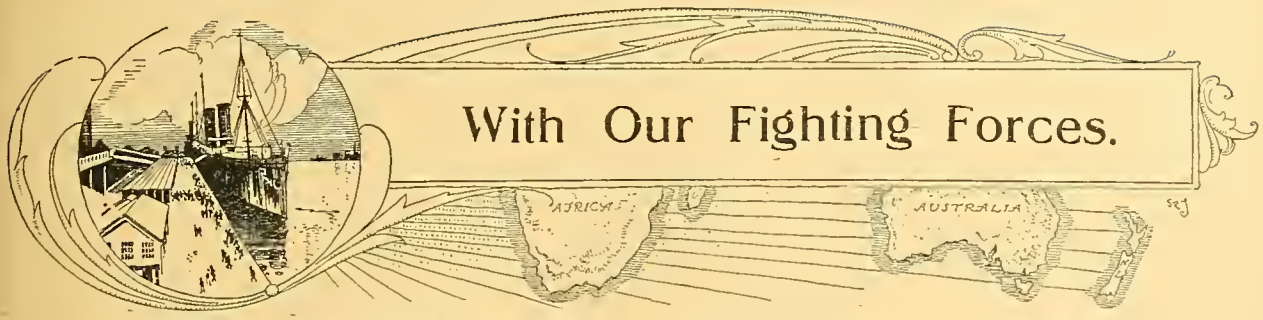
Denmark a Likely Market.

The Austria-Hungary figures are feebler than the German, as in 1913 only 157 complete machines were exported, of a total export value of £6,690. Denmark is again the best customer, taking 30% of the output. This goes to show that the Danish market is one to which our manufacturers should pay immediate attention, more particularly as relationships between Denmark and Great Britain are of the happiest description.

Against these figures it may be well to recall that the total exports of motor cycles from Great Britain during 1913 were 16,887 machines of an export value of £734,319. These figures would easily have been bettered had peace continued throughout the year, and without doubt, after the war, will rapidly rise to a still finer total.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and all that are notified to us are inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.



With Our Fighting Forces.

Exciting Experiences Related by Motor Cyclist Despatch Riders.

OWING to the fact that our interview with Vernon Busby last week took place just as we were going to press, it had of necessity to be cut somewhat short, but it may easily be imagined that his experiences would fill a great deal more space than that which we were able to devote to them in our issue of September 3rd.

The first information that Busby had that he was wanted was in church on a Sunday evening, and thereafter things moved apace. The reason of his selection was due to his wide experience with motor cycles, and the fact that he had served some time with the Yeomanry.

The first place at which he had to report himself was Chatham, the headquarters of the Royal Engineers. Everything was done in a terrible hurry, and there was only time for a few drills. An officer addressed the section and told them that they would be engaged in the most dangerous work, and if half of their number reached England again they would be lucky. The voyage from Ireland to the French coast was naturally by no means a comfortable one. The Signalling Company had to sleep on deck, and their food consisted of bully beef and biscuits, which, to the civilian accustomed to the daily comforts of English home life, was exceedingly trying. As far as we can gather, this fare was the mainstay of the company during the greater part of the time.

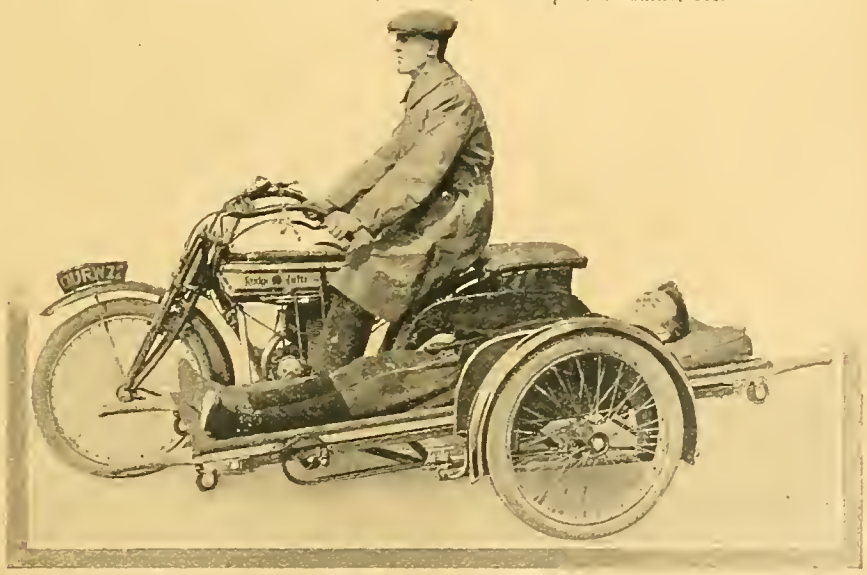
A New Fuel for Army Lorries.

It is interesting to note that in France all the motor vehicles attached to the Army, of which there was a very large number, were supplied with British petrol, taken over in two gallon cans. It was a curious mixture, and did not smell at all like ordinary petrol, consisting as it did apparently of a mixture of benzole and several different grades of motor spirit. Vacuum oil was also taken over in petrol tins painted white. Petrol was also taken in tanks and sometimes served out in open buckets.

The journey from the base to the front in guards' vans was also a by no means comfortable experience, the motor cyclists travelling in horse boxes of no great size and having to lie down as best they could by the side of their machines. At last the discomforts of the tediously slow railway journey were so terrible that, for want of something better to do, one or two of them climbed along the footboards and got on to the engine. The driver was extremely honoured to receive this visit from two English soldiers, and gave them a most hearty welcome; in fact, they had not been very long on the foot-plate before they were driving the train, pulling levers, blowing the whistle, generally making themselves at home, and enjoying themselves under circumstances which could not possibly arise on an English railway. It is interesting to note that the engine was fitted with a speedometer, the working of which the driver took much delight in explaining. *A propos* of this, we may mention that the reception accorded the Englishmen in every direction was perfectly wonderful, and over the Belgian frontier, men, who had never seen English troops before, would often come up to them and put their hands on them in a manner almost more reverent than affectionate, which was almost embarrassing, since the inhabitants regarded them as the deliverers of their country. In one or two districts the appearance of the English troops struck terror into the inhabitants, as, never having seen them before, they mistook them for Germans, and it took the French scouts and officers with the English column to explain their true nationality.

Difficult Work for the Motor Cyclists.

There were fifteen motor cycles altogether and two spares in Busby's detachment, and as the number of machines wrecked was considerable, the former were soon used up. The first time they camped out in the interior they quickly became aware that they were living under war conditions. No man could go abroad without a *laisser-passer*; and the signalling company wore a blue and white armlet, without which a man was liable to be shot at sight by any sentry. After two days in a French town they had again an order to advance, this time by road. Busby was responsible for all the machines in the section, and when the advance was made it was along a road lined with motor lorries, which raised the most appalling dust. The motor cycles had to get past them as best they could, sometimes climbing from the road way on to the path at the side, and hitting the crank cases in so doing; in fact, Busby emphasises the necessity for War Office machines being specially designed, and that, among other things, high crank case clearance and most efficient clutches were desirable. At a little town called P—— the troops arrived and took possession of the post office, in the garden of which Busby slept. Here they had a wonderful reception. The next day the motor cyclists were engaged all day long laying telegraph wires, hunting for faults, carrying despatches when the telegraphs failed, and going in search of lost transport columns, etc.



Motor cycle ambulances are now receiving a considerable amount of attention from the War Office and other bodies. The illustration shows the latest Rudge-Multi ambulance chassis, which has been submitted for the approval of the War Office authorities

With Our Fighting Forces.—

The next night was spent in a private house belonging to some wealthy resident, and here they were comfortable and procured many luxuries in the way of food and clothing. It is sad to relate that the said house two days afterwards was razed to the ground by the German troops. The roads all round were very bad, but not so bad as some which Busby struck in the South of France on the Paris-Nice Trial. Naturally the English riders grumbled a great deal about them as few had done any Continental touring. To take them as a whole, the men of the company were thoroughly good fellows, but most of them lacked riding experience, showing that they were chosen in somewhat of a hurry, while few of them were up to the standard of Busby, Berlandina, and Featherstonhaugh, men who are well-known in the competition world.

Excellent British Mechanical Transport.

Busby told us that the British Army was particularly well equipped with motor vehicles; that it had more motor cycles and, apparently, quite as many motor lorries and private cars as the other allies. There is little doubt that it had more motor cycles than any other of the armies engaged in the field of operations. A few French machines were seen, but comparatively few, and, of course, a number of well-known houses like the B.S.A., New Hudson, Douglas, and Triumph Companies, who have Paris agencies, were able to help to equip the French Army. On the occasion of a further visit to the hospital we found that Busby was getting rapidly better, and, after a month's leave, he hopes to be back again at the front.

The Harrowing Scenes of War.

H. H. Berlandina, who rode a Douglas, was in another ward of the same hospital, not wounded by shot or shell, but by the ordinary harmless barn-door fowl. It appears that he was engaged in cutting telegraph wires previous to the retreat from the South of Belgium when someone told him that the Uhlans were only two miles further away. He finished his job, jumped on to his machine, and rode as if the whole German army was after him, when a luckless hen, crossing the road, was caught in the front wheel and threw him heavily to the ground. His injuries, though unpleasant, are fortunately not serious, and we found him cheerful and longing to be back at his exciting work. After we had sympathised with him in his bad luck, he told us some interesting facts about the campaign. He pointed out that one gets used to seeing dead horses and the bodies of those slain in battle lying about the countryside, but the most appalling scenes he witnessed were those of the trainloads of refugees coming out of the districts occupied by the enemy. At one place where they had to halt the trainloads came in every quarter of an hour. People were packed in open trucks, and were in the most pitiable condition, and many harrowing scenes were witnessed.

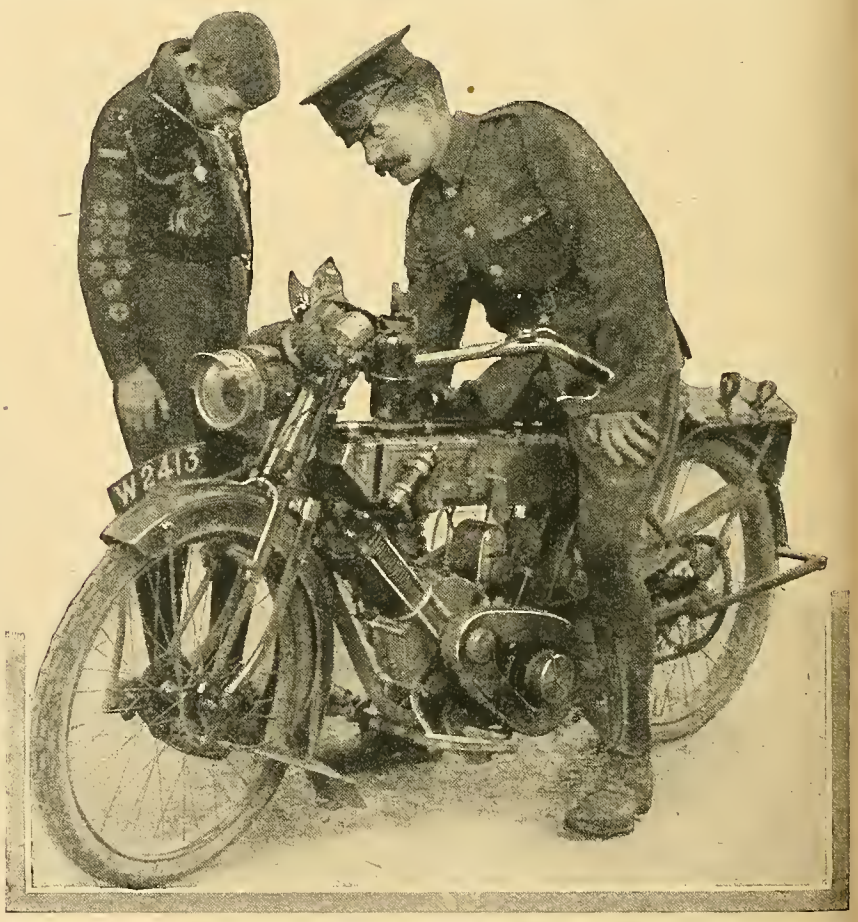
Adventures on the Eastern Frontier.

We have heard a certain amount concerning the English motor cyclists at the scene of operations in Southern Belgium and Northern France, but so far there has been no news about the motor cyclists with the French Army on the Eastern frontier. Now we have received news from C. L. Scott, known as a Rudge and a Motosacoche rider on the Continent, and the driver of an A.C. in this country. He was staying in a château close to a small village near Belfort, the Gibraltar of France, which remained intact during the war of forty-four years ago. On the still summer evenings he and his hosts used to sit in the château garden, three and a half miles from the firing line, listen to the booming of guns, the b-r-r-r of mitrailleuses, and the tap-tap of rifles. Often in the sky an aeroplane would come into view, then another: the first would soar steeply heavenward, and the second would circle round; then near the higher machine a flash would appear in the evening light, followed by a puff as of cotton wool. It was all tremendously exciting. These aerial fights were frequently seen, and the French machines would try and drive their enemies over the forts. One night the familiar bark of a motor cycle was heard coming down the road. Our friend dashed out to see who it was, and lo! it was Stoeffel, the well-known Alcyon rider. Surely a meeting even as curious as our own with Oblin on the second day of mobilisation! Stoeffel told Scott that his duty was to accompany a convoy of lorries with engineers and build a bridge across the Rhine.

French Army Motor Cycles.

Shortly after war had been declared the French motor cycle despatch riders were mounted on old-fashioned accumulator machines, which were worn out or useless not long after Paris had been left. But now things are better, and the French Government has commandeered better makes, such as Clément, Alcyons, Peugeots, and Motosacoches. No English machines were taken, but a few private owner volunteers were seen mounted on last year's B.S.A.'s and New Hudsons. The French motor cyclist, like his English ally, is armed with a revolver, but the German is equipped with a Mauser. The Germans, apparently, have a larger and better staff of motor cyclists, mounted on powerful machines. They work in conjunction with the Uhlans. The motor cyclist, of course, keeps to the highway, and the Uhlans scour the countryside.

Scott reports that our own men are doing well, though spares, especially tyres, were at first hard to procure, since only wired-on covers can be procured in the small towns.

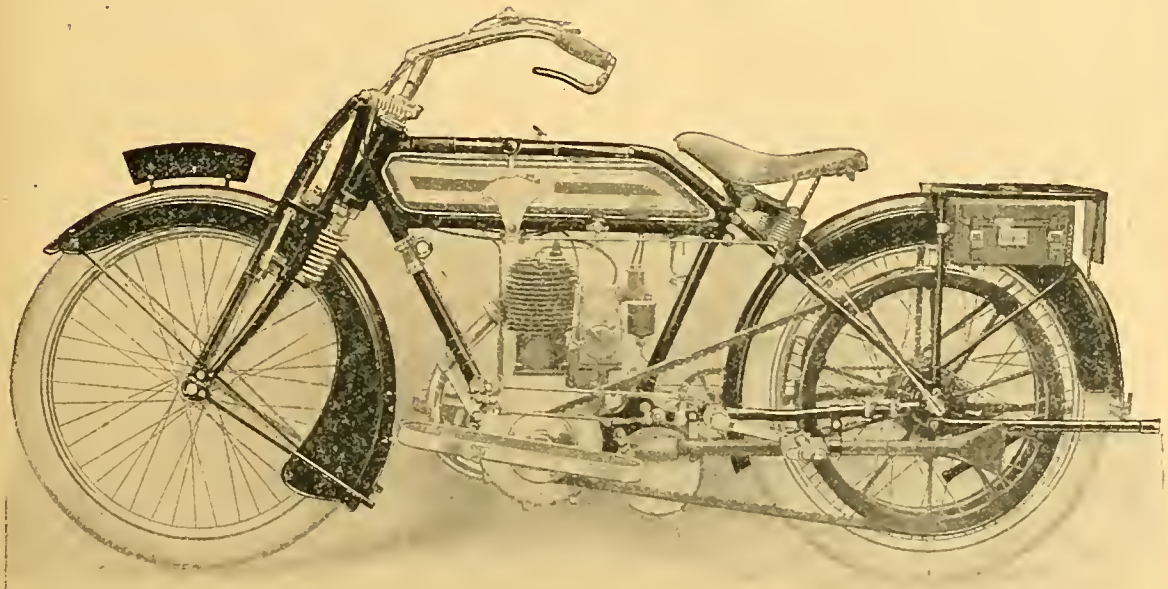


Corporal Dickinson, a despatch rider attached to the Sheffield Division Royal Engineers, explaining the mechanism of his P. and M. to a Boy Scout.

THE

3½ h.p. ROVER

THREE-SPEED MODEL.



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Footboards - - £1 - 0 - 0 extra.

THE BEST, CHEAPEST, AND MOST COMFORTABLE MEANS OF TRANSPORT.

THE ROVER COMPANY, LIMITED,
Meteor Works, COVENTRY.

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PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S.'s, all models, new; cash offers wanted.—Box 6,634, *The Motor Cycle* Offices, Coventry. [X8958

A.J.S., 1914, 750 c.c. combination, and 750 c.c. solo in stock.—Crow Bros., 190, High St., Guildford. [6475

A.J.S. 6h.p. Combination, hood and screen; £80; cancelled order.—Hilton and Son, Foxhall Sq., Blackpool. [X9183

A.J.S., late 1913, 2¾h.p., 2-speed, F.R.S. head light, spare new cover and tube, condition perfect; £35.—Ogilvie, Guy's Hospital. [X9121

A.J.S., 6h.p., 1914 model, perfect condition, very fast, new back tyre, and many spares; price £60.—Woodward, Sunnyside, Sale. [X9243

1914 6h.p. twin-cylinder 3-speed A.J.S., immediate delivery from stock, enquiries invited; £73/10.—Carnforth Motor Co., Carnforth. [6526

A.J.S., 5h.p. twin, late 1912, with white cane canoelet sidecar, both perfect order; would take lightweight part exchange.—Williams, Nythfa, Llandudno. [X8960

1914 6h.p. A.J.S., 3-speed, free, little used, like new, lamps, horn; owner at war, accept 50 gns.; also new sidecar, never been attached; seen any time, and particulars.—Cambridge Garage, Frances St., Woolwich. 'Phone: 108. [6851

Antoine.

3½h.p. Antoine, low, fast, wants slight frame repairs, mag., good order; £6.—Rout, c/o Clarkson, The Green, Thirsk, Yorks. [X9171

ESTABLISHED 20 YEARS "IN THE HEART OF THE TRADE"

COLMORE DEPOT

Confidence

We have firm confidence in the stability of British trade and credit to withstand the present pressure, therefore not only are we selling our stock of motor cycles for cash, but we are prepared to confidently continue selling them upon

Credit

just the same as usual. Fresh air and reasonable recreation are necessities now as at other times. Hesitate no longer; we offer to place confidence in you, so have confidence in yourself. Write or see us, and have a new or second-hand machine at once, for cash or upon our system of

Deferred Payments!

Here are a few Samples, send for complete list, of new and second-hand (all good).

TRIUMPH, 1909, 3½ h.p., overhauled; £22, or £8 down and 2S/- month.
DOUGLAS, 1912, 2-speed, fine order; £35, or £13 down and 40/- month.
ENFIELD, 1913, 3 h.p., 2-speed; £39, or £15 down and 45/- month.
MATCHLESS, 3½ h.p., T.T., 1913, fast; £39, or £15 down and 45/- month.
TRIUMPH, 3½ h.p., 1913, 3-speed; £45, or £18 down and 50/- month.
BAT, 1912, 8 h.p., 2-speed; £35, or £13 down and 40/- month.
MATCHLESS, 1912, 8 h.p., and Sidecar; £54, or £18 down and 65/- month.
ENFIELD, 1913, 6 h.p., and Sidecar; £65, or £20 down and £4 month.
MATCHLESS, 1913, 8 h.p., and Sidecar; £70, or £20 down and £4 10 month.
NEW HUDSON, 3½ h.p., 1914, and Sidecar, new; £75, or £20 down and £5 month.
SCOTT, 1914, and Sidecar, new; £83, or £25 down and £5 month.
NEW HUDSON, 1914, 6 h.p., and Sidecar, new; £84 or £22 down and £5 10 month.

COLMORE DEPOTS

31, Colmore Row, BIRMINGHAM
62, High Street, LEICESTER
31, Renshaw Street, LIVERPOOL
261, Deansgate, MANCHESTER

MOTOR CYCLES FOR SALE.

Ariel.

3½h.p. Ariel Engine, Roc frame, new Clincher cover and one tube; bargain, £14.—Burton, Duncan Rd., Gillingham. [X9151

ARIEL, 1914, 6h.p. twin, 3-speed counter-shaft, excellent order, new May; £50 cash.—Chatterton, 102 Millburn St., Glasgow. [X9100

ARIELS delivered from stock; unlimited tuition free —Lamb's, 151, High St., Walthamstow, and 50 High Rd., Wood Green. [6611

ARIEL, 1913, 3-speed model, kick starter, decompressor little used, capital order throughout; worth £40 easily, price £32/10, cash only.—Laytons, Bicester, Oxon. [X9206

ARIEL, 1914, 3-speed, counter-shaft, with Phœnix £11/5 torpedo sidecar; £60, cost £76; not done 500 miles.—260, Coldharbour Lane, S.W. 'Phone: Brixton 2042. [0577

ARIEL, 1912½, 3½h.p., 3-speed, kick starter, 1914 coachbuilt sidecar, speedometer, 50/- lamp, spare belt, tyre, valves; £50. Wanted, Douglas.—67, Lowen Addiscombe Rd., Croydon. [6899

Arno.

ARNO, 1913, 3½h.p., 3-speed, with coachbuilt sidecar, accessories, recently overhauled, new Druid spring forks, excellent condition; nearest offer £42/10 owner buying car.—Carlton, 7, Spencer Rd., South Croydon. [6844

Auto-Wheels.

1914 Auto-Wheel, perfect condition; £12, or offer —5, Hadley Gardens, Chiswick, W. [6935

AUTO-WHEEL, 1914, Model de Luxe, 2 sets attachments, only done 40 miles; owner bought motor cycle; £16, or best offer.—Smart, Castle Terrace, Berwick, Kincardineshire. [6866

AUTO-WHEEL, Modele de Luxe, made by B.S.A. Co. £18/18, latest model; immediate delivery; easy monthly payments.—Wilkins, Simpson, and Co., 11 Hammersmith Rd., London. [6660

AUTO-WHEEL makes pedal cycle a motor cycle supplied and fitted, £16/16 cash, or easy monthly payments; immediate delivery.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6665

Bat.

1911 3½h.p. Spring Frame Bat-Jap, new tyres; bargain, £20.—Beever, Brook St., Huddersfield. [X9124

BAT, 6h.p. twin, coachbuilt sidecar, good condition; £36; if separated £30.—Turner, Princes St., Norwich. [6808

BAT, 8h.p., engine equal to new, 2-speed gear, speedometer, lamp, horn; £35, or nearest offer.—Martin, Harrowby Rd., Grantham. [6919

BAT-J.A.P., 6h.p., bought new 1914, Canoelet sidecar, hood, screen, 2 speeds, chain, kick start, faultless; £49.—Bleucathra, Highfield Rd., Walton-on-Thames. [X9196

BATS.—A few various models, which have been used for trial purposes, all are in splendid condition; to be cleared cheap.—Bat Motor Manufacturing Co., Penge, S.E. [6765

BAT, 1914, 4½h.p., 2-speed model, perfect for sidecar or solo work, brand new, but slightly shop-soiled; catalogue price £57/10, cash price £50.—Laytons, Bicester, Oxon. [X9209

Bradbury.

BRADBURY, 1909, 3½h.p., mag.,h.b.c., perfect order; £12.—130, Brixton Rd., S.W. [X9244

1913 Bradbury, N.S.U. 2-speed, lamp, and horn; bargain, £33.—Morriss, 139, Finchley Rd., N.W. [X9129

BRADBURY, 6h.p., 3 speeds, shop-soiled only; offers wanted.—Turpins, 22 and 29, Preston Rd., Brighton. [0510

BRADBURY, 1912, 4h.p., free engine, thoroughly sound throughout; £25.—P. J. Evans, John Bright St., Birmingham [X9265

1913 Bradbury, 4h.p., 2-speed, 1914 sidecar; £45; exchange T.T. Triumph, or N.U.T., solo.—Browning, 196, Bedford Hill, S.W. [X9250

BRADBURY, 3½h.p., free engine, late 1912, very little used, F.R.S. lamp; cash offers.—Box 6,610 *The Motor Cycle* Offices, Coventry. [X8445

BRADBURY, late 1911, 4h.p., 2-speed gear, good running order, tyres and belt excellent condition; must sell, £16 cash.—Corner House, Skelbrooke St., Earlsfield, S.W. [6941

BRADBURY, 3½h.p., late 1912, free engine, lamp horn, etc., new belt, excellent condition; £27 owner enlisted for foreign service.—Apply, Earlsdon Limes Av., Mill Hill, N.W. [6950

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LEVIS, 1914, 2¼h.p., capital condition; cost £33/10, cash price £24.—Laytons', Bicester, Oxon. [X9211

LEVIS, 2¼h.p., 1912, just overhauled by makers, cost of £7, thoroughly sound; lowest cash price £15/10. —Laytons', Bicester, Oxon. [X9219

LEVIS, 1914, No. 1 model, 2½h.p., list price £38/10, new and unused, just delivered; owner must sell; bargain, £31.—Alexander's, 115, Lothian Rd., Edinburgh. [6815

Lincoln Elk.

ONE 3½h.p. Lincoln-Elk, 1912 model; £20 net.

ONE £14/14 Bramble Sidecar, shop-soiled only; £10/10 net.—Box L5,421, *The Motor Cycle* Offices, 2 Tudor St., E.C [0537

Little Giant.

LITTLE Giant.—Immediate delivery.—Sole Agents Preston district, Holden, Long Lane, Ashton. [X8686

THE Little Giant, 2h.p., 2-speed, 25 gns.; trial run any time.—Longman Bros. and Aitken, wholesale and retail agents, 1, King St., Acton. [6881

Martin.

MARTIN-J.A.P., 1913, 3-speed, coachbuilt sidecar, condition as new; accept £43.—Colmore Depot, 49, John Bright St., Birmingham. [X9145

Matchless.

MATCHLESS, 1913, 3½h.p. twin, 3 speeds, excellent order; £35.—P. J. Evans, John Bright St., Birmingham. [X9261

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt Portland St., W. [6611

MATCHLESS, 1913, Gradua, 6h.p., T.T., new tyres and belt, speedometer, lamp, horn; bargain, £36; appointment.—Holmewood, Capal Rd., E. Barnet, N. [X9130

MATCHLESS, 6h.p., 2 speeds, free engine, special roomy sidecar, lamp, horn, etc., splendid condition; £40.—70, Evering Rd., Stoke Newington. [6903

MATCHLESS 6h.p. Combination, new March, 1914, done 700 miles, perfect; any trial; owner on active service; best offer accepted.—R., 36, George Lane, Lewisham. [6914

MATCHLESS, 6h.p., 2-speed gear, chain drive, fitted with 1914 Matchless sidecar; 60 gns. secures this genuine bargain.—Colmore Depot, 31, Colmore Row, Birmingham. [X9143

Minerva.

MINERVA, 3½h.p., new tyres, first-class order; £7.—Davies, Castles Yard, Folkestone. [X9231

3h.p. Minerva, T.T., mag., spring forks; £12; photo sent.—554, High Rd., Tottenham. [6901

3h.p. Minerva, sidecar, mag., Druids, speedometer, accessories; £18, what offers?—29, Lancaster Rd., Hanwell. [6923

3h.p. Minerva, Bosch mag., B. and B., accessories, splendid condition; £13.—32, Hithcrfield Rd., Streatham Hill. [6936

MINERVA, 2h.p., torpedo tank, carrier, stand, low, and fast; £4/15.—145, Wabran Buildings, Old Kent Rd., London. [6853

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2h.p. Twin Moto-Reve, Dunlop special covers, Brooks, condition good; £14/10.—Burton, Duncan Rd., Gillingham. [X9158

Motosacoche.

1913 Motosacoche Lightweight, brand new machine; £25; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0548

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NEW Hudson, 1914, 6h.p., 3-speed combination, brand new, shop-soiled; £72.—P. J. Evans, John Bright St., Birmingham. [X9258

NEW Hudson, 6h.p., absolutely new, complete with 15 gn. sidecar; £70.—Allerton, 758, Alum Rock Rd., Ward End, Birmingham. [X9141

NEW Hudson, 1913, 4h.p., 3-speed, kick start, Montgomery sidecar, new condition; £39.—Bramlea, Chaucon Rd., Shepperton-on-Thames. [6874

NEW Hudson, 1912-13, 3 speeds, and clutch, new condition, complete, lamp, horn, tools, spares; price £28, offers.—45, Church Rd., Acton. [X9248

NEW Hudson Lightweights delivered from stock; unlimited tuition free.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [6616

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N.S.U. 6h.p. Powerful Twin, 2 speeds, F.E., perfect order, Bosch.—Speechley, 45, Church Rd., Acton. [X9247

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N.S.U. 6½h.p. Twin, new last March, with hand-controlled 2-speed gear, Millford coachbuilt sidecar, complete with 3 Lucas lamps, speedometer, all accessories, perfect condition; offers wanted.—Seen at Eagles and Co., Acton, W. [X9240

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EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

P. and M.

P. and M., 1911, 1913 torpedo sidecar, like new; £32.—T., 41, Ashford Rd., Cricklewood. [6899

1914 3½h.p. 2-speed Phelon and Moore, enquiries invited; £65.—Carnforth Motor Co., Carnforth. [6527

P. and M., 1913, Gloria sidecar, with lamps, speedometer; cost £100; all tyres new; £50 required.—Ware, Foxley Hill Rd., Penley. [6870

Peugeot.

PEUGEOT, 5-6h.p., lamp, horn, speedometer, Xl'all saddle, T.T. model, and sidecar; £[illegible] chest; sell separate.—4, Union Rd., Stockport. [X9067

FOR Sale, 7-9h.p. Peugeot and sidecar, dual ignition, free engine, handle start, belt drive, tyres, etc., in good condition; apply after 6 o'clock evenings; £25, or offer.—Overall, 261, Rotherhithe New Rd., Bermondsey. [6938

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1913 3½h.p. Precision, new condition, sidecar; £30; exchange 2½h.p. Imperial and cash.—50, Herne Hill Rd., London. [6902

1914 4¼h.p. Precision, in Rex 1912 frame, lamp, kit, done 1,000, £24; Millford wicker torpedo sidecar, with apron, £3/10; both excellent condition.—Siddall, Avenue Halcyon, Hessle. [X9175

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PREMIER, 2½h.p., club model, 1914, unerated; list price £36, offered at £29/10.—Morrison Bros., Balcarres St., Edinburgh. [X9016

PREMIER, 3½h.p., 1914 model, never been used, 3-speed Armstrong; list price £57/10, offered to clear at £47.—Morrison Bros., Balcarres St., Edinburgh. [X9105

PREMIER, 1914, 3½h.p., 3-speed counter-shaft, brand new, shop-soiled; £57/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

PREMIER, 1914, 3½h.p., 3-speed, counter-shaft gear, perfect condition throughout, lamp, horn, etc., property of army officer ordered abroad; genuine; £45.—The Morris Garages, Oxford. [6830

1912 Premier, 3½h.p., free engine clutch, run 800 miles; any trial; spare valve, plug, belt, horn, P.H. lamp, new overalls cost 38/-, gauntlets; £27, or offers; guaranteed perfect.—Bennett, Clive St. Sidings, Bolton. [X9185

Puch.

5-6h.p. Twin Puch, 2-speed, free engine, sidecar, all accessories, perfect order; sacrifice £25/10.—44, Hawksley Rd., Stoke Newington. [X9255

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3½h.p. Rex, plate clutch, free engine, handle start, accumulators, new tyres; £18.—Gage, Haywards Heath. [6920

REX Sidette, 1914, 6h.p., 2 speeds, coach body, hardly soiled; £64.—Bastones, 228, Pentonville Rd., King's Cross, London, N. [6412

REXES.—Brand new 1912 and 1913 2-speed; terms 15 to 27½ per cent. discount for cash.—Collier's Motories, Westgate, Halifax. [0445

6h.p. Rex, 1912, 2-speed, free engine, complete with sidecar, the whole in tip-top condition; £33/10.—Garaged at 73, Church St., Camberwell. [6906

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REX 1913 6h.p. Twin Combination, coachbuilt body, 2-speed, free engine, complete with lamp and horn, splendid condition, ideal sidecar combination; £48; accept lightweight or 3½h.p. part.—A. Holland, Clarendon St., Coventry. [X9224

REX, 1913, not done 1,000, everything perfect as new, 6h.p., 2-speed, handle starting, Binks 1914 carburetter, Turner 20 gn. coach sidecar, wind screen, hood, luggage carrier (takes trunk), all tyres perfect, also one spare, two suits of overalls, all spares, and tools; any trial and examination; giving up; £55.—Bushell, 27, Wellington Rd., Northfields, South Ealing. [6846

Rex-Jap.

REX-J.A.P., late 1913, 8h.p., Premier coachbuilt sidecar, perfect condition, ideal machine; price £55.—Birkhead, Walton-on-Thames. [6799

REX-J.A.P. 1914 De Luxe Model, 8h.p., 2-speed, coachbuilt sidecar, in very good order; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

REX-J.A.P., 1913, 8h.p., De Luxe model, torpedo coachbuilt sidecar, overhauled and guaranteed perfect; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Roc.

ROC, 4h.p., Bosch, 2 speeds, F.E., Druids, fine machine; bargain, £10/10.—45, Church Rd., Acton. [X9246

ROC, 4h.p., and sidecar, mag., 2 speeds, free engine, B. and B., recently overhauled; £22, or nearest offer.—Thompson, Wallington's, Hungerford. [X9173

Rover.

ROVER, 1914, 3-speed model, new, slightly soiled; offers.—Eagles and Co., Acton. [X9238

1912 3½h.p. 3-speed Rover, in splendid condition; £28.—Crisswell's Garage, Newmarket. [X9110

ROVER, 1913, 3½h.p., 3 speeds, new condition; £35.—P. J. Evans, John Bright St., Birmingham. [X9262

ROVER, 1914, 3-speed, coachbuilt sidecar, lamp, horn, all accessories, splendid turn-out; 50 gns.—50, Clapham Rd., S.W. [6940

ROVER, 1914, sidecar combination, new, slightly shop-soiled; list £75, accept £60.—P. J. Evans, John Bright St., Birmingham. [X9268

LATE 1913 3-speed Rover and Rover sidecar for sale, fitted lamps, generators, spares, etc., in perfect condition; £45.—Blunt, Bray's Lane, Stoke, Coventry. [X8755

Royal Ruby.

1914 Model 8h.p. Royal Ruby (J.A.P.) Combination, 3-speed counter-shaft gear, chain-cum-belt drive, £18/18 sidecar, not done 900 miles; £60, or close offer; cost £106.—Box No. L6,082, *The Motor Cycle* Offices, 20, Tudor St., E.C. [6804

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1913 5-6h.p. Rudge Multi, little used, and perfect; £40.—Walker, Fishburn, Ferryhill. [X8928

RUDGE Multi, 1912½, Senspray, Xl'all, splendid condition throughout; £35.—Shone, Northlands, Chester. [6928

RUDGE Multi, 3½h.p., 1913½, run 2,884, carefully used, extras, perfect; £38.—Davison, 32, Manor Rd., Rugby. [X9168

1914 5-6h.p. Rudge, Sturmey gears, Bramble sidecar; cost £80, accept £65, or near offer.—47, Cemetery Rd., Darwen. [X9107

RUDGE Multi, 1913, 3½h.p., run 2,680 miles, lamp, speedometer, horn; bargain, £35.—Vinson, Monkton, near Ramsgate. [X9069

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RUDGE Multi, 1913, done 3,000 miles solo, perfect condition, Clincher studded tyres almost new, all accessories; £40.—Williams, 22, Newman St., W. [6751

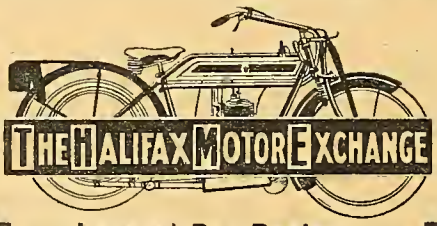
RUDGE Multi, 5-6h.p., perfect condition, practically new, complete with lamp, spares, etc.; bargain.—Advertiser, 32, Park Rd., Moseley, Birmingham. [6912

RUDGE Multi, 1913, 5-6h.p., multi speed gear, hand operated clutch, cane sidecar, complete, and in guaranteed order; £43.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0481

RUDGE, 5-6h.p., 3-speed, 1914, exhaust whistle, all tools and spares, good sidecar machine; £40.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

RUDGE, 3½h.p., 1913, free engine, lamp, and all accessories, nearly new, new belt and back cover, h.b.c. magneto, decompressor, spare belt and exhaust valve; £30.—Heron, 18, Mayfair Rd., West Jesmond, Newcastle-on-Tyne. [X9257

RUDGE Multi, 3½h.p., F.E., late 1913, wicker sidecar, all in splendid condition, lamps, speedometer, watch, horn, bell, etc., spares, tyres nearly new; owner buying car; trial by appointment; £47, or near offer.—Frome, Portland Rd., Worthing. [6823



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SINGER, 1913, 2½h.p., fixed engine model, excel condition, lamp, horn; £21/10.—Layt Bicester, Oxon. [X9

SINGER Lightweight, Bosch, Druids, Dunlops new; price £20, bargain.—Newport, 43, Bou mouth Rd., Peckham, S.E. [6

3½h.p. Singer, 1913, T.T., 3-speed, new tyres belt, perfect, £35; also 2½h.p. Singer, 1 T.T., new tyres, 50 m.p.h., perfect, £26.— Boundaries Mansions, Balham. [6

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BRAND New 1914 6h.p. Sparkbrook Combinat handsome coachbuilt sidecar, complete; £87 less 10% immediate clearance.—Batten Bros., Cullomp [X

Sunbeam.

SUNBEAM, 2¾h.p., perfect condition throughout; —40, Margaret St., Cavendish Sq., W. [6

SUNBEAM, 3½h.p., 3 speeds, in stock; cash or payments.—West End Garage, Blackburn. [6

2¾h.p. Sunbeam, late 1913, excellent condition thro out, all accessories; £47, or nearest offer.—S ton, Meaford Av., Stone. [6

SUNBEAMS, 2¾h.p. and 6h.p., 1914 models; deli from stock; also 6h.p., shop-soiled, latest mod Grimsdell Dix, The Garage, Uxbridge Rd., Ealing C mon. [6

Swift.

SWIFT, 1912½, 3½h.p., 3 speeds, free engine, tyres, completely equipped, perfect order; £ Mr. Connell, 224, Wood St., Walthamstow. [X

Triumph.

TRIUMPHS.—Premier Motor Co., Aston Rd., mingham. [6

TRIUMPH, 1912, T.T., £27, very fast.—12, Mi Rd., Cricklewood. [0

TRIUMPH and Sidecar, late 1913, 3-speed, lamp, £45.—Budd, St. Joseph's Rd., Aldershot. [X

1912 Triumph, complete, £30; 1909 Triumph, plete, £20.—Cross, Agent, Rotherham. [X

TRIUMPH, 1912 clutch, good condition, accesso £26.—73, St. Leonard's Rd., East Sheen. [

TRIUMPHS, new 3-speed models; cash offers wa —Box 6,635, *The Motor Cycle* Offices, Covent [X

T.T. Triumph, late 1913, fast, good condition, al cessories; £37.—Coles, 9, Merivale Rd., Putn [0

TRIUMPH, 1910, 3½h.p., new tyres, perfect cond fast; sacrifice £16/10.—Sinclair, East Moles [X

1913 Triumph, with free engine, tyres newly treaded; £38.—Walker, Fishburn, Ferryhi [X

1913¾ Triumph, N.S.U. 2-speed, sidecar, access as new; £30.—Beever, Brook St., Hudderfie [X

TRIUMPH, F.E., June, 1912, beautiful condi £28.—Woodman, Claremont Place, Chatha [X

1914 4h.p. T.T. Triumph, speedometer, lamp, done 1,700; £42, or nearest.—Annett F Newry. [X

2¼h.p. Junior Triumph, ridden 600 miles only, tion as new; £36.—Robinsons, Green St., bridge.

1910-11 Triumph for Sale, guaranteed in p condition throughout; 16 gns. or nea Box L6,092, *The Motor Cycle* Offices, 20, St., E.C.

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13 Warne Cycle Car, beautiful condition; real bargain, £55.—Rey, 378, Euston Rd., London. [6489

W.K., 1913, 8h.p., 4 speeds, all accessories; £95.—P. J. Evans, John Bright St., Birmingham. [X9267

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UMBERETTE, 1913, 8h.p., 3 speeds, complete, all accessories; £75.—P. J. Evans, John Bright St., ingham. [X9266

C. Type Cycle Car, 4½-6h.p., water-cooled, wants dash, new; £30.—Morgan and Maxwell, 80, High Streatham, London. (1) [X9187

C. Sociable, with hood, screen, side curtains, luggage carrier, F.R.S. head lights; trial; £27.—r, 104, Chingford Rd., South Chingford. [6850

SART 2-seat. Cycle Car, 1913, 8h.p. J.A.P., good as new chain drive, 2 speeds, spare tyre, all sories; £50.—Powell, 153, Bowes Rd., Palmer's n, N. [6934

TORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38.—e Premier Motor Co., Ltd., Aston Rd., Birham. [0527

RGAN Runabouts.—Immediate delivery of 1914 models, Grand Prix and sporting models in stock; exchange, or easy payments. Trade supplied.—Wem. [X9220

ALIFAX.—1914 Lagondas, £145-£150; G.W.K., £150; Victor, £115; Calthorpe Minor, £168. new from stock; keenest exchange quotations.—ker's Motories, Westgate, Halifax. [0488

RGAN Runabouts.—We have several 1913 models, in perfect order, at prices from £65 to £75, fitted screen, lamps, etc.; call and inspect.—Colmore Depot, 49, John Bright St., Birmingham. [X9147

ALIFAX.—Second-hand 1914 G.W.K., only done 450 miles, £28/10; 8h.p. G.W., £54/10; 8h.p. la-Jap, £49/10; A.C. Sociable, £42; 8-10h.p. Bedelia, £39/10. Exchanges quoted.—Collier's tories, Halifax. [0489

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NDSWORTH.—De Dion, 2-seat., 6h.p., good tyres, runs well; must sell; £15/10; exchanges.

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5h.p. Sarolea, watertight Bosch, chain and sprockets, carburetter, silencer pipes, spare valves, Advance adjustable; £6.—Crook, Tetsworth Cottage, Slough. [6926

6h.p. Water-cooled Engine, 3-speed, reverse gear box, cooling fan, self-contained unit, splendid condition, off Rover car; accept £6; exchange Drummond lathe.—Absalom, Epsom. [6801

BASTONE'S.—New Rex, 1913, 6h.p. twin engine, with Bosch mag., £16/15; new Blumfield 3½h.p. single, less mag., £8/15.—228, Pentonville Rd., King's Cross, London, N. [6407

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ELITE.—Special clearance line of Lyso belts, fully guaranteed by the manufacturers (Avon India Rubber Co.), 7ft. 6in.×⅞in., 7/- each; 7ft. 4½in., to suit Triumphs, 6/9; only a few left.

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LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchers, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

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LEGGATE, Edinburgh.—Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅜ 6/6, 26×2½ 7/-; list almost double.

LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against cash, which will be refunded in full if goods not approved of.

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WE will willingly forward any of the following goods subject to being unsold on 7 days' approval upon receiving remittance, and return cash in full if not satisfied. During the whole of last year and up to the present we have not had a single return.

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50 26×2 Second-hand Tubes, all been tested; 3/6 post free.

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HEAVY 3-ply Rubber Non-skid Covers, 26in.×2in. 19/6 each, 2¼in 21/- each; postage 6d. extra.

WE will re-tread your motor cycle covers, all sizes up to 2½in., during this month with heavy rubber studded tread, together with new insertion, at 10/-, or special tread, suitable for driving wheel, 12/6.

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BASTONES.—Peter-Union make covers, 26×2 12/-, 26×2¼ 15/-, 26×2½ 17/6, 28×2 15/-.

BASTONES.—Michelin 1914 covers, beaded edge, 26×1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18/6, 28×2 16/6; wired edge, 26×1¾ 11/6, 26×2 13/9, 26×2¼ 15/-, 26×2½ 16/-, 28×2 14/9; Michelin tubes in stock.

BASTONES.—Guaranteed red tubes, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.

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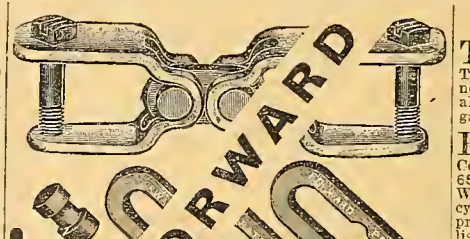

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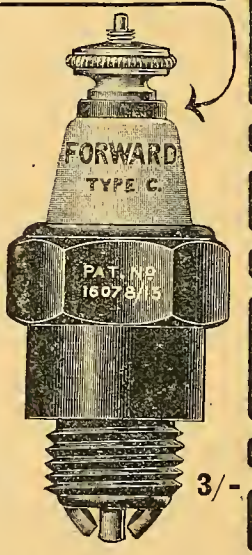

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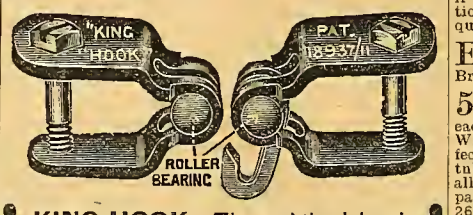

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ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 28/6.

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ELITE.—Hutchinson Brooklands, 1913 stock, 12/-, T.T. 26×2½ 16/6 (list price 33/6).

ELITE.—Hutchinson Passenger covers, 1913 s 26×2¼ 22/6 (list price 41/3), 26×3 to fit rims 26/- (list price 44/-).

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ELITE.—Hutchinson small car covers, 650×7 to suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Continental T.T. covers, 26×2¼ 19/6 (list price 28/-).

ELITE.—Michelin clearance covers, beaded ed 26×2 light 8/9, 26×2½ 13/9; Trident, 2 24/-; Standard, 26×2¼ 22/6, 26×2½ 24/6.

ELITE.—Clearance Michelin covers, wired on; Stand 26×2½ 26/-, 26×2¼ 24/6.

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ELITE.—Clincher extra heavy tubes, best qu ty, 26×2¼ 6/6.

ELITE.—Best quality tubes, fully guaranteed, 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26×3 7/6, 1/3 extra.

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50 New but Soiled Dunlop, Continental and Clincher 26×2in. and 26×2¼ covers each; 20 slightly worn ditto, 9/6 each; 10 26 in. W.E. Dunlops, ribbed, 12/6 each; 40 new an perfect Dunlop, Palmer, Clincher, and Cont tubes 6/6 each, butted 7/6; 100 tubes, all mak all sizes, been punctured while out on test, b repaired by makers, and in perfect order, 4/ 26×2in. and 26×2¼in. new Michelin steel- covers, 19/6 each; 2 650×65 Dunlop heavy slightly worn, 15/- each. All goods on s against cash.—Pitts, Evesham St., Redditch.

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FOR Motor Cycle and Cycle Car Insurances ap Bass, Insurance Broker, Bishop's Stortford.

AUTO-Cycle Union.—Insurance and free mem —Adams, Insurance Broker, 38, Church St field.

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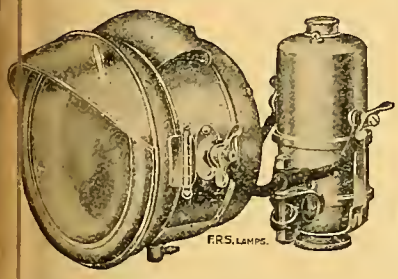
LAMPS AND GENERATORS.
HOLD WORLD'S RECORDS.



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The best is always cheapest, and you positively
OE IN DAYLIGHT through the night.

Lens.	Beam.	Price.
6 in.	1,200 ft.	72/6 and 78/6
5½ in.	1,000 ft.	62/6 and 66/6
4½ in.	800 ft.	52/6 and 58/6

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'e have made our name with quality
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is proved to be
THE STRONGEST BELT ON THE MARKET.
estimated to last as long as **FOUR Rubber Belts.**
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N. made the fastest time of the day in the Derbyshire and of Millford Automobile Club. It was a very wet day and most Be other competitors suffered from Belt-slip. The B.A. was simply perfect, never slipping at all."

climbed Carr Bank, Oakamoor, Gradient 1 in 3 Bat 6 h.p. and heavy sidecar. The first time with 7 people on, the second tin with 10 people on but I had to drop, the third time we we clean up with 10 PEOPLE on. The B.A. Belt never gave an trouble."

⅞ 3/3; 1" 2/6; 1¼" 2/9; per ft. including fastener.

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EXPERT Reports.—Purcells send experts to examine machines; 10/6, plus fares.—78, Charlotte St., Fitzroy Sq., W. (See advertisement.) [3473

PERSONAL.

H.R.W. is earnestly requested to write home, giving address where letter will reach him.—H.B.W [6855

WANTED.

SPARES. — Morgan and Maxwell. Streatham. [X7877

ENGINE wanted, twin, or 4-cyl., about 8h.p.—73, Camden St., North Shields. [X9181

100 Motor Cycles wanted, spot cash paid. Brisg or send.—Palmer's Garage, Tooting. [6916

WANTED, good motor cycle, for cycle corps; cheap.—W. Pilfold, 66, Greyhound Lane, Norbury. [6888

CASH Waiting.—Wanted, late model motor cycles.—Beardshaw, 44, Myddleton Rd., Wood Green. [6896

POWERFUL Combination, good make, about 1912; cheap, cash.—15, Waverley Rd., Kingsbridge, Devon. [X9159

WANTED, magnetos, carburetters, tyres, lamps.—Precious Co., 303, High Holborn, London, W.C. [X9251

WANTED, cylinder for 3½h.p. Rex, rather old type.—Coleman, Sheldon Rd., Chippenham. [X9271

WANTED, second-hand Minerva 3½h.p. cylinder; cheap for cash.—Richardson, Photographer, Dunblane. [X9122

WANTED, frame to take 3½h.p. engine; must be cheap.—Details to H., 1, Park Av., Palmer's Green, N. [6869

D.A. Cylinder wanted, 12in., for motor cycle; particulars and price.—Dean, Clifton St., Wolverhampton. [X9097

WANTED, magneto motor cycles, damaged or otherwise; low price.—Box 6,649, *The Motor Cycle* Offices, Coventry. [X9249

1913 or 1914 Standard Indian, or 4-cyl. F.N.; cheap for cash.—Write, Motor, 13, Queensdale Rd., Holland Park, W. [6889

ROVER Sidecar Combination, modern, guaranteed order; fullest particulars first letter.—M., Home Glen, Basingstoke. [6810

WANTED, for cash, 3-4h.p. modern make, good condition; fullest particulars; letters only.—Harrison, Poyle, Sutton, Surrey. [6841

WANTED, 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories, cheap.—125, Londoa Rd., Manchester. [0560

WANTED, motor cycles, cycle cars, good cash prices —Wandsworth Motor Exchange, Ebner St., Wandsworth own Station. 'Phone: Battersea 327. [X6518

WANTED, modern motor cycle, suitable for despatch rider; would exchange 1908 Rex, 3½h.p., in splendid order, and £5 cash.—6,647, *The Motor Cycle* Offices, Coventry. [X9206

WANTED, your present machine in exchange for 1914 James, Zenith, Levis, B.S.A., or Indian; liberal allowance prices; delivery from stock.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0479

WANTED, 4h.p. solo 3-speed Triumph, fully equipped, and £7, in exchange for 1913 7h.p. Indian and Millford sidecar, lamps, speedometer, and spares, or sell £59.—Write, 175, Stapleton Hall Rd., London, N. [6935

WANTED, 3½-4½h.p. 2 or 3-speed machine, not earlier 1913; will give £10/15 and 1913 5-6h.p. Chater-Saralea twin, fast, powerful, fine running order, sell £25.—Arthur Moody, St. Helens, Isle of Wight. [6862

EXCHANGE.

MORGAN and Maxwell, 80, High Rd., Streatham, London, for exchanges. (D) [X9186

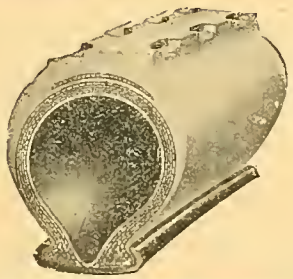
1912 5-6h.p. Minerva, Bosch, Binks, perfect; exchange lower power.—McConnachie, Clarilaw, Hawick. [X9170

5½h.p. White and Poppe, w.c., 2-speed, 3-wheeler, for solo mount; sell £25.—Wall, George St., Hailsham. [X9194

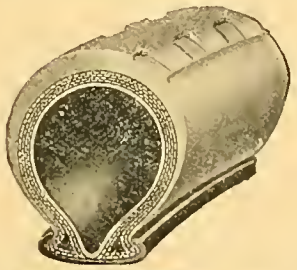
ENFIELD, 2¾h.p., perfect, and cash, for 2-speed machine.—Gasson, Draper, Hurstgreen, Sussex. [6945

EXCHANGE V.S., 5-6h.p., sidecar, for lower power and cash, or sell for £25.—41, Mill Rd., Merton Rd. [6943

INDIAN, 7-9h.p., spring frame, 2-speed, kick starter, £20 Millford sidecar; exchange less power and cash, or sell cheap.—Hefford, Ladypool Rd., Birmingham. [6954



Skew Square N/S. Motor Cycle Tyre.



Skew Round N/S. Motor Cycle Tyre.

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All British. All Rubber.

SAMPLE PRICES.

	Heavy Square N/S.	Round N/S.
26 x 2¼	2 0 0	1 17 6
26 x 3, 650 x 65, 26 x 2½ fit 2¼ Rims.	2 9 6	2 5 0
26 x 3 fit 2½ Rims.	3 2 6	——
700 x 80 fit 650 x 65 Rims.	3 7 6	——

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5/- each for any old Cover, if a New Skew Cover is ordered.

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PREMIER MOTOR STOCKISTS IN THE NORTH,

makes you this

UNPRECEDENTED OFFER:

1914 Model U and V. **DOUGLAS,** shop-soiled, complete, with speedometer, lamp, horn, and spare belt **£48**

Or what offers, less accessories.

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OFFERS WANTED

FOR THE FOLLOWING:

Usual price

1914 4 h.p. **TRIUMPH,** 3-speed gear **£60 0**
1914 4¼ h.p. **JAMES** Combination **£76 13**
1914 3 h.p. **ENFIELD,** 2-speed gear..... **£52 10**
1914 3¾ h.p. **SCOTT,** 2-speed gear..... **£68 5**
1914 3½ h.p. Twin **JAMES,** 3-speed gear.... **£63 0**
1914 2½ h.p. Imperial **J.A.P.,** 2-speed gear.. **£32 11**

SPECIAL BARGAINS.

1913 8 h.p. water-cooled **WILLIAMSON,** condition exactly as brand new **£60**

1913 brand new 6 h.p. clutch model **ZENITH** and Gloria coach-built Sidecar; **70 Gns.** the lot

1913 brand new 3-speed **JAMES** Combination; **60 Gns.** to clear

1914 3¾ h.p. **SCOTT,** shop-soiled only **£60**

1914 3-speed **PREMIER,** scarcely used **£50**

1914 **CALTHORPE** Junior, not done 100 miles. A real bargain **£19**

1914 Baby **TRIUMPH,** shop-soiled only. First cheque **£39**

1912 6 h.p. **ENFIELD** Combination, complete with all accessories **£48**

1912 6 h.p 2-speed **MATCHLESS** **£38**

1912 6 h.p. **CLYNO** Combination, complete with lamps, horn, etc. ..... **£40** or offers.

1912 3½ h.p. **PREMIER,** Armstrong 3-speed .. **£30**

1913 T.T. **TRIUMPH.** Very hot stuff **£34**

1912 free-engine **TRIUMPH.** Cheap **£30**

1910 **TRIUMPH,** perfect order **£18**

1912 2-speed **BRADBURY,** Sidecar, and all accessories, very powerful **£35**

1912 3½ h.p. **ROVER,** grand condition **£28**

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"NO WORRY" DEPOT,

62, MANNINGHAM LANE,

BRADFORD.

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NO WORRY SERVICE

EXCHANGE.

N.S.U., 1912, 3h.p., twin, 2-speed, and cash for Triumph or P. and M.—15, Seaford Rd., Eastbourne. [X9273

EXCHANGE 1913½ Rex Sidette, 6h.p., 2 speeds, faultless, for solo mount and cash.—Sinclair, East Molesey. [X9269

HENDERSON Combination, 2-speed model, for lightweight and cash, or sell £65.—Earl, 5, Heath St., Hampstead. [X9227

BRAND New Bright Heavyweight Girder Forks, by Chater-Lea, and cash, for Matchless or Druid.—16, Cliffe Rd., Croydon. [6856

CLYDE 2-seat Car, live axle, dual ignition; exchange for motor cycle, or sell £40.—Longman, 1, King St., Acton. Tel.: Chiswick 1578. [6880

12h.p. Taxi Car, lovely condition, running order, mag., Stepney, 5 lamps; exchange or sell, £35; photo.—241, Balfour Rd., Ilford. [6873

LATEST 4-cyl. 5-6h.p. F.N., clutch, 2 speeds, not done 2,000 miles; exchange good 8h.p. twin.—Hiscocks, Manor Rd., Farnborough. [6871

SCOTT, 3⅝h.p., 1913¾, 2-speed, F.E., handsome machine; £45; exchange 2½-3½h.p.—164, Broadfield Rd., Hither Green, S.E. [6946

HALIFAX.—Any machine taken in exchange against new 1913 Rexes at 15 per cent. discount.—Collier's Motories, Westgate, Halifax. [0446

PREMIER Sociable, complete with hood, screen, etc., 1913, for motor bike, or sell £55. — M. Wilkinson, Ashington, Northumberland. [6933

GENT'S 18 carat Gold Watch, repeater, cost £25, and little cash for lightweight, Humber preferred.—Lawrence, 58, Packington St., Islington, N. [6854

CLYNO and Coachbuilt Sidecar, 1912 model, nearly new, 6h.p.; £38, or exchange lower powered machine and cash to value.—76, Summerley St., Earlsfield, S.W. [6942

1913 7h.p. 2-speed Spring Frame Indian, perfect condition; £50, or would take good variable geared 3½h.p. in part exchange.—Minikin, 115, Bradford St., Keighley. [X9174

3½h.p. 1913 Service, Precision, new Mark VII. gear, new sidecar, speedometer, horn, watch, for 3½h.p. Indian or N.U.T.—Briodley, Third St., Horden, Durham. [X9228

REPAIRERS.

ANTOINE Cylinders, pistons, and parts; prompt delivery.

CYLINDERS, crank cases welded; quotations free.

COMPRESSION Cylinders ground and new piston fitted, 24/-.

OLDEST Engines restored to highest vitality.

COMPLETE Overhauls at lowest possible prices. Full stock of Rex, Triumph, and J.A.P. parts.

COUNTER-SHAFT Gears.—We can now quote the trade for our Rex-J.A.P. 3-speed gear at inclusive prices, including fitting to old machines.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0246

WHITTALL Machinists' Co., War Office Contractors, for all repairs.

WHITTALL.—Expert welders; repairs returned, accurately machined, inside 7 days. No charge if unsuccessful.

WHITTALL.—Re-boring and new pistons. All motor repairs. Old engines rejuvenated. All work guaranteed; no exasperating delays.—Whittall Machinists' Co., Whittall St., Birmingham. [0136

VALVES.—Nickel steel valves, any size, 3/6; per pair 6/-.—C. R. Foster, Kirkstall Rd., Leeds. [0253

WELDINGS, Ltd., Dept. M.C., 235, Gt. Ancoats St., Manchester.—Oxy-acetylene welding experts.

BROKEN Flanges, valve seats, pistons, crank cases, water jackets, welded and machined complete.

SEND Your Old Engine or complete machine for overhauling, re-bushing, cylinders re-ground, new pistons, rings, and gudgeon pins fitted.—Weldings, Ltd., Dept. M.C., Manchester. [6234

WELDINGS, Ltd.—Broken cylinders, lugs, flanges, valve seatings successfully repaired. No cure no pay.

ALUMINIUM Cases, gear boxes, pistons, connecting rods permanently restored; no distortion.

CYLINDER Re-grinding on latest machinery; engine overhauling. We restore your engine to its original condition, and guarantee workmanship.

AVOID Annoying Delay, and assure efficiency at low cost by sending your parts to Weldings, Ltd., Dept. M.C., 37, Holt St., Birmingham. [6081

CYLINDERS, Crank Cases welded; quotations free; send your enquiries.—Premier Motor Co., Aston Rd., Birmingham. [0248

OXY-ACETYLENE Welding, first-class work; moderate quotations.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [6750

CRACKED Cylinders, castings, forgings, etc., successfully repaired by Lea's metallurgical process.—Lea, Engineers, Runcorn. [5197

SHOP-SOILED!

1914 2-stroke **CLYNO** ..... **25 s.**
1914 6 h.p. **A.J.S.** and Sidecar, hood, screen, detachable wheels; price £94 17s. 6d.; shop-soiled; reduced to ..... **80 s.**
1914 **CALTHORPE** Junior, 2-speed ..... **22 s.**

SECOND-HAND.

1913 **B.S.A.,** 2-speed and Sidecar ..... **60 s.**
1913 **DOUGLAS,** 2-speed, perfect ..... **30 s.**
FAFNIR ..... **6 s.**
1911 **TRIUMPH,** grand value ..... **18 s.**
ARIEL, Bosch magneto, B. & B. carburetter **10 s.**
1914 **NEW IMPERIAL-J.A.P.,** 2-speed .... **31 s.**
1914 **TRIUMPH** Junior ..... **40 s.**
1914 **TRIUMPH,** 4 h.p., 3-speed **£6 0**
1912 **ENFIELD,** 2-speed ..... **24 s.**
1914 T.T. **TRIUMPH,** 4 h.p., 3-speed, Cowey speedometer, lamp, horn, etc. ..... **50 s.**
1914 **TRIUMPH,** 4 h.p., 3-speed, speedometer, lamp, horn, etc.; cost over £65 . **48 s.**
1912 **DOUGLAS** ..... **24 s.**

LIGHT CARS.

1914 **PERRY** Cabrio Coupé, shop-soiled .. **145 s.**
1914 **PERRY,** shop-soiled ..... **120 s.**
1914 **SINGER** de Luxe, dynamo lighting set, shop-soiled ..... **170 s.**
1914 **FORD,** 5-seater, as new ..... **9[illegible] s.**
1913 **G.W.K.,** with 6-guinea lighting set .. **10[illegible] s.**

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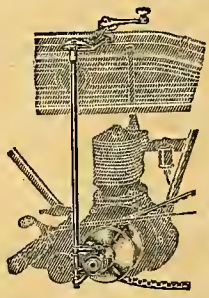
JULIAN,

84, Broad Street, READING.

43 Years' Reputation. Biggest Dealer in the th. 'Phone 1024.

The "GRADO" MULTI-PLEX with Free gine.



Gives gears -7 to 8—1. Lat- weights 10-1. No Jocke Pulley. No Belt Sli

Starts your ma ine and Sidecar on ste hills. Fitted i wo hours to Triu hs. Precision, Brad ys. B.S.A., Rex, Ja etc.

Price for mac es up to 6 h.p., £3 Jap Engine 10s. tra Lightweights, £10

THE "GRADO" MANUFACTURING CO., Stratford Road, Camp Hill, BIRMINGHAM.

THE MOTOR CYCLIST EXPERT TAILORS

know your needs from 10 years' ridin experience, and offer Clothing of quality th satisfies. Material of excellence, per smart style, good fit, and skilled make detail improvements, ensuring most protection in all weathers, Unequa fort and durability.

Double-breasted Coat, waist belt, extra strong pockets. Seated Trouser gaiter well shaped. Send chest over vest and inside leg measure of

SUITS (Heavy), 50/- (Light)
TROUSER OVERALLS (Heavy) (Light), 15/-

Satisfaction guaranteed, or money returned within 7 days in good condi Write to-day for patterns and full p

MOSLEY & SMI Buttershaw, Bradfo

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

FIVE HUNDRED AND NINETY-NINTH CONSECUTIVE ISSUE.
Subscription Rates: Home 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

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Telephone: 2848 *City (five lines.)* ADDRESS: 20, TUDOR STREET, LONDON, E.C. *Telegrams:* "*Cyclist, Fleet, London.*"
An index to advertisements will be found on the page facing the back cover.

Sidecar Samaritans.

AS everyone is aware, there is a large number of normally active and healthy men detained in hospitals in various large towns of the United Kingdom suffering from wounds sustained in the war. The authorities state that the great mass of these wounds are slight, and very largely in the legs and feet. This means that many of these sufferers are able to enjoy the pleasures of life with the exception that they are unable to move about with any freedom. Provided they are not suffering from shock in addition to their wounds there can be no doubt that the best way to quick recovery is to enjoy plenty of fresh air, and we believe that there are hundreds of these men who would be only too pleased if the opportunity arose to be able to take a run once or twice a week into the country in order to recuperate their strength as quickly as possible. We believe that many of them would immensely enjoy an occasional run in a well-equipped sidecar if the chance occurred, and we do not suppose that their medical advisers would raise any objection provided they were satisfied that their charges would be well and carefully driven, and we think that it might be possible for many motor cyclists owning sidecars to arrange with the nearest hospital containing wounded men to put their machines at the disposal of the hospital once or twice a week and offer their services as drivers in order to take some of our gallant wounded for runs in the country.

Of course, permission of the authorities, more particularly those of the medical profession, would have to be obtained, but in the case of really slight wounds we have no doubt such attention as we have indicated would be welcomed, and this procedure would be at once a graceful acknowledgment to the War Office for the enthusiastic manner in which the authorities have taken up the use of the motor cycle in war, and at the same time be the means of bringing back health to the wounded and affording pleasure to the owner. Any general plan of campaign in this direction would be impossible to organise, and it should be left to individual owners of sidecar outfits to proffer their services in this direction to the authorities of the nearest hospital.

Motor Cycle Machine Guns.

THE idea of fixing a machine gun on a motor cycle is by no means new, and is even older than the armoured motor car. It was at the time of the Richmond Show in 1899 that the first motor cycle machine gun, consisting of a Maxim mounted on a trailer and towed by a De Dion tricycle, was demonstrated by Mr. F. R. Simms, one of the founders of the Royal Automobile Club. At considerably later dates quick-firing automatic rifles have been fitted to the handle-bars of motor cycles, and have been demonstrated on T.M.C.'s and Scotts, and even exhibited at the Olympia Show. We think that there is a distinct future for the machine gun fitted to a motor cycle and sidecar. Reference has already been made in these pages to a Scott equipped in this manner, while on page 329 of the issue of September 10th a photograph appeared of a Harley-Davidson fitted with a Maxim gun, belonging to the Ninetieth Canadian Militia. Owing to the extraordinary mobility of the vehicle and the deadly effect of the little weapon, a number of these sidecars could inflict an enormous amount of damage on the enemy's outposts. We therefore commend the attention of the War Office and the motor cycle manufacturers to the study of such equipment. It certainly requires careful study, as the whole machine must be made immensely strong, since there are several new factors to consider—the extra weight of the gun and the effect of the latter's recoil upon the frame, in addition to the ordinary road stresses of which the motor cycle designer is aware. The question of recoil is, however, one for gunmakers, and we do not presume to advise upon it.

Over the Roof of Lakeland with a Lady Driver.

By GEORGE D. ABRAHAM.

Author of "Motor Ways in Lakeland," "The Complete Mountaineer," "Mountain Adventures at Home and Abroad" etc., etc.

A wayside halt for refreshment 'neath the crags below Blea Tarn Pass. The old daleswoman (aged 82) described the lady driver as "The pluckiest lassie in all England."

FROM spy-hunting to hill-hunting is a pleasant change. All Lakeland had been stirred by rumours of German incursions, and "wanted persons" were sought for even in the quiet dales. A German airship had been seen and heard by numerous people, troops mounted on horses and motors as well as on foot had scoured the district in search of its base. The ubiquitous motor cycle had been almost everywhere. For the first time the lack of a military road from east to west across the mountains had been seriously felt. The importance of the lofty Lakeland fastnesses as hiding-places fo those with evil intentions on Barrow-in-Furness, th birthplace of Dreadnoughts and airships, was realise Motor cars had been stopped and searched on ente ing the principal towns.

Thus there was peace in getting away from th Metropolis of Lakeland to try conclusions with som of the famous hills. The outing arose from a questio asked me by Mrs. Mary Riley, one of the be known and most skilful of lady sidecar drivers in th country. "What is the hardest hill test in the Lak District?" she enquired. The answer was, "Up Re Bank and over Blea Tarn Pass to Little Langdal whence Wrynose and Hard Knott might be crosse to the sea coast road and thence northward again b Honister Pass." The redoubtable lady driver ha already successfully tackled some of these problem but the notorious Blea Tarn Pass, which had defeate practically all the riders, solo and otherwise, in th well-known One Day A.C.U. trial of nearly two yea ago, was unknown to her. Certainly no lady driv had ever crossed it, and local information says th no sidecar had made a non-stop run over the pass.

An Adventure with Yeomanry.

Thus it came about that the hot sun of a glorio August afternoon saw us speeding swiftly along th shores of Thirlmere. Peace reigned all round 'mid the heathery heights, and the calm lake gleamed the foliaged depths. The uproar of the outer wor seemed far away. Yet a distant glimpse of khal clad figures showed that Manchester's water supp was not forgotten in the great scheme of national pr tection. Soon we were breasting the easy rise of Du mail Raise, with a well-known Midland expert on 2¾ h.p. Sunbeam making the pace and great du accordingly. Small wonder that his love of speed l

Descending into the depths of Little Langdale from Blea Tarn Pass. The road is seen 50 feet below, and the leading motor cycle is the 2¾ h.p. Sunbeam which succeeded in crossing th formidable pass.

O the Roof of Lakeland with a Lady Driver.—

h into trouble next day. In the early hours of the
rning he essayed to ride round Skiddaw. With
sttling suddenness he was called upon to halt by a
hden troop of yeomanry who were on the look-out
f the aeroplane. Whether he was mistaken for this
o a German spy is not quite clear, but there was con-
serable delay and unpleasantness before he was free
tcomplete the early morning tour.

n Grasmere village we swung round to the right,
leving the main road and making for the narrow
tsting road on the west side of the lake, 'midst
heysuckle shades, full-scented with meadow-sweet
al lightened by the blue gleam of harebells. Then
che more practical matters. The foot of Red Bank
ws reached. The long-suffering passenger who had
rden thus far on the tool-bag dropped off gladly at
th foot of the famous gradient. I had every confi-
dce in the "woman at the wheel." Thus the ques-
th asked with a pleasant smile, "Are you not
nvous?" seemed somewhat unnecessary even to one
wo had never previously trusted himself to a fair
ntor driver. Any doubt or thought of the matter
ws immediately dispelled, for on the steepest section
she stray mountain sheep suddenly leapt the wall.
Mst drivers and their machines would have been in
tuble in such a tight corner, but not so my com-
pion. She kept remarkably cool, and the engine
nst have done the same, for it recovered splendidly
frm the sudden slackening, despite its load and the
slpery gradient of 1 in 3⅝.

After admiring the wonderful view of Grasmere's
pceful vale from the brackened slopes above the
cst of the hill the road was followed which swerves
ay to the right beyond Red Bank. This led us up
toHigh Close and thence down into Great Langdale
bthe long curly hill over gradients which, by the way,
if taken from Elterwater village, would form a splendid item in some future Lakeland trials. Once in the bed of the valley it was quick travelling, with the shapely twin Pikes of Langdale ahead ever gathering in grandeur on nearer approach.

The natives were much astonished at the sight of a lady driver on a sidecar. During a halt at one of the local speed limits in the shape of a solid Lakeland gate across the road, some local worthies were not slow to express their opinion of the men of the party. "Tha should wear th' trousers!" said one gruff old dalesman to the lady driver. "Perhaps I do," answered our expert as with apt acceleration she sped us onwards out of the hearing of more frivolity. There was also astonishment at the farm house at Blea Tarn Pass,

An anxious moment on the "rough." The 6 h.p. Enfield on the upper zigzag of Blea Tarn Pass. The highest point of Langdale Pikes is seen above.

limbing to Tarn Hows by Yew Tree Hill—a skilful swing round the well-known "hairpin" bend, which surprised so many riders in the A.C.U. Six Days Trials last year.

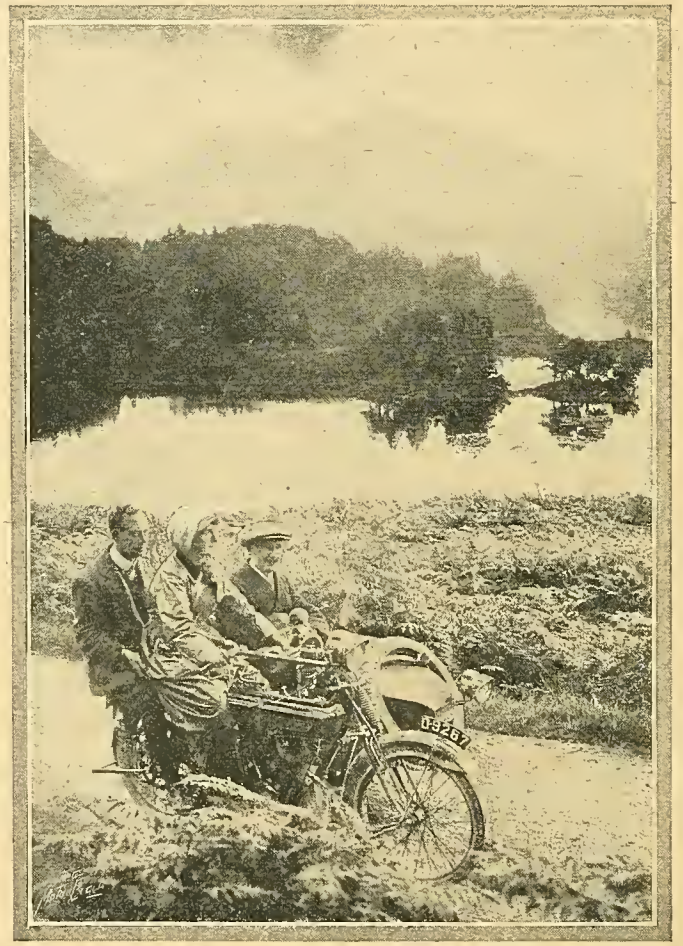
Over the Roof of Lakeland with a Lady Driver.—

but we had grown hardened to staring passers-by, and all attention was turned to the work ahead.

An inspection on foot was first made of the lower part of the famous hill. Main interest would centre in the double zigzags about half-way up its mile-long length. There the steepest gradients prevailed, but nowhere were these more severe than 1 in 3¾. The serious feature was the surface, for this was composed mainly of fine weather-rounded stones and pebbles more or less held together by loose dust, an altogether unstable combination. Great skill would obviously be needed in picking out the more solid bits on the extreme side of the road, thus giving the driving wheel a firmer grip. This latter was shod with a somewhat worn Palmer tyre, which proved astonishingly efficient for the purpose.

How the Climb was Accomplished.

Thus whilst the two who were to trust themselves to the sturdy little Enfield descended to the beginning of the climb I sought a safe viewpoint on the zigzags. My advice to come slowly was unheeded, but the methods of the lady driver were justified. She came up with a rush 'midst a cloud of fine dust and a shower of small stones flung from the spinning driving wheel. With wonderful coolness she kept only inches wide of the edge of the depths on the right, but now and again there were nasty skids on the crumbling road-centre. Close by my side there was an unnerving slide on the zigzags which almost led me to grasp the machine as it seemed bound to disappear over the edge. Yet with remarkable nerve the swerve was checked just in time, and my help was never given. The machine obtained a firm grip on the turfy roadside and flung upwards to the final zigzag. What mattered a suddenly projecting boulder which hurled the machine bodily off the ground! It landed on sound surface, and upwards out of my sight the Enfield and its riders sped all-conquering. Far overhead there echoed the bark of the engine, and finally came peace which told that the crest had been attained.



'Midst the brackened heights by Tarn Hows above Coniston—a Lakeland beauty spot which is attained by climbing one of the stiffest hills in the district. The 6 h.p. Enfield and its full touring load is shown.

It was one of the finest hill-climbing performances I have seen. To make a clean ascent of Blea Tarn Pass at the first attempt was an achievement of which any hill enthusiast might be justly proud.

A Marvellous View.

Finally, the driver of the 2¾ h.p. Sunbeam arrived, also a meritorious performance, despite some halts, for it must be remembered that Blea Tarn Pass is altogether a more difficult and desperate problem than the ascent of Honister Pass. The Sunbeam had managed this with comparative ease a few days previously.

Exhilarated by successful achievement all were able to enjoy that wonderful but little known view on the downward way into Little Langdale. Blea Tarn, the most beautiful sight of its kind in Lakeland, lay on our right, with the great crags overhead mirrored in its depths and graceful firs bending over the shallows. Soon the purple valley depths lay below, and Wrynose Gap loomed overhead with the thin trail of roadway winding up to the heights. But our way now lay down the valley, away towards Coniston by Colwith, and over heather-mantled Oxen fell.

The last serious climb of the day was to be up Yew Tree Hill to Tarn Hows following the route and negotiating the well-remembered hairpin which troubled so many riders in the Six Days Trials. Though in her impetuosity my driver seemed in danger of jumping the midway gate, we sped speedily and safely up into the lofty mountainland once more, and the hairpin was dealt with in such a manner as showed the lady's familiarity with such things. Then the dense shades above the lake at Tarn Hows enfolded us in a gloom that gave warning of oncoming night. There was just time to halt for a short enjoyment of that glorious evening scene with grey mountains all round in the orange gleam.

An hour later Ambleside was left behind and we hurried northwards. For myself I did not know which to admire most, the little 6 h.p. Enfield with its remarkably efficient two-speed gear, or the lady driver who had handled it over a hill-round of surpassing interest and difficulty.

Hints for Beginners.

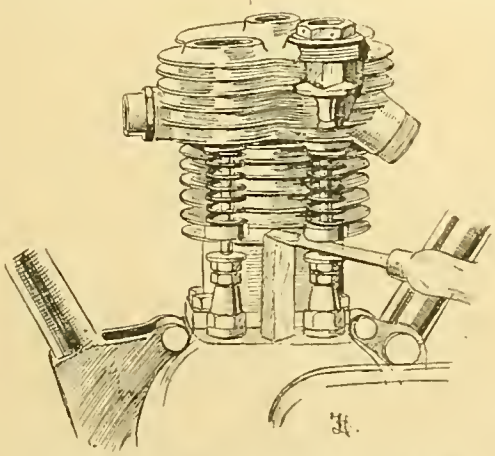
THIRD INSTALMENT.

OVERHAULING.

OBVIOUSLY the question of overhauling can only be dealt with in the briefest and most elementary manner, as to treat the subject at a fully would require a good-sized book.

How to Mend Punctures.

Possibly the puncture fiend will be the first to attack the rider, and though the repair of a tube is pretty generally understood, there are probably several tips that the novice will find useful. As soon as a tyre deflates, examine the valve, and if this is in good order carefully inspect the tread and walls of the tyre, searching minutely all the while for any substance which appears to have pierced the canvas. If any such puncture is discovered, carefully wipe the cover and then, mark the cover at the desired spot, and remove it for a foot or so only, to allow the tube to be examined. Feel inside the cover for any projection and remove it at once. Carefully clean the tube in the damaged spot, making sure that there is not more than one hole (a nail will often make one hole in the tread and several at the opposite side), and having cleaned the place or places, apply a good coat of solution and rub in well. Then allow this to dry while the patch is similarly treated (a good "prepared" patch is the best). The writer always treats both tube and patch twice, allowing them to dry well in each case. Then apply the patch and work all over it with the thumbs, making sure that the edges are stuck firmly down. It is as well to leave the patch to dry as long as possible before sprinkling a little French chalk round it and replacing. Slightly inflate the tube before refitting the cover, so as to prevent nipping, and so far as is possible roll the cover into place with the fingers. If the puncture cannot be located, it is best to remove the tube entirely and test it for leaks either with smoke or water. If there is no water present a slight leak can often be detected if the tube is passed across the lips or some sensitive part of the face.



Showing how to remove a valve spring in the absence of a special tool. The cylinder is shown sectioned, stripped of fittings and ready for removal.

Cleaning the Crank Case.

After every thousand miles it is a good plan to clean out the crank case, and the best method of doing this is to remove the drain tap in the crank case while the engine is still warm. Then remove the oil pipe. When most of the dirty oil has drained off, replace the drain plug and inject about a cupful of paraffin through the oil union; a small squirt should be used for this purpose. Close up the oil union and revolve the engine smartly by hand or foot for a short time, and drain the crank case once again. Now replace the drain tap and oil union and pump in three or four charges of oil and the operation is complete.

Removal of Carbon.

When the engine begins to lose power or show signs of knocking more than usual, it is as well to scrape the cylinder head and piston and attend to the valves. With proper lubrication and driving these operations will seldom be necessary, though with inexperienced driving they may be needed after the first 1,000 miles. The work is fairly simple, but it is better to have an expert motor cyclist as a supervisor on the first occasion. First remove the carburetter, sparking plug, valve caps, compression tap, and all external fittings of the cylinder, and carefully scrape all surfaces exposed to the explosion till all traces of carbon have been removed. Then undo the cylinder holding down nuts; one or two of these are often awkwardly placed, and require some patience before they are removed, and in extreme cases it may be necessary to remove the valves before they can be reached. For the present, however, let us imagine that the nuts have been successfully taken off. If the cylinder will not move easily it is best to bump it with a wad of rag over the hand. This will almost invariably free it, and does not damage the cylinder ribs. The cylinder should then be gently raised and the engine turned till the piston is at approximately its lowest point, when the cylinder should be able to be drawn off fairly easily by tilting it either backwards or forwards. As soon as this has been done, fill the inside of the piston with clean rag, so as to prevent it becoming damaged against the connecting rod, and then carefully remove all carbon deposit from the cylinder head with a long screwdriver or similar instrument. The piston head can be scraped with an old knife. Next remove the piston and scrape out the underside of the head.

To remove the piston the gudgeon pin must be withdrawn, and as there are many methods of fixing this part, it is best to consult the maker's catalogue or take the advice of an expert on the first occasion. This is especially necessary when dealing with a taper fit gudgeon pin.

Hints to Beginners.

The piston rings should be removed and cleaned, and the grooves in which they lie carefully scraped. The process of removal requires patience and delicacy, for the rings are made of cast iron and are very brittle. The writer prefers a single fine knitting needle, which should be placed under one end of the ring and worked gradually round. Meanwhile a gentle side pressure should be maintained on the ring to prevent it slipping back into its groove. Many prefer these strips of thin metal used in the same way, but left at intervals round the piston.

Treatment of the Valves.

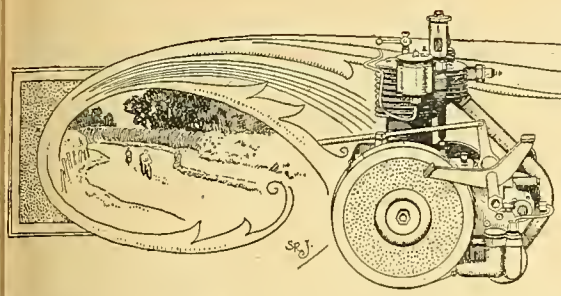
Valve grinding is comparatively simple, and the hardest part is generally the removal of the spring and cotter. It is best to place a cork, nut, or piece of wood on the valve head and replace the valve cap so as to keep the valve from rising; then lever the spring up (or depress it if the cylinder has been removed) until the cotter is exposed and can be taken out. The valve cap is then removed, and the valve and spring detached. There are many ingenious valve removers on the market which will save the rider much trouble, and it is as well to carry one suitable for the engine. The actual grinding should be done with very fine emery or carborundum powder mixed with oil, or one of the special grinding preparations now on the market. Coat the face of the valve lightly, replace the valve on its seating, and give it an oscillating movement with a screwdriver, raising and turning the valve slightly after every few movements. A light spring below the valve head will automatically raise the valve every time the pressure released. This process should be continued till th valve when clean is bright and without pits a round. Both cylinder, ports, and valves should the be thoroughly cleaned with paraffin, so that no trac of the cutting paste remains, and the engine is the ready for erection.

Putting Things Together Again.

There should be no difficulty about this if it carried out in the reverse order of dismantling, thoug care must be taken in starting the cylinder over th piston rings. It is best to oil the piston walls wi good cylinder oil and compress the rings as much possible with one hand while the cylinder is lowere and gently oscillated with the other. Never use forc or a broken ring will result. The joints in the rin should be placed as far out of line as possible, ar all faces, such as the cylinder base and crank case to should be scrupulously clean. If a new paper wash be needed for this part it can easily be made by hol ing a sheet of stout paper over the base of the cyli der and tapping the edges all the way round with light hammer. This should be done very gently avoid burring the edges. Before assembling, di mantle the carburetter and clean thoroughly wi petrol. Clean the outside of the magneto and exami your wiring for damage. Make certain that your ca buretter and inlet pipe are firmly fixed, and that the are no air leaks, and when bolting down the cylind tighten all the nuts gradually and evenly, and *nev* bolt one down tight and then begin on another.

THE MOTOR CYCLE AS AN AID TO RED CROSS WORK.

The above photograph shows how motor cycles can be utilised in conjunction with Red Cross work. The men depicted are members of the Twenty-fifth Company London Cyclists. The doctor calls up a motor cyclist orderly, and sends off particulars with instructions for base hospital.



Handling a Chain-driven Machine.

By ROAD RIDER.

IN the old days it was frankly recognised that a rigid transmission threw specially heavy strains on all the mechanism, and chain-driven machines were generally constructed with unusually heavy frames and fittings, and in particular, the engine was of a heavier and sturdier type than was adopted for the belt drive. Nowadays the craze for "revs" has produced a host of chain-driven machines with fittings as light and engines as lively as any ever incorporated in belt-driven machines. One may say that the early chain driver was always reminiscent of a dray horse, and the belt-driver of an Arab. Now the modern chain driver is usually of Arab breed.

Easy Pick-up Desirable.

Two small tips will enable the rider who has recently made the transition from belt to chain drive to obtain the best results from his new mount.

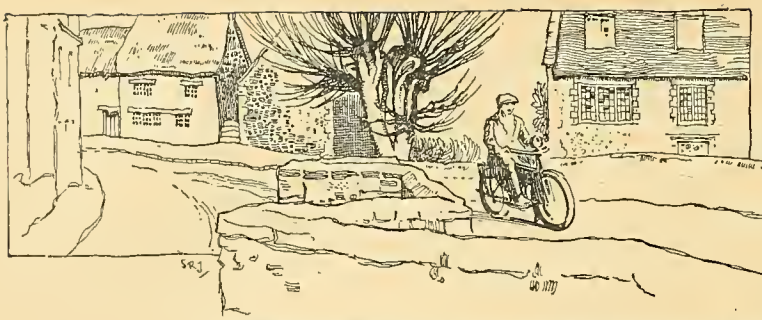
The first is to ease the pick-up of his engine whenever possible. In driving a belt-driver one feels a certain pounding and labouring either in getting the engine to pick up after an acute corner, or in coaxing it to accelerate on a stiffish gradient. On a chain-driver these sensations are exaggerated to an absolute "snatch." The makers of some three-speeded chain drivers implore their customers to change on to second gear under such circumstances, whereas with a belt-driver one would only shut off a little air or retard the ignition a trifle. Personally, I should not change down save under exceptional circumstances. If the snatch struck me as genuinely excessive, I should dismount, and adjust the clutch on the soft side. Under ordinary circumstances I should slip the clutch a little till the engine picked up. If a stiffish grade followed a sharp corner, or if the gradient were such that a belt-driver of similar horse-power would need much coaxing to hold on to top gear, I should emphatically change down. The results of abuse are serious. The engine takes the first strains, and there is no belt slip to ease its bearings; bad driving will, therefore, produce worn big end bushes in a very short distance. If the engine is really substantial it will pass the strains on to the transmission: then the weakest points in the chains will commence to give, and the pitch will suffer, or the spring link will weaken and finally snap. Therefore never let your engine "snatch!" Either (a) adjust the clutch less tightly, (b) slip the clutch a little in picking up, or (c) change to a lower gear.

The Effect of Vibration.

The second point concerns engine racing. There are few sensations more pleasant than those of letting the engine "rev." wildly, especially when one is putting a big car through it on a hill, and getting rid of its dust. Racing an engine, even under load, is never very wise practice; it entails far more wear than hundreds of miles of steady running. Racing the engine with a belt drive transfers a lot of vibration to the machine, and is responsible for many petty troubles in the way of lost bits. But racing a chain-driven engine, especially on the lower gears or in neutral, is absolutely suicidal. The racing of a belt-driven engine invests the machine in an atmosphere of vibration by sympathy; but the slip of the belt is pronounced at such times, and saves the machine from any very direct and intimate transference of oscillations. The rigid drive of the chain, on the contrary, transmits every single vibration to the very marrows of the mechanism, and is calculated to loosen every nut and bolt on the machine. I have lost tank fillers, crank case plugs, saddle nuts, and many other things by this kind of misbehaviour.

This accounts for the not infrequent grumbles one hears from first time owners "that chain drive shakes everything loose." The rigid drive requires more sympathetic handling, but, given that, it is eminently satisfactory, especially when properly encased.

A good example of a chain-driven machine. The 5-6 h.p. Clyno in military service.



LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Dissolved Acetylene.

Sir,—Like "Ixion," I believe in luxuries, and hate carbide, generators, and everything pertaining thereto. Therefore I use D.A. But I cannot agree with him that the cost is only slightly in excess of that of running a generator. If "Ixion" regularly obtains twenty-four hours light from his six cubic feet, he must be remarkably lucky in getting hold of good cylinders.

The utmost light I have ever obtained from a D.A. cylinder is eighteen hours, and in my experience ten to twelve hours is more common, whilst on two occasions the gas has "conked out" after about five hours, and I have had to resort to tallow candles tied to the burner of my lamp to get home. I may use a slightly larger burner than "Ixion," but cannot imagine that it is big enough to make all this difference, and I am always careful to see that there is no leakage, five hours costing 2s. 3d.!

In spite of this I stick to D.A., as the convenience of having the gas always—or nearly always—"on tap," when one only goes out for perhaps an hour or so in the evening, must be experienced to be appreciated. I get my luxury, but I have to pay for it. NOCARBIDE.

Motor Cycling in Bagdad.

Sir,—Thinking it may interest some of your readers hearing of motor cycles in out of the way places, I pen this short description of the advent of motor cycles in Bagdad and district.

My firm brought out the first machine during the early part of last year, and this I rode for two or three months with great success, and to the surprise and joy of the Arabs, who even now hail their approach with shouts of "*Chemin de fer.*" It was afterwards sold to a resident here, who rode it regularly until about two months ago, when both he and a rider of a similar machine had accidents to their respective mounts when on a ride to Remady, a place on the River Euphrates, about seventy kilometres distant. More of this town will be heard of later, as a regulator is being built there in connection with the new Barrage just recently opened. This directs the river again to its original channel, past Babylon, opening up a rich tract of land which has not been cultivated for many years owing to scarcity of water. The machines were 2 h.p. Humbers. Their riders lost their way, and on riding up what appeared to be a piece of rising ground, it turned out, to their great surprise, to be the bank of an ancient dried up irrigation canal. They were unable to stop, an entirely unrehearsed acrobatic display took place, they and their machines being precipitated an estimated drop of fifteen feet. Fortunately, with the exception of slight bruises, they were unhurt. The machines suffered, the wheels of one being ruined and the front forks of the other smashed. They were able by changing over the broken and bent parts to get one machine in running order; the other had to be brought back in a carriage. We have now in Bagdad six 2 h.p. Humbers, a twin N.S.U, and sidecar, a two-stroke Radco, a 2¾ h.p. Wolf, and a four-cylinder F.N. It is quite on the cards that a motor cycle club will be formed this autumn. Our daily shade temperatures are anything up to 120° F. Overheating is one of our troubles, and I wonder if any reader will tell us of his experience with the new aluminium radiators? I think this is a fine place to test their efficiency. Just now one feels that a benefactor to European residents here would be the invention of a radiator to fit on one's own body. H. N. NEAL.

Bagdad, Asiatic Turkey.

A Double Purpose Machine.

Sir,—If I may be allowed to give my own view on this subject, I will confess that I do not agree with "10,000 Miles a Year."

I consider that the Scott is the ideal machine for both solo and sidecar work.

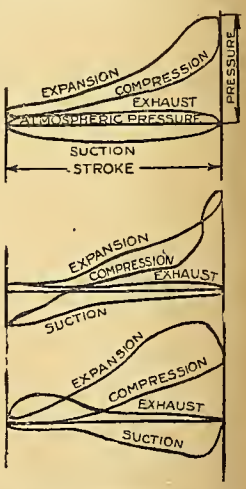
It is considerably more powerful than a 3½ h.p., and, owing to its water-cooling, never overheats, yet its well-balanced engine allows easy control in traffic and good speed in the open, as the last four years' T.T. Races have shown.

May I add that "Ixion," in his appeal in the issue of the 3rd September for 500 c.c. spring frame machines, seems to have overlooked the A.B.C. and Indian.

A. STATHAM.

Indicator Diagrams.

Sir,—From time to time articles are published on the subject of tuning up, and seem to me to be governed mostly by "rule of thumb." With all other reciprocating engines you hear of an indicator being used to show what is happening inside the cylinder when the engine is at work, but I have never heard of this instrument being used on small internal combustion engines. I should think this instrument would be of great use when tuning up, as it shows exactly what the valves and spark are doing, and would show exactly when the valves were opening and closing and when the explosion occurred. I give a few sketches herewith, which give some idea of what a card from one of these instruments is like.



The top diagram is normal; the second shows pre-ignition—the inlet closes too late and the exhaust opens too early; the third shows a number of faults—the inlet opens too late, the exhaust opens too late, and the spark is also late. From these it will be seen that it would locate most of the troubles to which this kind of engine is subject. There might be some trouble with it, due to the high speed at which motor engines run, but I think it could be overcome. I cannot give any result of a practical nature as I possess no motor to experiment on, but hope to join the ranks soon. Perhaps someone who has had experience of indicators could give some information.

With apologies for the length of this letter,

INDICATOR.

[As long ago as May 2nd and May 16th, 1904, *The Motor Cycle* had articles on indicator diagrams, taken from a motor cycle engine. Experiments in this direction were carried out by Professor Callender of the Central Technical College, South Kensington. If our correspondent desires, we shall be willing to place our files at his disposal if he calls at either the London or Coventry offices of this journal.—ED.]

Motor Cycles Wanted.

Sir,—Will you publish this letter, in the hope that some patriotic firm who desire to have their machine thoroughly tested as a military motor cycle will come forward and offer the loan of machines for the duration of the war?

There is on the War Office establishment for cyclist battalions no provision for motor cycles for the use of officers. The duty entails upon at least three officers in each battalion a tremendous amount of patrol work. The officers in question, in addition to their ordinary work, which is already sufficient tax upon their time and mental energy, find themselves obliged to cycle fifty or sixty miles more than any of the men. They have already given up so much for their country that they cannot well afford to purchase motor cycles at the present moment in order better to perform their duty.

It seems to me that some of our motor cycle makers might wish to help, and at the same time secure not only a good advertisement for themselves, but a thoroughly efficient test of their machines by men whose opinion, as experts, should carry weight.

ALBERT H. TRAPMANN,
Captain London Cyclist Battalion.

[It is obviously the duty of the Government to see that its military units are properly equipped with motor cyclists. The Government goes to the extent of purchasing machines for special branches of the Service, such as the R.E. Special Reserve, the Intelligence Department, the Army Service Corps, etc., and though we do not suggest that motor cycles should be provided for all the Territorials, it is obvious that the officers of the cyclist battalions should be equipped with power-driven machines. In default of this, however, we sincerely hope that some patriotic manufacturer will serve his country by offering to place machines at the disposal of our correspondent (and his colleagues), whose work for the military motor cyclist has been most strenuous from the beginning of the movement.—Ed.]

An Ideal Lightweight.

Sir,—I am not yet a motor cyclist, but I have a fair knowledge of motor cycles, gained partly from friends and partly from your excellent paper. The idea of writing this letter came to me after reading some little time ago an article in which the writer expressed his opinion that the ideal machine for solo riding would be a combination of the Scott engine and frame, and the F.N. shaft transmission. For a long time I have thought that a splendid lightweight might be built on similar lines. Nearly all present lightweight machines have belt drives, the troubles from which are well known; a few have chain drive, which is a better system of transmission, but open to two objections—either the chains need frequent cleaning, or, if they are enclosed, the rider lies in fear lest they should stretch or break.

The two-stroke engine is fast coming to its own in spite of prejudice and conservatism, but it requires some manufacturer to strike out from the beaten track, just as did Mr. A. A. Scott when he introduced his famous machine. I should like to see a lightweight introduced, comprising the splendid Scott frame, a single cylinder, air-cooled, two-stroke engine of 2¾ horse-power, driving, through a change-speed gear box, by shaft to the back wheel. The machine should not be unnecessarily lightened, as many of the present small machines are far too light for comfort. The 2¾ h.p. engine would give ample power to drive the heavier machine, and a sturdy, stable mount would result, costing, perhaps, more than the average lightweight, but well worth the extra money.

I am looking forward to a description of the coming Scott lightweight, and hope that the firm's originality will still be apparent in the new production, although, of course, I can hardly hope for the shaft drive. I have no interest in the Scott Co., except the interest which everyone feels for successful enterprise, but the Scott frame seems to me most suitable for a two-stroke, shaft-driven machine—the engine flywheel being, of course, at right angles with the frame.

It may be urged that with a single-cylinder, shaft drive would be harsh, but surely, if the 2¾ h.p. four-stroke F.N. drives sweetly, one would expect a two-stroke of similar power to be even better.

NORMAN WILLIAMS.

The Motor Cycle in Siberia.

Sir,—Having noticed from time to time interesting snapshots from Colonial riders in *The Motor Cycle*, I send you two of my machine, which is a 3½ h.p. two-speed Calthorpe three years old. It stands up to the rough going wonderfully well. We have also a 3½ h.p. three-speed Rover, which arrived a month ago. I believe our nearest neighbour with a motor cycle is four hundred miles away or nearly. We are stationed two hundred and fifty miles from the railway. Riders at home might be interested to hear we have no suffragettes, no number plates, no silencer regulations, and no speed limits. (The roads themselves are our speed limiters.)

Congratulating you on your excellent journal,
Siberia, Russia. NORMAN G. LOVELL.

[The above letter though dated July 17th only reached us last week.—Ed.]

THE MOTOR CYCLE IN SIBERIA, WHERE THE ROUGHEST ROADS ARE ENCOUNTERED.

Showing summer quarters and open air garage. Crossing the Koomoola River.

Three military riders of Rudge-Multis. They are members of the Scottish Cable Signal Company R.E.

Advice from the Front.

Sir,—Your edition of August 20th just to hand, and I might say very acceptable.

As one of the volunteer motor cyclists attached to the Expeditionary Forces, my advice to all motor cyclists on the various waiting lists is: (1) Perfect yourselves in map reading—it will be very useful to you and your Government; (2) look up your French—you will require a knowledge of it; and last, but not least, get it into your heads that when you have been accepted for service and go to your depot *you are no different* from any of the other non-commissioned officers; you are as subject to the rigid discipline of the Army as if you had earned the two stripes you should proudly wear, which in the ordinary course takes a man in the Royal Engineers about eight years.

You will find the officers and non-coms. very ready and willing to help you in every way, and give you any advice you require. You may know more about a motor cycle than they do, but they know more about the discipline that is absolutely necessary if you want to be of any use to your King and country. ALFRED JACOBS.

Base Signals, Expeditionary Force.

Married Men and the War.

Sir,—I am pleased to see in your leading article of last week a word in defence of the young unmarried man who, for business, or domestic reasons, has not offered his services for the Army. Considering the many scathing and often brutal comments that have been written in prose and verse during the last week, concerning those who have not enlisted, it is difficult to estimate which is the greater coward—the man who joins the Army or the man who stays at home. The latter, whatever his position may be, is constantly reminded that many of his less able-bodied brothers are fighting for the cause of their country; the arm-chair critic in the club-room is seldom slow in giving him a rub about it, while the married man he meets in the street greets him with the remark, "If I were not married I would have gone long ago."

There are thousands of young unmarried men in the country to-day to whom it is a far greater sacrifice to remain at home than it would be to enlist, and who are in every way as loyal as those who have already laid down their lives for England's honour. It is these young men who feel most keenly the criticism to which the non-enlisting manhood has been subjected, while the real shirker, the nonentity for whom these scathing remarks are intended, is not sufficiently susceptible to take any sort of written criticism to heart.

Further, I think it is a moral sin for married men, and those on whom labour is dependent, to volunteer their services—for the present, at any rate. Numbers of men have been thrown out of employment by the war, and must now look to the Army for a living. Again, the majority of the big business houses are doing all in their power to induce their young men to enlist, and, in most cases, have promised to keep their posts open. These are the men who must go to-day—must consider it their sacred duty to do so, if only to spare those on whom families and important industries are dependent.

Personally, I cannot enlist at the time being for reasons which there is no need to state here; but, like thousands of others, I am willing to sacrifice much for the support of the nation in this great crisis. That I should be classed among the shirkers, funks, and idlers is beyond endurance. If it becomes necessary for me to go, Lord Kitchener will doubtless issue an appeal, the meaning of which there will be no mistaking, and when that day comes I think that not only the unmarried men of the country, but the young married men also will be called. Then, I will gladly take my place among those who are making a sacrifice, a thousand times greater than the men who, in response to the first call of duty, are joining the Army to-day.

ONE OF THE THREE MILLION.

[Though we publish this letter as there is doubtless force in the remarks, we desire it to be known that no remarks of ours have excused young unmarried men from enlisting.—ED.]

The Storm Kit Question.

Sir,—It is with much pleasure that I notice that "Ixion" has taken up the "storm-kit" question.

In the old days I remember reading in "Occasional Comments" that snow shoes were a *sine quâ non* in rough weather when the ordinary trouser overalls were worn. I mention this because I intend referring to it later on.

As regards the cost question, the price of leather-soled Hutchinson waders is 17s. 6d., and that of the Moffat Poncho (the only objection to which being that the standard model thereof has no pockets) is 15s.—32s. 6d. in all.

Now, to come to the ordinary overall suit. Allowing 6s. 6d. for a pair of snow shoes, this would only leave 26s. for the overalls. Of course, we all know that quite decent overalls *can* be bought for this figure; but even supposing they are absolutely waterproof to start with, for how long will they remain so? Even the best overall trousers in conjunction with snow shoes are nothing like so efficient as Hutchinson waders in really bad weather, and, after all, Hutchinson waders are very quickly donned. Continental gloves I have found absolutely splendid. They are rather costly in the first instance, I admit, but are really cheap in the long run. Personally, I have had one pair in use for ten months, and, like Johnnie Walker, they are "still running."

As regards the leather racing helmet, perhaps "cap" would be nearer the mark than "helmet," as I did not wish to imply the padded or pneumatic variety. The one I now have I got at the Service Co., and it has been both useful and extremely comfortable. It weighs under 3 oz.

Except for long runs in the winter, puttees as well as the Hutchinson waders are really unnecessary. Leaving puttees out of the question, I do not think the kit I advocate tots up to so very much more than that of "Road Rider."

I have not taken any statistics, but I should imagine that nearly everybody in a six days trial sports Hutchinson waders, and I have also seen a goodly number of riders garbed in oilskin ponchos or oilskin coats, and when all is said and done the six days trials—English, Scottish, and International—are all held in the summer. MOR 425.

The Bristol M.C.C. recently held a run to Porlock, under the auspices of their War Committee, with a view to testing the suitability of motor cycles for military purposes. The view shows the scene in Porlock village.

"SUNSTONE" for machines up to 8 h.p. A good anti-skid and unrivalled for heavy work. 26×2¼ 40/- 26×2½ 45/-

"COMBINATION"—the enduring Non-skid (steel studs and rubber bars). 26×2¼ 48/3. 26×2½ 50/-

"STONEHENGE." Same design as "Combination," but all-rubber tread. For machines up to 4 h.p. 26×2 20/9. 26×2¼ 22/6

"TRICAR" for tricars and machines up to 5-6 h.p. Rubber studs. 26×2¼ 35/- 26×3 45/-

"DRUID" for sidecars and lightweights. Hexagonal rubber studs. 26×1¾ 15/9. 26×2 17/6

His Majesty's Service demands good riders—good machines—good BRITISH tyres...

Good tyres and Avon Tyres are synonymous terms. Equip with British Avons because they cut down potential misfortune and delay to the irreducible minimum.

A "Combination" on the driving wheel and "Sunstone" or "Tricar" on front or sidecar wheels will take you over anything, with any load.

RECENT PROOFS OF AVON SPEED AND RELIABILITY

World's 350 c.c. Sidecar Records Broken, 13 Aug.	Flying Kilometre (at 52·27 m.p.h.), Flying Mile (at 50·70), Flying 5 miles, Standing 10 miles, Standing 1 hour. All on 2¾ h.p. "A.J.S."
Penrith Open Speed Trials	2 Firsts and 2 Seconds.
Devon M.C.C. Trial	Gold and Silver Medals.
Brooklands 6th Meeting	4 Places.
Colwyn Bay Races	15 Places.
English "Six Days"	Sidecar Cup, 5 Medals.

AVON TYRES

Illustrated Catalogue post free throughout the world.

THE AVON INDIA RUBBER CO., LTD., MELKSHAM, Wilts.

BRANCHES: 19, Newman Street, Oxford Street, W. 88, Avenue des Ternes, PARIS.
119, Victoria Street, BRISTOL. 202-4, Corporation Street, BIRMINGHAM.
38, King Street West, MANCHESTER. 55, Queen Street, GLASGOW.

'SHELL'
MOTOR SPIRIT.

In view of certain statements which have been circulated by interested parties, the Proprietors of 'Shell' Motor Spirit desire to make it known to the public that they have no German Shareholders, nor is there any German interest of any kind whatever represented in their Company. Statements to the contrary are untrue and libellous; a reward will be paid for information leading to the conviction of persons repeating the libel after publication of this notice.

Dated Sept. 8th, 1914.

THE ASIATIC PETROLEUM CO., LTD.,
ST. HELEN'S COURT, GREAT ST. HELEN'S,
LONDON, E.C.

OCCASIONAL COMMENTS by "IXION"

The Sturmey-Archer Countershaft Gear.

I am very glad that at least one leading hub gear concern is sufficiently open-minded to realise the prospects of the counter-shaft position, and sufficiently enterprising to enter a market which it previously regarded as antagonistic. The efficiency and reliability of the cheap and compact three-speed hubs represent one of the most brilliant engineering feats yet accomplished in the industry, and their makers must know more about the design and material essential to light and compact gears than anybody else. Now that they are catering for both demands, the two types of gear will be able to fight their battle for supremacy on level terms, and I have no doubts about the ultimate victor, though the hubs still retain a long and honourable career in the future.

Speedometers.

Timidly I return once more to my sorest subject. For some years past I have remained tolerably faithful to two leading makes, and I rashly fancied that all others were of equal quality. During the present season I have sampled eight or ten different makes, and without doubt there are great variations in the accuracy of their readings and the steadiness of their needles. The Cowey and the Watford I have always found trustworthy and steady, and I can now add the Bonniksen Isochronous and the A.T. to the roll of honour. Words cannot do justice to the eccentricity of one or two other makes which I have tested. As one maker said, "You may find you can only do forty by our instrument, but you will pass most other instruments when they are registering fifty!" I found he was right, and a stop-watch soon proved that his instrument was right, too.

Dissolved Acetylene.

So far as present developments go, electrical outfits are surely being overlauded a trifle! I am among those who consider that electricity is likely to vanquish all its existing rivals in the way of power providers, but I am not so sanguine as to think its triumph can come by to-morrow about this time. So far as engine-starting is concerned, the defects of the kick-starter are not so pronounced that great additions in either weight or cost will be faced to secure the greater luxury of electricity. A dynamo, with a pair of good and capacious accumulators, can hardly be kept under a total of 50 lb. as yet, and the reduction of this figure to 30 lb. will be a long and tedious job. A kick-starter and a mechanical horn can perform two of the functions designed for a complete dynamo outfit almost as efficiently, and weigh little more than the inevitable corresponding appurtenances of an electrical outfit. When it comes to lighting, a cylinder of dissolved acetylene weighs but 6 lb., and costs much less than the electrical kit; further, it has the advantage of being absolutely reliable. A cylinder of these dimensions provides sufficient illuminant for eight long evening rides, or for two big lamps on a double-journey Edinburgh ride. The sole defect of the compressed acetylene cylinders is that they are not very handily storable on a solo mount, but this could easily be overcome if makers would provide a carrying socket. On many machines they can be housed along the saddle-pillar tube on the offside. The steadiness of the flame they provide, and the absolute freedom from lamp trouble which they ensure throughout the longest night trip, is a positive revelation, and compares very favourably with the fear which haunts a novice when seated over the mysteries of a dynamo, on which his progress is entirely dependent.

Artillery Wheels—A Side Issue.

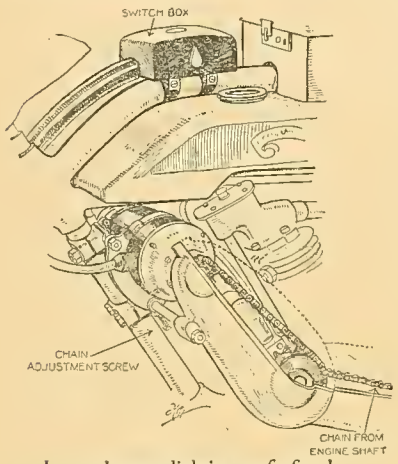
The experimental artillery wheels used in the Scottish Trials this summer hardly covered themselves with glory, for the judges' inspection revealed plenty of cracked spokes, but initial weaknesses accompany every innovation, and are negligible. In every direction there is a strong movement towards improving the cleanliness of motor cycles, and artillery or disc or disc-encased wheels are obvious leads in that direction; one may suppose that either disc or artillery patterns should become standard in course of time. Such a change will exercise a strong influence on both transmission and brakes. Belt rims will spoil the neatness of either type, and would indeed be intolerable on any model of disc wheel. Therefore, the general adoption of internal expanding brakes seems probable, and a marked pointer is offered in the direction of shaft or chain drive.

R Reid of Aberdeen on his 1914 counter-shaft geared Zenith sidecar. He reports that he takes long runs during week-ends, in the North of Scotland, always with five up, and has never yet experienced any difficulty on hills

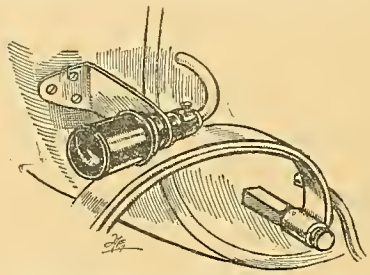
An Electrically Lighted Matchless.

A Last Touch of Refinement to a Luxurious Sidecar Outfit.

MESSRS. H. Collier and Sons, Ltd., of Plumstead, have added one more luxury to their already famous Matchless sidecar combination in the form of a Lucas electric lighting outfit. The generator is mounted in a very accessible position above the magneto, and is held by means of a specially designed bracket to the rear down tube. This bracket is so constructed that it can be fitted without any alteration whatever to any existing 1914 machine. The drive is by means of a chain operated by a sprocket on an extension of the magneto-shaft, and a casing is provided which totally encloses both the dynamo and magneto chains. An adjusting screw is provided at the bottom of the bracket by means of which the chain can be adjusted to the correct tension. This is also quite well placed, and can be got at quite easily with an ordinary spanner. The end cover of the generator can also be removed without any obstructions, so that it is quite an easy matter to remove the brushes for cleaning or other purposes. Placed on the top of the tank and attached to the top tube is the Lucas switch, which is an extremely ingenious mechanism and very effective in action. The wires from the dynamo are taken through a hole in the side of the sidecar body to the accumulators, which, in their turn, are housed underneath the seat. Other wires are also taken from the battery to a lamp neatly positioned at the rear, and a small sidecar lamp stationed on the near side of the body, but at the front.



Lucas dynamo lighting outfit fitted to a 7 h.p. Matchless.



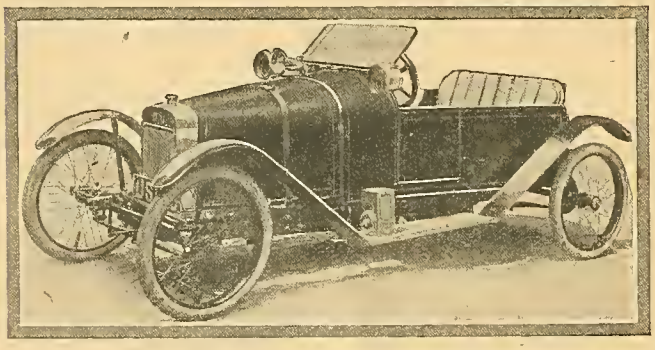
Method of fitting rear lights in connection with the Lucas dynamo lighting outfit.

The whole job has been carried out with great care, and both the fitting and type of lamps provided are highly commendable. The gearing allows the generator to cut in at about twelve miles per hour—an advantage when much traffic riding is performed.

The D'Ultra Cycle Car.

A Simple Machine incorporating Friction Disc and Single Chain Drive.

FOR some time now Mr. Harold Dew has devoted much time and study in evolving a cycle car which can hold its own with the reliable sidecar combination which is so popular at the present time. His latest type savours very much of high-class automobile practice, but, at the same time, simplicity has been kept in view throughout. The frame is made of reinforced ash, and is of quite simple design with only three cross members. The engine utilised is a twin-cylinder Chater-Lea with a bore and stroke of 85 mm. × 85 mm., and is water-cooled. The water is contained in a tubular radiator, which has a very neat appearance in conjunction with the tapered bonnet. The transmission is by propeller-shaft to which is attached a friction disc driving a counter-shaft, whence the power is transmitted finally to the solid rear axle by means of one roller chain. This type of drive, although simple, is very efficient, and is, at the same time, light and cheap to make. The gears, of course, can be varied infinitely between two points, which is a great advantage in light vehicles with engines of moderate horse-power. The rear axle is mounted in bearings housed at the end of the cantilever springs, which are very effective in action. The front spring is of the transverse half-elliptic pattern, and, in conjunction with the rear springing, allows the weight distribution to be taken up very evenly all over the chassis. The steering gear is of the rack and pinion type, which is used on a number of vehicles of this description, and has always proved itself to be thoroughly satisfactory. Two brakes are embodied in the rear wheels, and are respectively internally expanding and externally contracting.



THE LATEST D'ULTRA CYCLE CAR.

The neat taper bonnet and radiator and transverse underslung front spring will be noticed.

The good points of this cycle car are many, and chief, perhaps, among them is its excellent value for the money asked for it—viz., £115, complete with two head lamps, hood, and wind screen—which ought to make the vehicle a sound commercial proposition, as it is extremely comfortably to drive and handle. Its low centre of gravity renders it very stable.

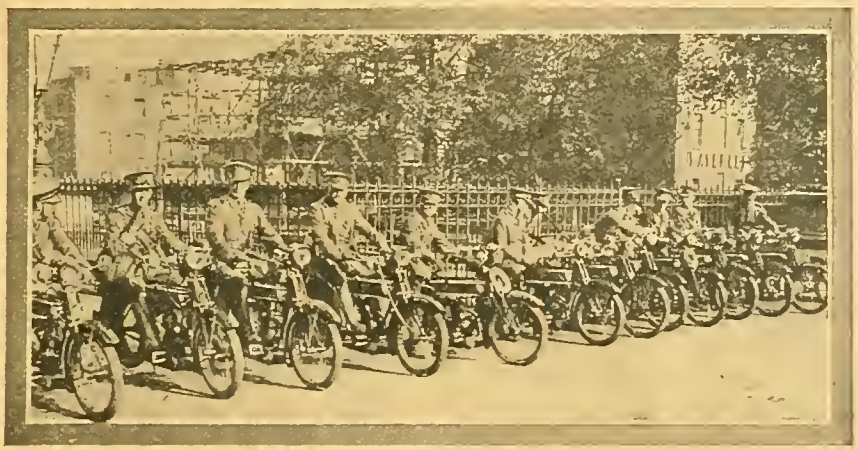
Motor Cyclists for the Intelligence Department.

A New Branch of the Army to Provide Mobile Interpreters.

LAST week we inspected a detachment of twenty-one motor cyclists who were leaving for the front for work with the Intelligence Department. The detachment was raised by Major L. Sandwith, 8th Hussars, while in command is Captain Blackburn. All the members of the detachment had to speak French and German fluently, and before being accepted by the War Office were examined orally by the Civil Service Commissioners in these languages, and, on being passed, were given £20 for the purchase of their kit and were gazetted with the rank of lieutenant. An extraordinary amount of kit was carried, which made the luggage carriers appear to be of much too small dimensions.

The Well-equipped Machines.

The machines are the very latest pattern Rudge-Multi, equipped with Lucas lamps and generator, and Jones speedometers registering in kilometres. All machines are finished in black and are fitted with handle-bar mirrors. The full list of spares required by the War Office on active service is, of course, carried. The tyres are ribbed pattern Dunlops. The kit consists chiefly of a large Willesden canvas holdall, a big hand-bag, and a knapsack. The usual arrangement is to place the bag on the carrier, put the holdall over it at right angles, and strap the knapsack to the back, over the rear number plate. The men were enthusiastic to go to the front, and, undoubtedly, they will have a most exciting time, as working for the Intelligence Department they will be up in the front, and at times even beyond it. We heard that General French had asked for several of these men early last week, and we were able to supply the War Office with quite a number of names of those on our register who were linguists. In conversation with one man, he told us that he thought the examination for languages was very much too easy. Unfortunately many of the men had had little motor cycle experience. However, as the corps was raised rather hurriedly, this can scarcely be wondered at, as it is not easy at a moment's notice to raise even a comparatively small number of expert motor cyclists endowed with the necessarily high qualifications demanded.

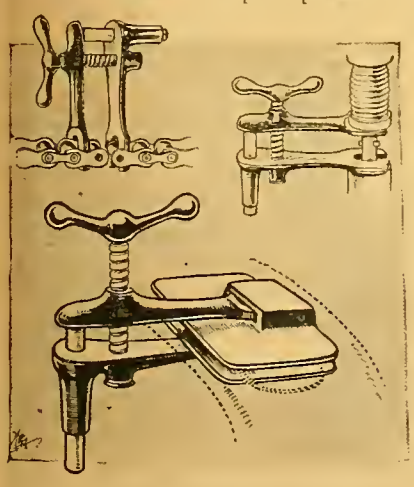


Some of the members of the motor cyclist corps for the Intelligence Department of the War Office, which has just been raised. These riders all speak French and German, and have been gazetted to the rank of Lieutenant. All are mounted on 3½ h.p. Rudge-Multis.

AMONG THE ACCESSORIES.

A Useful Tool.

IN our issue of April 2nd we shortly described the Smithowen valve lifter, which has since undergone some improvement. The accompanying sketches also show several methods in which it may be employed to bring the ends of a rather tight chain together, and also, with the aid of a couple of plates fixed over the fork ends, it acts as a tyre patch compressor, in which capacity it should prove very useful. The makers of the Smithowen valve lifter are Messrs. A. S. Smith and Sons, Charles Street Works, Walsall.



The sketch in the top left hand corner shows the chain tightener, that on the righ the valve spring compressor, and the lower one the tyre patch compressor.

The Crown Counter-shaft Pulley.

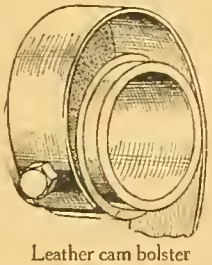
Messrs. Lee Bros., 9a, Ada Road, Havil Street, Camberwell, have placed on the market a variable pulley which is intended to take the place of pedalling gear, and to convert a single belt drive into a combined chain and belt transmission. An eccentric adjustment is provided, and the outer flange of the pulley can be screwed in and out as required, half a turn or more at a time, when a small bolt has been removed; a spring clip prevents this bolt from working loose.

Aluminium Soldering.

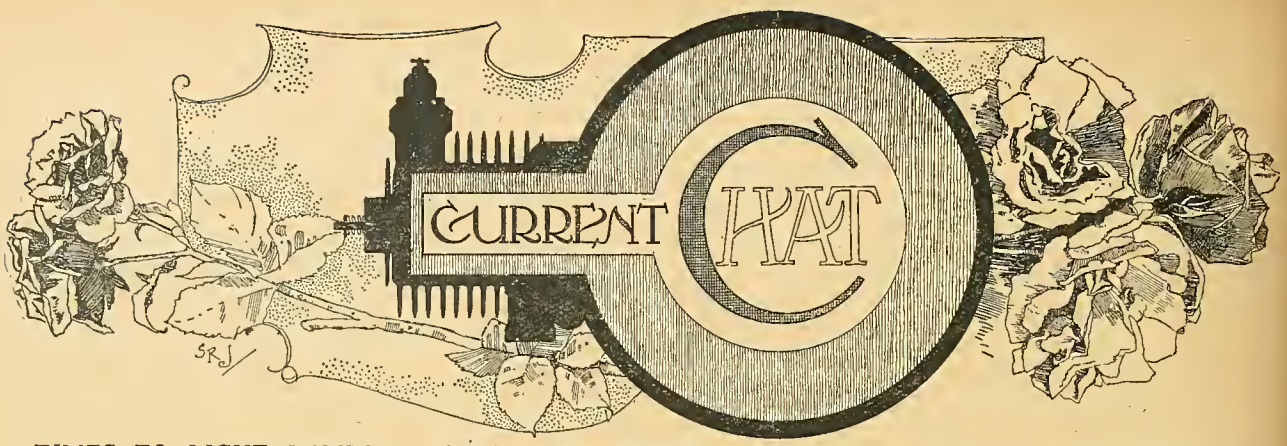
We receotly had an interesting demonstration of aluminium soldering carried out by a representative of the Croydon and District Model Aero and Engineering Co., 3, Wellesley Parade, West Croydon. The solder, which is composed of tin, aluminium, silver, etc., works very well, and can be applied with an ordinary clean bit from which all trace of solder has been removed. To solder two pieces of aluminium together it is necessary to clean the surfaces until they are absolutely bright, place the stick on the clean portion and apply the iron to it. It should then be rubbed up and down until the faces are properly "tinned." The solder runs quite smothly, and when both surfaces have been treated one may be placed over the other and the iron applied to the top and round the edges, when a good solid joint can be obtained.

A Philipson Pulley Alteration.

A small but nevertheless important improvement has been carried out on the latest form of the now well-known Philipson pulley. It consists of what is termed a leather cam bolster, which is fitted below the smallest diameter spring coil at its point of attachment to the central member. This apparently small taper leather pad has a very useful effect in that it practically prevents spring breakage, even under bad treatment, and also imparts a very smooth action to the pulley. All new pulleys are fitted with this device and existing types can be converted. Three stamps, to cover postage, if sent to the makers at Astley Bridge, Bolton, Lancs., will bring the necessary parts, but it must be remembered that the washer under the present fixing screw should be left out.



Leather cam bolster as fitted to the latest type Philipson governor pulley.



TIMES TO LIGHT LAMPS.

Sept.	17th	...	...	7.10
,,	19th	...	...	7.5
,,	21st	...	...	7.1
,,	23rd	...	...	6.56
,,	25th	...	...	6.51

The Dearth of Magnetos.

A correspondent writes: "In the light of your recent enquiries, may it not be said that the talk of a dearth of magnetos is pure bosh?"

The Commercial Sidecarrier.

The sidecarrier promises to enjoy a big vogue in the near future, as leading business houses are adopting it. Incidentally, a number of new firms are taking to its manufacture.

Second-hand Market Good.

From actual experience the second-hand market for motor cycles is quite brisk. Two members of our staff who advertised their machines for sale in the columns of this journal disposed of their mounts after the first appearance of the advertisement. Furthermore, enquiries have continued to arrive from prospective buyers.

Another British Magneto.

Still another British magneto is announced, and an illustrated description of it is given in another part of this issue. Motor cyclists in general will hail with delight the arrival of the C.A.V. magneto, especially as the Rudge-Whitworth and B.S.A. companies are expecting early consignments of this latest British instrument.

Motoring Centres in the War.

Two small towns which are appearing daily in the papers at the present time, Chateau Thierry and La Ferté Sous Jouarre, also Soissons and Compiègne, were traversed in the A.C.C.F. Circuit de Paris in 1912. Chateau Thierry is, of course, famous for its hill, which, however, does not now offer any difficulties to the riders of motor cycles.

Off to the War.

We learn that F. P. Mayell, captain of the Sutton Coldfield and Mid-Warwickshire A.C., has rejoined the regiment with which he went through the Boer War, and has left Birmingham for the front, and that J. St. John, trials hon. secretary of the same club, volunteered as a motor cyclist on August 6th, and expects to be called up for service shortly.

A Rally of Non-military Motor Cyclists.

At a preliminary meeting of motor cyclists held at the Victoria Hotel, Wolverhampton, it was unanimously decided to form a non-military motor cycle body. It was further resolved to call a rally of motor cyclists on September 27th, 10.30 a.m., at the Talbot Hotel, Wolverhampton, to proceed afterwards to Penn Common, when the objects of this body will be fully explained.

Too Fast for the Foe.

In the *Daily Mail* the other day we noticed a letter from Corporal Graham Hobson, R.E., who is in a motor cycle section of the Expeditionary Force. He states that he is in command of a section of ten men, nearly all of whom were educated at the University, while one of them got his half-blue for running. The other day the latter was being chased by some German infantry when his motor cycle broke down and he had to run. He simply left the Germans standing over a half-mile over rough ploughed land. So far only one of the section has been seriously wounded. The corporal goes on to state that he feels very fit, and is enjoying himself immensely. All lights are put out at eight o'clock, and they lie in their blankets and tell each other lies about the number of Germans they have shot and the hairbreadth escapes they have had.

SPECIAL FEATURES.

NEW BRITISH MAGNETO.
OVER THE ROOF OF LAKELAND.
A DASH FOR LIBERTY.

Brooklands Open as Usual.

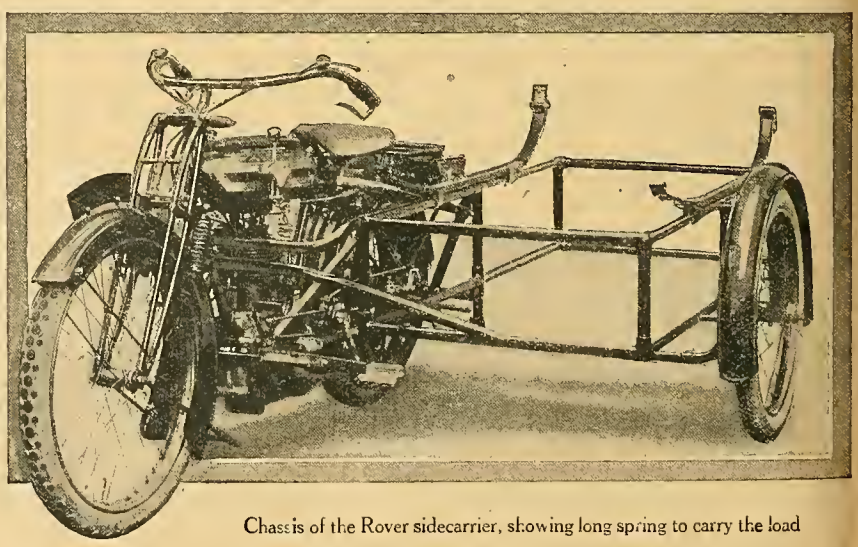
Although the September meeting of the B.M.C.R.C., which was down to be held on Saturday last, was abandoned, members are reminded that the track is available for use as in normal times.

F.N. Works Safe.

We are glad to be able to state that the F.N. Works at Liège have not been destroyed. Mr. Kelecom, the chief designer and one of the principals of the firm, is at present in England, and he has assured Mr. Gelder, the manager of F.N. (England), Ltd., that the works are intact and are being used as a German Red Cross Hospital.

The Rover Sidecarrier.

Last week we illustrated one of the 3½ h.p. Rover sidecarriers in use by the General Post Office, a noticeable feature of which is the method in which the load is supported on long springs. We now illustrate the cradle chassis, which clearly shows the springs in question and also the arrangement of the compensated brake for the back wheels.



Chassis of the Rover sidecarrier, showing long spring to carry the load

Motor Cycles for Russian Army.

We understand that Messrs. Phelon and Moore, Ltd., have been ordered to supply two hundred of their motor cycles to the Russian Government for military purposes immediately.

The Speed Limit.

There seems to be a fairly general opinion that the speed limit is in abeyance; we would warn our readers that this is not the case, though trapping is much less prevalent than usual.

Racing for the Belgian Relief Fund.

On Saturday next, at 7.30 p.m., some motor racing is to take place on Crazy Curran's Motordrome, White City. The proceeds will be devoted to the Belgian Relief Fund, and the meeting will be held under the patronage of H.E. the Belgian Minister. It is only fitting that one of the competing cars should be an F.N., made at Liège. This car will be driven by Mr. A. E. Gelder against a 30 h.p. automobile. Other events on the programme include a pursuit race, solo driving, trick driving, and neck-and-neck races, and, when one considers the smallness and trickiness of the track, a very thrilling entertainment may be expected.

Sport and the "Carry-on" Principle.

While the most varied opinions exist as to the propriety of continuing sport in its various branches, it is interesting to read the reply of the War Office to the Football Association's letter as to whether the continuance of the League matches would interfere with recruiting or be viewed with disfavour by the authorities in Whitehall. The War Office sees no objection whatever to the carrying out of the F.A.'s programme, but suggests that a portion of the "gates" should be set aside for the benefit of soldiers' dependents, and, further, that when a large crowd was gathered together the F.A. should seize the opportunity of bringing the need the country has of men before the crowds in a prominent manner.

The T.T. Winner on Service.

We understand that Cyril Pullen, who won the Senior Tourist Trophy Race this year on a Rudge-Multi, is now serving as an air mechanic in the Royal Flying Corps Sub-depot, Sheerness. A large number of well-known competition riders are acting in the same capacity.

An Entirely New Model.

Continuing its first descriptions of new model motor cycles, *The Motor Cycle* is this week able to provide its readers with the first particulars and photographs of the new two-stroke Singer machine. The new all-British C.A.V. magneto and the Dixie magneto for two-strokes are also described.

An Enlistment Opportunity.

Special facilities are granted to motor cyclists, and highly educated men connected with the motor cycle industry, to join the special battalion of Colonial Infantry now being recruited under Mr. Arthur du Cros, M.P., and Mr. Norton Griffiths, M.P., at the White City. Special opportunities to friends to serve together will be given. Applications to join should be made to either of the above-named gentlemen at the Uxbridge Road entrance to the White City.

A Recruit Heavily Fined.

We were glad to be able to record recently that in Surrey many summonses against motorists, who had gone to the front, were withdrawn by the authorities. On the other hand very different treatment was meted out to M. J. Stretch at Burton-on-Trent last week. Stretch, who was accused of dangerous driving, had enlisted in the North Staffordshire Regiment, and consequently could not defend the case. He was fined £5 and £3 6s. costs, or two months' imprisonment, and in addition his licence was suspended for six months. It is, however, only fair to say that the police stated that Stretch had been previously warned and many complaints had been made against him. Still, we think, under the circumstances, that some leniency might have been shown.

English Machines for Belgian War Office.

The Belgian Government last week placed an order with the Enfield Cycle Co. for fifty 3 h.p. Enfield motor cycles for the use of despatch riders.

The Sidecarrier.

A name given by *The Motor Cycle* on August 20th when describing three commercial sidecars and pointing out their possibilities, is being generally adopted. The commercial sidecarrier is catching on, as we predicted would be the case; live agents in the large centres are demonstrating it to tradesmen. Ever since *The Motor Cycle* a month ago first drew the attention of manufacturers to the opening for sidecarriers among bakers, butchers, grocers, who had been rendered horseless owing to the war, the movement has gained ground, and each week the subject has been dealt with in the columns of this journal.

The Awakening.

FROM A CONTEMPORARY, SEPTEMBER 8TH, 1914:

"Whereas in London one sees hundreds of men in khaki, in Coventry one hardly ever sees a man in uniform. Is Coventry going to ignore Lord Kitchener's appeal for MEN?"

FROM THE SAME CONTEMPORARY, SEPTEMBER 15TH, 1914:

"There are very few single men left in Coventry, so great has been the response for men for Kitchener's Army."

"Coventry is now deserted, most of the well-known riders having enlisted, and the trade is working short hours on Colonial orders."

Motor Cyclists in the A.S.C.

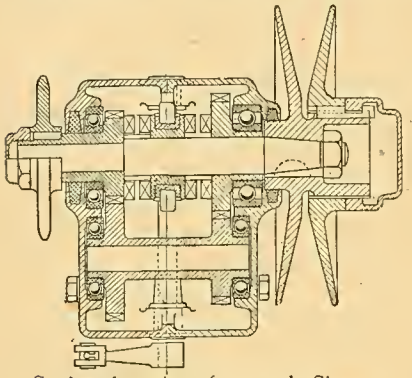
Many of our readers will be interested to know that S. A. Rowlandson, the well-known Rudge rider, together with C. T. Newsome and D. H. Noble, well-known as riders of the Rover machines, and W. L. T. Rhys (who once broke records on a Rudge) have joined the Army Service Corps (Transport Section), in which they are driving motor lorries. G. Featherstonhaugh has been at the front some time, and J. H. Ponntney has volunteered.

Numerous scouts, despatch riders, and other military motor cyclists patrol the roads on the North East Coast The photograph shows a group of men attached to the East Yorks. Regiment at their headquarters (Louth). There are thirty men with the regiment. The same number are attached to the Hants. Cyclists, and this regiment has all motor transport, the roads in the district being especially good.

A TWO-STROKE SINGER.

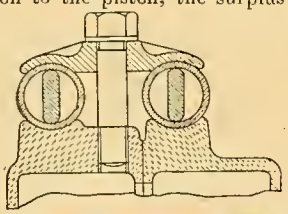
Engine Capacity, 349 c.c.; Drip Lubrication; Two-speed Counter-shaft Gear.

THE Singer Co., Ltd., of Coventry, have always been to the fore with a medium powered lightweight, and, after their many successes with the four-stroke type, it is not surprising to find them coming into line with a very neat and fully equipped two-stroke. The company are believers in the machine of moderate power as opposed to the "toy" engine, so that we find a single-cylinder engine of 75 × 79 mm. bore and stroke, giving a capacity of 349 c.c. The engine is peculiar in several ways, and though built under Peco patents is quite distinct in general appearance. The engine is of the three port type, having the transfer pipe cast with the cylinder and very high crank case compression. Roller bearings are employed on the crankshaft and big end, assisted in the former case by plain



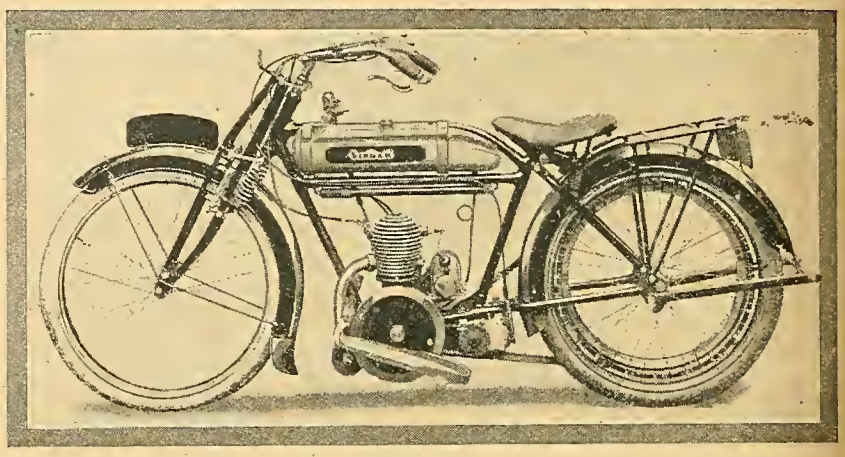
Section of gear box of two-stroke Singer, showing dog clutch mechanism.

compression retaining bearings. The piston has two top rings and is constructed with a double top which, besides raising the crank case compression, prevents the usual deposit of carbon below the head. Lubricating oil is fed through a sight feed drip to a ring round the cylinder formed by two cast iron ribs formed close together and closed by a surrounding wire. Thence the oil is led direct on to the piston, the surplus pass-



Method of attachment of gear box and liners within the frame tubes.

ing to a groove in the top of the crank case and thence through ducts to the main bearings. By this means the piston gets the full lubricating effect of the fresh oil—an important feature in a two-stroke engine where high piston temperatures are prevalent. The outside flywheel is of large diameter and all the weight is in the rim. The new two-stroke Singer is a fast machine on the road—43 m.p.h., we are told, is its maximum pace. This will not be wondered at when we state



Flywheel side of the new two-stroke Singer.

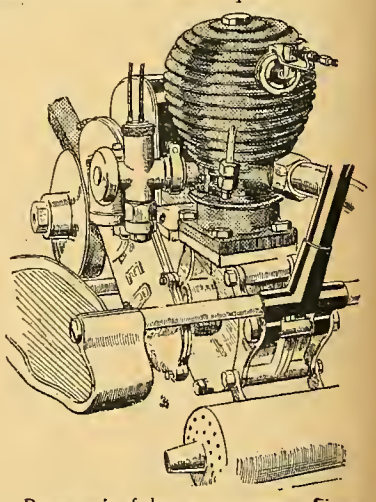
that during the exhaustive tests of the engine by the Singer Company the revolutions attained were 3,900 per minute.

An enclosed roller chain transmits the power to a two-speed gear, the change being effected by dog clutches, and both shafts run on ball bearings.

The actuation of the dogs is carried out by a lever on the handle-bar connected to the gear striking lever by Bowden wire. The handle-bar lever is fitted with a ratchet after the manner of Singer controls, and this scheme, besides being self-locking, does away with the necessity of an adjustment, for the slack of the wire is automatically taken up by moving the lever a notch further. An adjustable pulley of 6in outside diameter is a refinement which tourists will greatly appreciate. The normal ratios with the belt at the top of the pulley are 4⅓ to 1 and 8¼ to 1.

The Detail Work.

As might be expected, the cycle work and fittings are of the first order. Druid type forks, stout stand and carrier, 26×2in. tyres, Rotherham filler cap petrol gauge, and fully valanced mudguards are supplied, while special mention must be made of the fact that, unlike most manufacturers of light machines, the Singer Co. fit a large and comfortable saddle—to wit, the Brooks B 180. The U.H. magneto, which is placed high up behind the engine, is controlled from the handle-bar by a lever fixed directly above the gear lever, and an Amac carburetter supplies the mixture. The top tube of the frame is neatly dropped, and a cylindrical tank contains one and a quarter gallons of petrol and rather over a quart of oil.



Power unit of the new two-stroke Singer, showing method of lubrication and unusual shape of footboards.

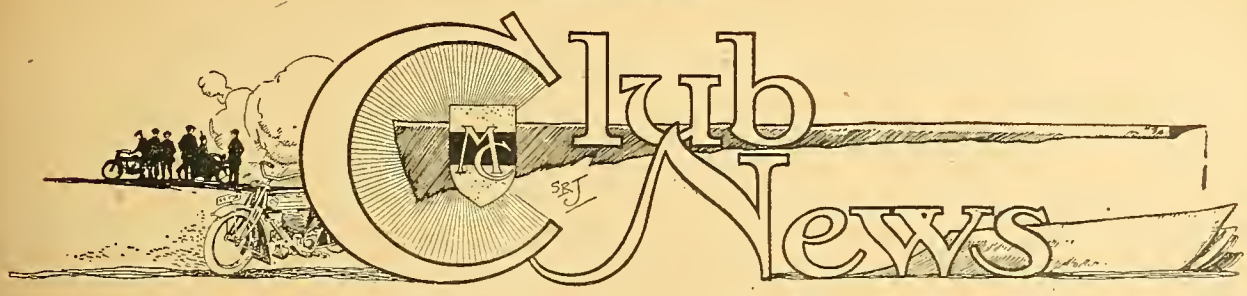
One other feature deserves special notice, and this is the fitting of aluminium foot plates, shaped to fit the foot, and having a curved up front to protect the toe. The top of this curved front is grooved, and forms an alternative position for the feet.

This very attractive little mount sells at £40, and should have a ready sale.

OUR ADVICE TO CLUBS.

At a time when every motor cyclist is anxious to serve his King and Country, and when all army vacancies are for the present filled, the advice of "THE MOTOR CYCLE" to Club Committees is to encourage members to cultivate assiduously an intimate knowledge of their own particular localities, to become well versed in the art of map reading, and practised in the handling of a rifle, so that, should their services be required they will be as useful as possible.

Ordinary competitions having been cancelled, Clubs might well arrange map reading contests and reconnaissance tests in districts not occupied by troops.



South Birmingham M.C.C.

After due consideration it has been decided to hold an informal competition on the 19th inst., starting from headquarters at 2.30 p.m. The route will be about sixty miles, and will include Beacon Hill, Rubery, and Abberley Hill.

Purley and District M.C.C.

A "treasure" hunt was held recently, clues being given in the form of a set of small photographs, with the aid of which the competitors had to find their way over a circuitous course. Results: 1, R. H. Billinghurst (3½ Rover); 2, J. Bemsham (6 Enfield sc.); 3, A. H. Wright (6 A.J.S. sc.); whilst other competitors won bronze medals. Despite the number of keen members who have been called to the colours, there was a very fair attendance, and twenty sat down to tea at Leatherhead.

Cork and District M.C.C.

A hill-climb took place on the 9th inst. R. B. Baker, who did the best performance in the flexibility test, is the holder of the Pike Challenge Cup. The formula used was: $\frac{\text{Slow time} \times W.}{\text{Fast time} \times C.}$ In Classes A, B, and C *The Motor Cycle* formula was employed. Results:

CLASS A. Machines up to 350 c.c. On Formula.—1, R. B. Baker (2¾ Douglas) 2, S. H. Driug (2¾ Douglas). Fastest time, R. B. Baker, 43⅘s.

CLASS B. Machines 351-600 c.c. On Formula.—1, C. S. Hosford (3½ Rover); 2, Jack Healy (3 Enfield); 3, J. Atkinson (3½ Rudge). Fastest time, J. Atkinson, 41⅘s.

CLASS E. Sidecar Machines 600-1,000 c.c. On Formula.—1, R. S. Russell (7 Matchless); 2, L. Dobbin (7 Matchless). Fastest time, R. S. Russell, 47⅕s.

FLEXIBILITY TEST.—1, R. B. Baker (2¾ Douglas); 2, R. S. Russell (7 Matchless sc.); 3, S. H. Driug (2¾ Douglas).

After careful consideration the committee has decided to run a few events.

Wolverhampton M.C.C.

On the 5th inst. the Wolverhampton M.C.C. held a paperchase over a sporting course. The team prize was not awarded owing to the small number of entries. Miss Lily Stevens made a most meritorious performance. Results: 1, W. Rudge (3½ h.p. Wolf), time error 2m.; 2, S. H. Shrubball (2¾ h.p. A.J.S.); 3, W. Stevens (2¾ h.p. A.J.S.) Silver medals were also won by the following: Miss Lily Stevens (6 h.p. A.J.S. sc.), J. E. Greenwood (6 h.p. Sunbeam sc.), A. H. Mould (6 h.p. A.J.S. sc.), H. Stevens (6 h.p. A.J.S. sc.), W. H. Egginton (6 h.p. Enfield sc.), and V. Edwards (3½ h.p. James sc.)

The twenty-four hour reliability trial for the Corke Cup will start at midnight on the 19th inst. from Ireland's Garage. Route: Wolverhampton, Worcester, Cheltenham, Bristol, Langford, and Weston-super-Mare. The return journey will include Cheddar Gorge.

Dublin and District M.C.C.

The Walker Cup, competed for in the reliability trial on the 5th inst., and reported in our last issue, was won by A. W. Mooney (6 h.p. Bradbury sc.) He and G. Roche (3½ h.p. Rover) secured equal marks in respect of reliability and restarting, and the result was determined by the difference between their times in the flexibility test. Roche was awarded a gold medal, and silver medals were awarded to the following, who secured over 95% marks, viz., J. Doleman (3½ h.p Rover), P. H. Hurst (3½ h.p. Rover), W. A. Campbell (3½ h.p. Rudge), J. Browne (3½ h.p. Rover), T. Toole (3½ h.p. Rover), and P. J. Fox (3½ h.p. Rudge).

The reliability trial which was to have been held on Saturday last was abandoned, but the concluding race meeting of the year at Portmarnock will take place on Saturday next.

Bridgwater Motor Cycle Corps.

On the 6th inst. a test was held by the recently formed motor cycle corps. Instructions were given to forty members to proceed by various routes singly, and at different times, to Cheddar, each man having to check at different places *en route*. Thirty-two members checked in on time, and only one man had trouble, and was unable to reach the rendezvous.

Meetings are being held each Monday and Friday at the local rink, where the men are instructed in drilling, rifle drill, signalling, and first-aid, and upwards of fifty men are rapidly becoming efficient. The corps has already supplied quite a number of men for Lord Kitchener's Army, and the Somerset Yeomanry and Territorials.

FLAGS ON TRANSFERS.

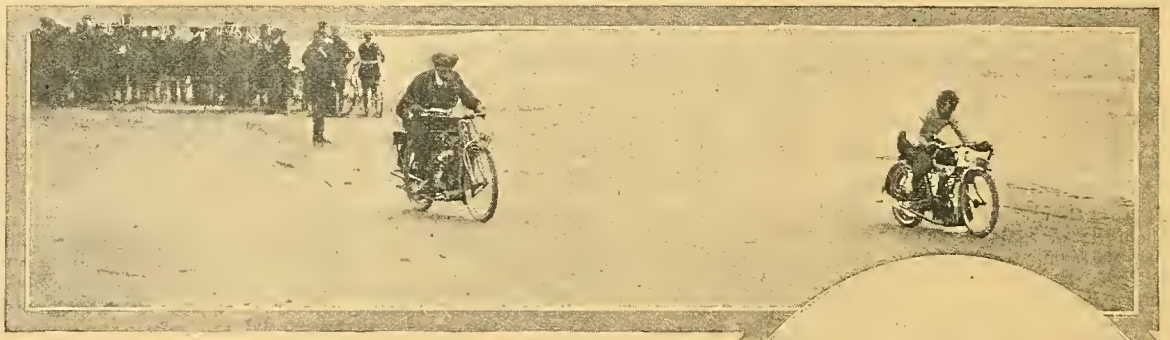
IT is an uncommon sight nowadays to see a motor vehicle of any sort minus a flag, so extensively has the national emblem been adopted by motorists in their spirit of patriotism. It must be confessed, however, that flags are not an entire success on fast-moving vehicles, as the fluttering to which they are subjected in the wind soon results in their edges becoming jagged and frayed. Quite a neat alternative has just been introduced in the form of a transfer produced in true colours, which is especially suitable for affixing to sidecars (particularly the coachbuilt variety), cars, and motor cycles. These transfers are particularly neat

A transfer flag in true colours on a sidecar

in appearance, not easily damaged, are absolutely out of the way, and are nevertheless attractive to the eye. Transfers of the national flags of all the Allies, measuring 3½in. × 2¾in., are now obtainable from our publishers, Iliffe and Sons, Ltd., 20, Tudor Street, E.C., at 7d. each post free. We illustrate a Union Jack as affixed to the front of a coachbuilt sidecar.

Speed Trials on Mablethorpe Sands.

THE Lincolnshire M.C.C. held a series of speed trials on the sands at Mablethorpe on Saturday last under most unfavourable conditions. There was a strong wind, and the driving rain rendered the sands wet and soft, thus causing a couple of spills. Really fast work was rendered quite impossible, but some interesting racing took place. Boards were placed on the sands to facilitate starting. Class I. proved a triumph for Mrs. Jennison, who managed her Douglas admirably. H. Petty (Norton) repeated his successes of the Coventry hill-climb and was first in no less than three classes. J. Veasey (Levis) and S. B. Briggs (Campion) were each twice successful. The heats were run off in pairs. Results are given below:



CLASS 1 (up to 350 c.c.)
Mrs. Jennison (Douglas)
J. Beckett (Diamond)

CLASS 2 (up to 600 c.c.)
H. Petty (Norton)
Second disqualified for not crossing line.

CLASS 3 (up to 770 c.c.)
H. Petty (Norton)
C. B. Sanderson (Ariel)

CLASS 4 (up to 1,000 c.c.)
S. B. Briggs (Campion)
G. Williamson (Indian)

CLASS 5 (two-strokes up to 350 c.c.)
J. Veasey (Levis)
W. Copley (Regal Peco)

(The above classes were for touring motor cycles.)

CLASS 6 (sidecars up to 600 c.c.)
W. Herring (Zenith)
— Jennison (Bradbury)

CLASS 7 (sidecars up to 1,000 c.c.)
B. Rhodes (Zenith)
E. Kemp (Campion)

CLASS 8 (T.T.'s up to 350 c.c.)
J. Veasey (Levis)
Mrs. Jennison (Douglas)

CLASS 9 (T.T.'s up to 600 c.c.)
H. Petty (Norton)
J. B. Drakes (B.S.A.)

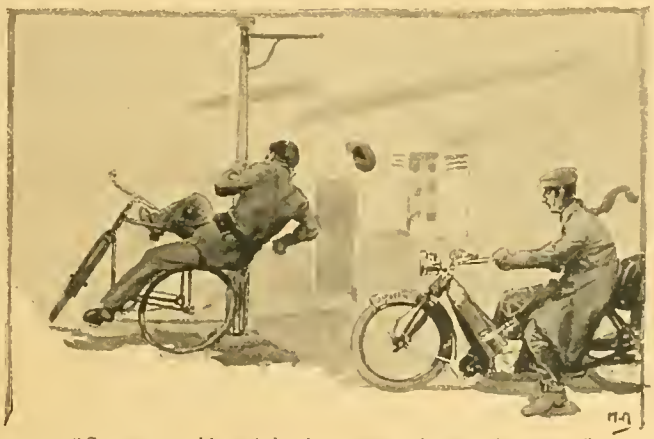
CLASS 10 (T.T.'s up to 1,000 c.c.)
S. B. Briggs (Campion)
B. Rhodes (Zenith)

(1) J. Veasey (Levis) getting away well. (2) A fine race between S. Briggs (8 h.p. Campion) and G. Williamson (7 h.p. Indian). (3) Start of a sidecar event. Boards were provided to assist starting.

A DASH FOR LIBERTY.

Thrilling Adventures of a Scott Rider in Germany and Belgium.

I WAS living at Karlsruhe, in the Grand Duchy of Baden, when the official mobilisation order was issued. War with France was inevitable, and as there seemed a great probability that England would join in before long, Germany could not be called a pleasant country to stay in. Trains were still running, but no one would guarantee that I would be taken to my destination, which was to be Brussels in the first instance, then London. A dash for liberty on my Scott motor cycle struck me as being much better sport than to be stranded in some German town, and I quickly decided to have a try. By means of a host of letters of recommendation, and after various difficulties, a military passport was procured. This allowed me to cross the German frontier "with my machine." The latter phrase was included after the paper had been filled in, and when I made the request I had no idea that on it would depend the safety of my mount. The next thing was to find some fuel. All the petrol had been requisitioned by the German Government. Through a friendly chauffeur I "found" four gallons. Two went into the tank and two one-gallon tins were strapped each side of the carrier in place of the tool bags. The latter, with a spare suit, some linen, and a few things I did not wish to leave behind, were stored in a portmanteau, and this was fastened across the carrier. A tin of oil in place of the end number plate brought up the rear.



"So great was his zeal that he at once rode into a lamp post."

All night from the 2nd to the 3rd of August the bicycle was overhauled and packed, with the assistance of the landlady's daughter, whose job it was to flash an electric pocket lamp wherever light was needed.

Adventures Soon Commence.

At 5.30 a.m. on Monday, the 3rd, I set out for Brussels. The road circumstances would choose, but it was certain that it lay towards Cologne and not through Luxemburg, as sharp fighting had taken place in Alsace, and the wounded had already been brought to Colmar. Friends who knew of my intentions prophesied many things—they were mostly not exactly cheerful. Everyone was certain that I would never reach Brussels, and most people agreed that I would be shot before crossing the Rhine. The common advice from everybody was "Don't go." After riding for ten miles I was stopped for the first time, my papers were verified, and my luggage searched. The stopping is done in a most effective way. The street is barricaded and two members of the civic guard or soldiers point a loaded rifle with fixed bayonet at you. One man covers you while you pass your little exam. If the guards decide that you are O.K. you are told that you may ride on but will be shot unless you dismount at first call. These stoppages occurred about every ten miles. Most of them went off as described. The men were business-like and strict, but not impolite. A few instances, however, deserve special mention.

While riding along in Mannheim in search of the Belgian Consul, and thinking of nothing except my machine, which was ticking over most beautifully, I suddenly heard violent shouts. It turned out to be a man who was pursuing me on a push bicycle. He rode up with great dash and informed me, "*Sie sind ein Franzose*" (You are a Frenchman), and that I was under arrest. All argument was useless, so I asked him to show the way to the Belgian Consul. By this time we had a crowd around us, and it had been decided that I was a French spy. Still there was no danger in taking even a spy to the Belgian Consul, and the gallant captor proudly led the way. So great was his zeal that he at once rode into a lamp post, and on turning my machine I found the poor man picking himself up. Anxious not to provoke the slightest suspicion of wishing to escape or to go wrong I asked if that was my road. He looked furious, mumbling something about every German doing his duty for the Fatherland.

A Search for the Consul.

We had quite a long ride together, as he first took me to the wrong end of the town and then almost back to the starting point. In the course of our travels, I apologised to my companion for the trouble I was giving him, and hoped that I was not monopolising too much of his valuable time. The answer was a very neat little speech in which I learnt that every son of the Fatherland cannot spend his time better than in sacrificing it to stop the disgraceful practice of spying which is resorted to by other nations and which alone endangers the position that great empire holds in the sun. Furious glances also came my way. Not being vain enough to think that they might be meant for me, I asked my escort how he liked my machine. As there was no answer, I proceeded to explain the advantages of a water-cooled, two-stroke, valveless, chain-driven, double-geared English motor cycle, and it only occurred to me much later that the man was watching me as perhaps he feared I might run away. Such thoughts I am prepared to forgive him. He was surely no motor cyclist, and, therefore, could not understand the far greater merits of a machine creeping silently along the streets through the traffic, at almost a walking pace, compared to the possibility of my bolting on the throttle suddenly being ripped open; besides, he was doing me a great favour by showing me the way.

A Dash for Liberty.—

Finally, we did reach the Belgian Consul, whom I knew very well. He sent off the man and informed me that the Belgian frontier was still open; whether it would be when I reached it he could not say. My patriotic escort looked calmed and a little sheepish. This did not prevent us parting on quite good terms. After obtaining some advice about the roads, I thanked him for his services and expressed a hope that the same courtesy would be shown to all foreigners.

The disagreeable thing about these stoppages was the loss of time. To reach the Belgian frontier that night 350 miles had to be covered. This had made me decide that the speed limit should be governed by the state of the roads and nothing else. As there were 80 lb. of luggage on the carrier, besides fuel and oil, I could not do much more than 45 m.p.h. whenever the road was at all uneven, for fear of something coming unstrung.

Arrested as a Russian Spy.

The next unpleasant experience was at Seeheim, on the famous Bergstrasse, which runs along the hills from Heidelberg to Frankfurt. There two worthy old men were guarding the barricade. The first one wanted to shoot me because on stopping I stayed astride my machine. How was I to steady it otherwise and have my hands free for showing my papers? Number 2 did not think his companion-in-arms had a right to pot me there and then, or perhaps he feared being robbed of his share of honour and glory. A heated discussion started. I awaited my turn sitting on the bicycle eating chocolate, as there was nothing else to do.

"In a small village I was stopped by a Landsturm man."

To Shoot or not to Shoot.

Gradually things went worse. No. 1 was determined to have his way on the "I saw him first" principle, and let daylight through me at once. Luckily, No. 3 turned up and, joining No. 2, overruled his bloodthirsty countryman. A crowd of so-called patriots always linger at these "hold-up depots." They had all more or less joined in the argument, but Nos. 1, 2, and 3 shouted loudest. When anyone comes along on car or bicycle, people spring up by the dozen to see the fun. This time I was a Russian spy. My papers were false, the petrol and oil tins contained explosives, and the club mascot was a bomb to be exploded by the wire holding it.

These facts had one good effect, they forced the crowd back. I was first ordered to remove the bombs. This was not done without fear, as the brave guards were trembling for all they were worth, and I was not at all sure that one of the shakes would not pull a trigger of the rifles, which were, of course, pointed at me. The electric connections with the bicycle, which were to let loose these "infernal machines" having been cut, the liquid running from tins and the sawdust from the mascot soon proved what I had not dared to argue. But this was no proof of my innocence. I was next made to half undress on the road, then marched back and guarded until a *gendarme* could be fetched. This took two hours. Fortunately it was warm, or my half-naked condition might have been less pleasant than it was. On the arrival of the *gendarme*, the usual examination was gone through and I was set free. The humour of the crowd at once swung round, and, when the kick-starter set the engine going, it was amid the cheers of the people who only a quarter of an hour ago had sworn to lynch me. It may be unpleasant awaiting your turn in a room with a howling village mob outside, but I was to learn that things may be a lot worse without being fatal.

Obstructions Worse than Freak Hills.

Darmstadt was reached at about three, and my hopes of reaching Aachen before dark rose. As I was nearing the fortified regions on the Rhine, things did not go as smoothly as they might have done. In spite of more or less serious checks, it was not too late at Mainz to get, at any rate, to Cologne before night fell. I crossed the Rhine bridge with less difficulty than I had expected and found myself on the road to Lingen in high spirits, regretting only that I had no leisure to admire the lovely Rhine Valley I was travelling through. But before many miles had been covered a most unpleasant thing happened.

A Case of Dutch Courage.

In a small village I was stopped by a Landsturm man (member of the civic guard), who had evidently not been satisfied until he had seen the bottom of several bottles, and who was smelling more of drink than of powder. His condition made it absolutely impossible for him even to recognise my military passport, and before a few minutes were over a furious crowd had gathered, whose leading members were much in the same state as the man I had to thank for my none too envious situation. The fact that this man had a loaded rifle made things look decidedly black. A *gendarme* happily turned up, saw the danger, rushed me into a building, and took the matter into his hands. He thought my papers, or me, rather lukewarm, and decided to get someone who knew French and English to examine the contents of my pocket book and letter case. My luggage was searched as it had never been searched before, but, as all things were known to him, except, perhaps, the toothbrush, there was nothing to be said. W.S.

(To be concluded next week.)

NEW MAGNETOS.

An All-British Machine, and a Small Instrument for Two-stroke Lightweights.

THE C.A.V.

MESSRS. C. A. Vandervell and Co., Warple Way, Acton Vale, W.—a firm which has studied the electrical side of motor cycle engineering ever since the inception of the industry—have for some years past interested themselves in an excellent magneto which, like others in this country, hailed from the land of the King's enemies. Now, however, they are engaged in turning out large quantities of British-made C.A.V. magnetos at their splendidly equipped electrical works, which are an improved copy of those which up to the present have been made abroad. Firms such as Rudge-Whitworth and B.S.A., which already have contracts with Messrs. C. A. Vandervell and Co., will very shortly receive consignments of magnetos made at the Acton works.

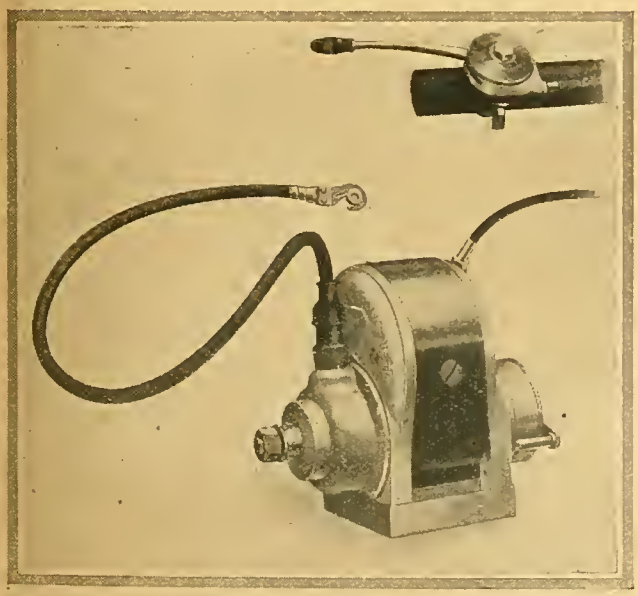
Easy Starting Attained.

The C.A.V. magneto possesses several distinctive features. It is made with the greatest accuracy to limit gauge, it is light in weight, and will start the engine more easily than those magnetos in which the magnets are placed side by side, as, in the C.A.V. the field magnet system is over the soft iron portion of the armature, and consequently less lag and greater liveliness are claimed. There are also no spaces through which water can enter, and it is claimed that the C.A.V. will work perfectly when completely immersed in water. Yet another point worthy of comment is the making of the carbon brush holder and terminal in one, a very fine piece of work which makes a secure electrical connection and is quite waterproof. Before being screwed with the threaded portion in the interior of the terminal, the high tension wire is bared, unravelled for about half an inch, and the ends turned back over the insulation. The contact breaker can never give trouble through a sticking rocking arm, as such a thing does not exist, since the movable platinum point is mounted on a spring which is forced outwards when the large and loose fitting fibre roller comes between the cam on the inside of the contact breaker case and the block holding the stationary platinum point.

The C.A.V. magneto, with contact breaker mechanism exposed.

No Lubrication Required.

With these magnetos no lubrication is needed, and the ball bearings are greased before the machine leaves the makers and no further attention is needed. The company have records of magnetos which have run for four and five years without any necessity for further lubrication. When the advance and retard are controlled by Bowden mechanism, the outer cover of the contact breaker is provided with two pins, of which one limits the range of movement while the other abuts against a ball, behind which is a powerful spring half buried in a groove in the end plate. This spring is entirely covered by the contact breaker cover, and, thanks to the former's protected position, the latter can never stick or jam even in the wettest weather. At the time of our last visit to the Acton works we saw the first batch of British-made C.A.V. magnetos undergoing their tests. These will be made in all forms to suit every type of motor cycle engine.

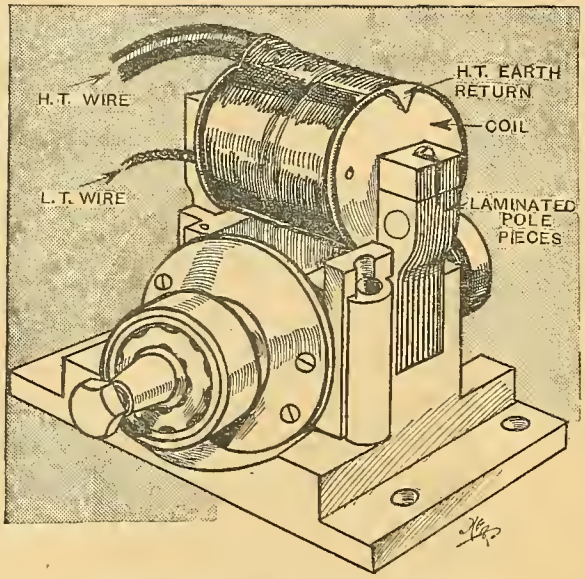


C.A.V. Bowden controlled magneto, showing high tension terminal and brush holder.

THE DIXIE.

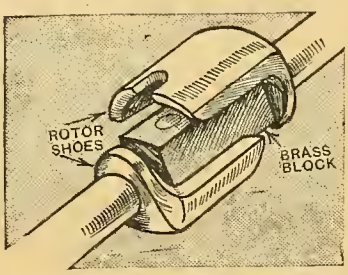
The Splitdorf Electrical Company, 6, City Road, E.C., has lately placed on the market a magneto specially designed for lightweight two-stroke engines. In this type of engine the high number of revolutions attained causes a heavy strain upon the armature winding of the magneto. To get over this difficulty the new Splitdorf magneto departs considerably from standard practice. In the first place, there is no armature proper, but a rotor with staggered shoes, while the magnets are placed in line with the rotor spindle instead of at right angles to it as in the ordinary

New Magnetos.—



Dixie magneto with magnets and end plates removed.

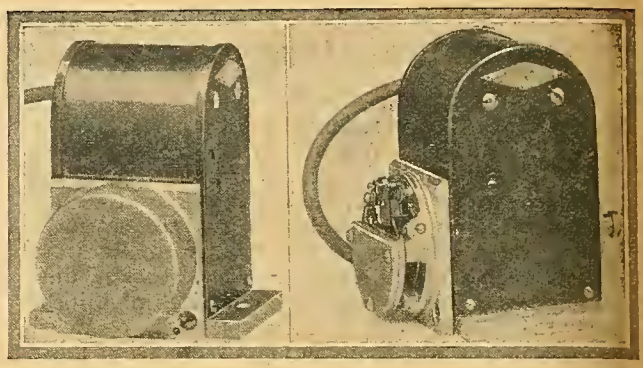
magneto. The pole pieces proper are of laminated steel, and above them is carried the coil which takes the place of the ordinary armature winding in a standard magneto. It is placed on the top of the laminated pole pieces, attached by means of two screws, and can be easily removed. It is interesting to note that the ends of the coil are of insulating material, and there is no tendency whatever in this carefully thought-out magneto for the high-tension current to jump to the side.



Novel rotor of the Dixie magneto.

The Novel Rotor.

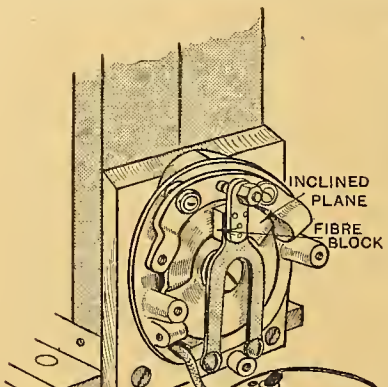
The rotor shoes are mounted on a block of non-magnetic material, which serves to hold the entire rotor structure together. The rotor shoes run in close proximity to the flanges, against which the magnets abut when in position (these latter being held by the waterproof casing, no screws being employed), one magnet being on either side of the spindle, consequently the rotor shoes are of opposite polarity, and there is no change in the direction of the magnetic flux through the rotors, the only reversal of the magnetic lines taking place through the laminated pole pieces and the core of the coil. This causes a short free path for the reversal of the magnetic lines, and hence the hystereses and eddy currents are reduced to a minimum. A high tension lead is brought out through the cover by means of an insulating wire connected to the sparking plug terminal, and thus does away with the necessity of a carbon brush and collector ring.



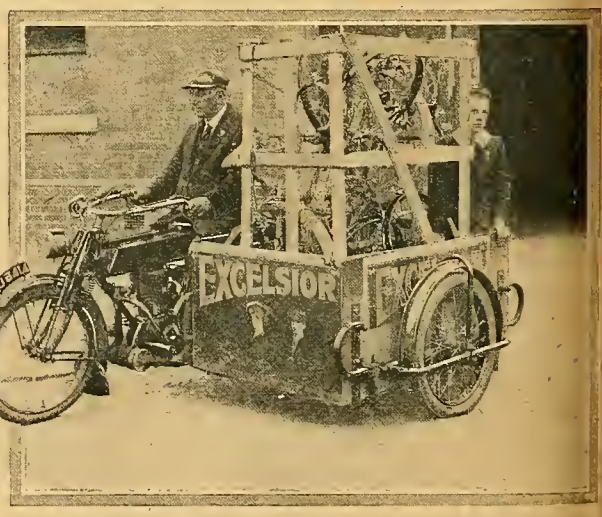
Two views of the complete Dixie magneto.

The Contact Breaker.

The contact breaker is of peculiar pattern, and its differences from standard practice will be seen from the accompanying sketch, while the condenser is carried on the end plate carrying the contact breaker mechanism. One of the obvious advantages is that while in the standard magneto the very high armature speed causes a tendency for the winding to unwind itself owing to centrifugal force, such a state of affairs cannot possibly obtain in the magneto described. The magneto fires at extremely slow speeds, even with the spark under high compression.

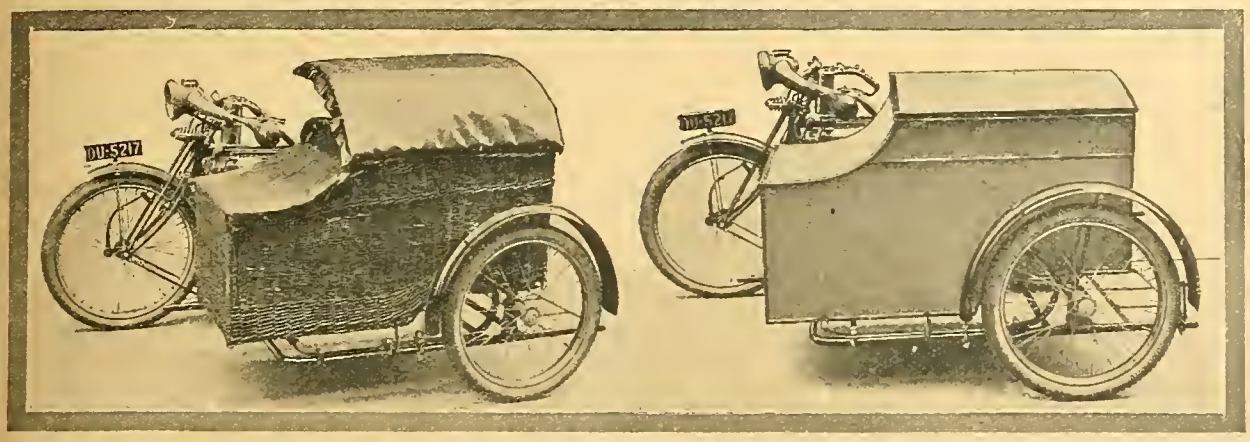


Showing condenser removed.

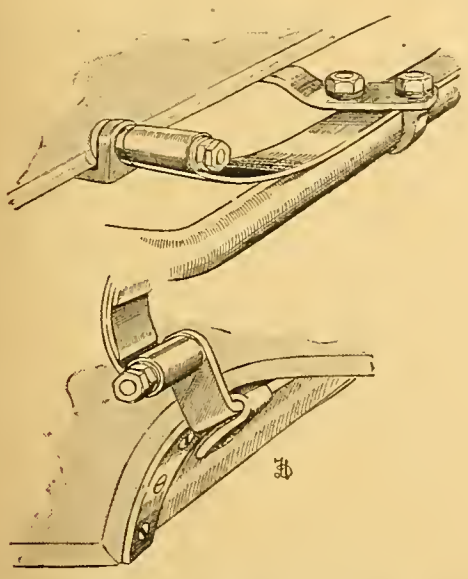


The Excelsior sidecarrier in use in the cycle and motor trade.

THE GLORIA SIDECARRIER.



The Gloria wicker and coach-built sidecarriers.



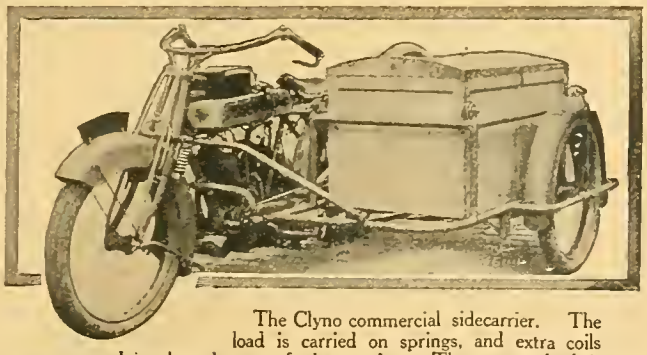
The easy and accessible attachments of the Gloria sidecarrier body. The standard No. 1 or 1a chassis is used.

ONE of the most interesting features of the new Gloria commercial carriers is the fact that the body can be fitted to the standard No. 1 or 1a chassis quickly and without alteration. The touring body is removed and the bar connecting the rear springs left in place, and the attachment of the box carrier is effected in a most simple and convenient manner, with no inaccessible nuts to get at.

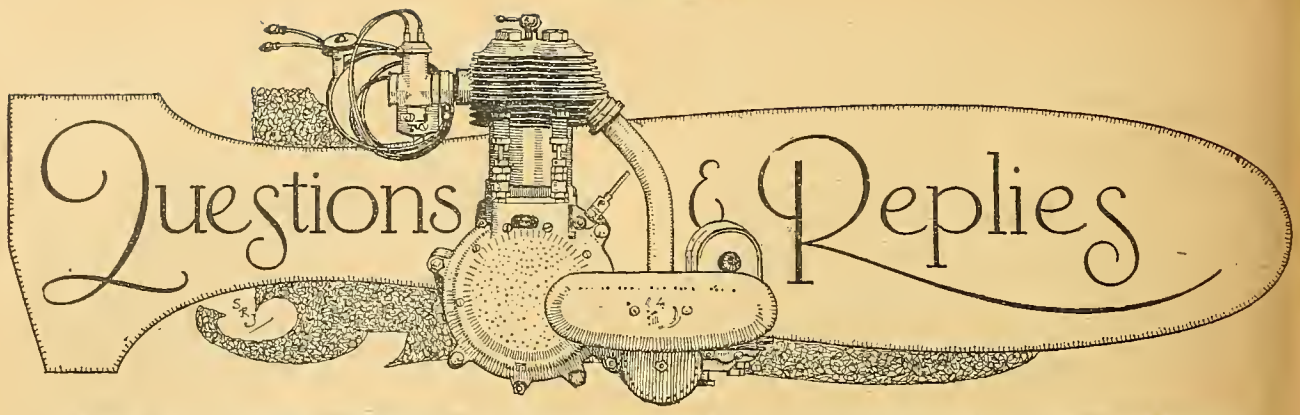
The under part of the box towards the rear of the machine is fitted with two long and substantial hooks, which slip over the above-mentioned bar connecting the rear springs, while the front rests on a similar bar joining the front springs. In addition to this, a spring bar is fixed to the bottom of the box close behind the front cross bar. This is clipped to the frame by a U clip on each side, all the nuts being outside the body and consequently easy to reach. It will be obvious that this third crossbar forms an auxiliary spring as well as a fixing, so that it is of little consequence if a heavy load is placed well forward. The body, which may be either of wicker or coachbuilt, is cut away at the forward end so as to allow the handle-bars full motion and increase the available steering lock. In all details both body and chassis are really well carried out, and the carrier has been thoroughly tested under heavy loads.

THE CLYNO COMMERCIAL SIDECAR.

FOR some time the Clyno Engineering Co., Ltd., have been supplying the New Zealand postal authorities with special sidecars. We are illustrating a vehicle which has been designed by this firm for all sorts of commercial purposes, and can be fitted up to any specification that might be put forward by a tradesman. The frame is built up sturdily with very few curves in it and is square in form. The body is suspended on two leaf springs underneath, whilst at each corner small springs are located to absorb any further shocks. There are, of course, many advantages in using such a combination, as a spare wheel can be carried which can be interchangeable throughout. This particular type of sidecar has been thoroughly tested, as the firm was building these some two years ago.



The Clyno commercial sidecarrier. The load is carried on springs, and extra coils support and insulate the top of the carrier. The spare wheel is carried beside the box.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Gear for Sidecar Work.

I have a 1912 single-cylinder motor cycle fitted with a N.S.U. gear with variable pulley. The lowest gear I can get on top is 4½ to 1 with 1in. belt. Is this gear too high to run a sidecar?—C.P.

The gear should be about right for sidecar work if the engine is a fairly powerful one. You do not mention this in your letter, and, of course, it is the most important point. If the engine develop a reasonable amount of power you could take a sidecar over most places, but not up many single figure gradients.

Learning to Fly.

Although it is not exactly connected with motor cycling, I should be glad if you could inform me where I could take a course of lessons in the management and working of aeroplanes, and how much such a course of instruction would cost?—W.C. (Monaghan).

There are numerous aviation schools in England, but we are not sure whether there are any in Ireland. Probably you would obtain information on this score if you wrote to the Editor of *The Motor News*, 34, Lower Abbey Street, Dublin. In England, there are large schools at Brooklands, Surrey, and Hendon, N.W. If you wrote to the secretary of either of these, you would obtain full information such as you require.

The Midlands to the West.

Will you be good enough to plan me a route from Leicester to Torquay? I propose to take two days over the journey, staying at a point about halfway for the night. Perhaps you could recommend a good stopping place. I am riding solo, so that hills will not worry me.—E.B.B.

This is a pleasant trip, and we advise you to go from Leicester *viâ* Lutterworth, along Watling Street to Daventry, then through Banbury, Chipping Norton, Burford, Cirencester, Chippenham, Melksham, Trowbridge, Frome, Bruton, Sparkford, Ilchester, Ilminster, Honiton, Exeter, Chudleigh, Kingsteignton, Torquay. Cirencester would be a convenient place to stay the night, and there are one or two very good hotels in that town.

More Speed Required.

Can you assist me in regard to my 3½ h.p. 1913 motor cycle and sidecar? With the running I really have nothing to complain of up to 25 m.p.h.; it starts easily, runs smoothly and quietly, but if I should exceed this speed the engine races tremendously. The sidecar may be somewhat heavy, but in the first quarter of the year I could get up to 30 m.p.h., after which the above trouble made itself felt. I have recently fitted a new carburetter and belt, had the pulley re-turned, and, further, the back wheel with three-speed gear has been overhauled by the makers. I do not think, therefore, the trouble is due to belt or clutch slip. I have well cleaned the cylinder, piston, and rings, removed carbon, etc., adjusted valves, and all has been inspected by an expert motoring friend who pronounced all in good order. I do not wish to become a "speed merchant," but would like to feel that when travelling 20-25 m.p.h. I still have something in hand, and from what my friends tell me in regard to their outfits I ought to get it from mine. But they don't tell me how to do it!—R.W.

You should certainly be able to do more than 25 m.p.h. on your machine, and the slipping which you complain of must almost certainly either be due to the clutch or to the belt. There is just a chance, however, that the key of the pulley has been left out, and that if you take off the pulley and inspect this detail you might be able to stop the slipping. But we think that you will find the fault is due to clutch slip when under heavy load. Wash the clutch out with a little paraffin and then lubricate with thin oil and see that the plunger rod operating the clutch is quite free of the toggle when the clutch is home.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose.

Abergavenny to Preston.

I should be obliged if you would give me the best route, together with the approximate mileage, from Abergavenny (Mon.) to Preston (Lancs), avoiding as far as possible the large towns. At the same time, can you recommend a good road map, and give a note of the cost?—H.R.H.

Your best route would be to go from Abergavenny to Hereford, and thence through Leominster, Ludlow, Craven Arms, Church Stretton, Shrewsbury, Whitchurch, Tarporley, Warrington, Wigan, and Preston. If you like, you can avoid the manufacturing district by following the road signposted by the Royal Automobile Club from Warrington through Rainhill, Prescot, Rainford, Ormskirk, and Rufford to Preston. This, however, is a little difficult to follow. The distance is approximately 157 miles. The best map for England and Wales we can recommend is *The Autocar* Sectional Road Map, price 4s. 10d. post free from Iliffe and Sons Ltd., 20, Tudor Street, E.C. Bartholomew's half-inch maps are also excellent.

Powerful Twin for Overseas Use.

Would you kindly favour an Overseas reader of your paper with your opinion on the following point? I have a 3½ h.p. single-cylinder machine of first-class make, which I use solo, but am thinking of getting a powerful twin-cylinder for sidecar use, and have a *penchant* for a M.A.G. engine. Do you consider these engines are first-class in every way; that is to say, fast, flexible, silent, and powerful? This make of engine is rather scarce out here at present.—E.W.S. (Melbourne, Australia).

The engines in question are magnificent; they are beautifully made and well finished throughout. We are of opinion that you will be entirely satisfied if you order one of these engines. They wear very well and are fast, and will stand a fairly high gear, and are remarkably silent. We are only too glad to help our readers, especially those who live so far away, from whom it is always a pleasure to hear.

¶ Hitherto we have refrained from recommending the use of Lodge plugs simply because they were British made.

¶ Our aim has always been and always will be to make the **best** plug in the world.

¶ We understand, however, there is at this present juncture a special desire on the part of motor cyclists to know which accessories are really British. Accordingly we have pleasure in stating that

LODGE PLUGS

are made in England, : by an English firm, : with English capital.

AS USED BY ALL H.M. GOVERNMENT DEPARTMENTS.

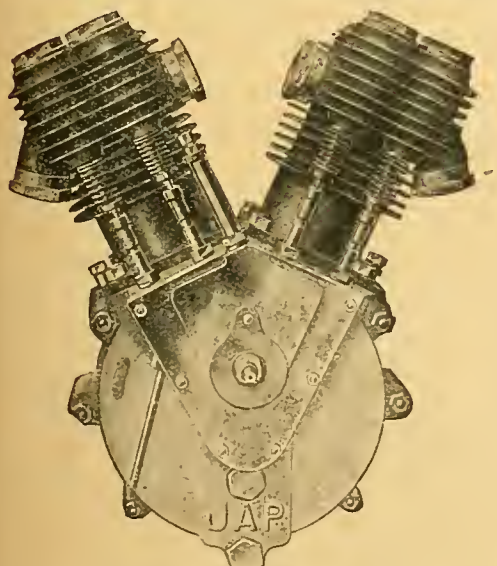
Standard model, as illustrated, **4/-** each, of all dealers,

or post free, by return when remittance accompanies order, direct from the manufacturers:—

THE LODGE SPARKING PLUG Co., Ltd., BIRMINGHAM.

THE — J.A.P. MOTORS — ALL BRITISH.

Juniors, Amateurs, Professionals,



are all unanimous in the sterling qualities of the J.A.P. MOTOR.

Irrefutable proof of the efficiency of J.A.P. Motors is to be found in every race or trial in the world The overwhelming success attained this year has more than justified their title of "The motor of motors," and they continue day by day increasing the great popularity gained at their inception

Write now for our Illustrated Catalogue, containing detailed description of all Models, to Dept. B.

J. A. PRESTWICH & CO., Northumberland Park, TOTTENHAM, N.

Telegrams:—"Prestwich, Tottlane, London." Telephone:—1613 Tottenham.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. ooo, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

Acme.

ACME-ARIEL, 3½h.p., coachbuilt combination, complete, and equal new; cost £70, £50, no offers; great bargain.—Luckhurst, 32, Boulevard, Weston-super-Mare. [X9540

A.J.S.

A.J.S., late 1913, 2¾h.p., 2-speed, E.R.S. headlight, new spare cover and tube, condition perfect; £35.—Ogilvie, Guy's Hospital. [6955

1913 A.J.S., 6h.p., coach sidecar, perfect, just overhauled; owing to enlistment sacrifice, £56, cost £87.—Collins, Chemist, Pontefract. [X9589

A.J.S., 1912, 5h.p., with 2-seater Bowser sidecar, lamps, horn, speedometer, 3 spare tubes, etc., not run 1,500 miles since thoroughly overhauled by makers; £55.—Brooke, Temple Buildings, Swansea. [X9552

Antoine.

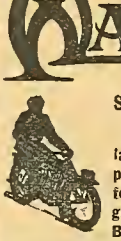
ANTOINE, 2¾h.p., Bosch, B.B., Druids, 26×2¼, low, overhauled, enamelled and plated; £14; any trial.—50, Thornhill Rd, Barnsbury, N. [X9475

Ariel.

ARIEL, 1913, 3½h.p., sidecar, complete accessories; £35.—Palmer, 76, Bedford Hill, Balham. [7021

ARIEL, latest 5-6h.p. model, 3-speed counter-shaft, brand new; exchanges invited.—Bunting, Harrow. [X9547

IF YOU GET IT AT HAUCHOPES



SATISFACTION IS SURE.

You choose it from Britain's largest stock of best makes at lowest prices. Every machine sold ready for immediate riding and fully guaranteed, comprising unequalled Bargains in

MOTOR CYCLES FOR SOLO RIDING OR WITH SIDECARS FOR PLEASURE OR FOR BUSINESS, MILITARY MODELS, AND LIGHT CARS. The Best of Everything, and Lowest Price always. Ask for to-day's List. It includes :

S861.	7	h.p. 1914	SWIFT Cycle Car ...	£115 0
8860.	3½	h.p. 1913	3-speed HUMBER ...	£35 0
8858.	3½	h.p. twin	HOBART	£22 10
8849.	3½	h.p. 1912	INDIAN	£27 10
8844.	3½	h.p. 1912	T.T. RUDGE	£22 10
8840.	6	h.p. 1914	ROYAL ENFIELD and Sidecar	£65 0
8836.	2½	h.p. 1912	2-speed SINGER	£20 0
8835.	3½	h.p. 1912	F.E. RUDGE	£25 0
8834.	8	h.p. 1914	HUMBERETTE	£105 0
8832.	1¾	h.p. 1909	MOTOSACOCHE	£9 0
8824.	2¾	h.p. 1912	Model K DOUGLAS..	£31 10
8825.	6	h.p. 1914	A.J.S. and Sidecar ..	£67 10
8826.	2¾	h.p.	Model R 2-speed DOUGLAS	£38 0
	6	h.p.	A.C. Sociable	£57 10
8323.	3½	h.p. 1912	LINCOLN-ELK	£20 0
7665.	3½	h.p.	QUADRANT and Sidecar..	£12 10
8789.	3½	h.p. 1914	2-speed DOUGLAS and Sidecar	£65 0
8792.	3½	h.p. 1913	3-speed ROVER and Sidecar	£48 0
8793.	3½	h.p. 1912	2-speed B.S.A.	£32 10
8795.	2½	h.p. 1914	2-speed 2-stroke CONNAUGHT 30 Gns.	
8802.	7	h.p. 1914	electric starter INDIAN	£57 10
8809.	8	h.p. 1913	ZENITH and Sidecar	£60 0
8238.	8	h.p. 1913	2-sp. BAT and Sidecar	£52 10
8175.	6	h.p. 1913	2-speed N.S.U., Sidecar	£50 0
7575.	3½	h.p. 1909	TRIUMPH	20 Gns.
7702.	8	h.p. 1912	ZENITH and Sidecar	£49 0
8762.	6	h.p. 1913	3-speed BAT	£47 10
8765.	2¾	h.p. 1914	2-stroke LEVIS	£27 10
8772.	6	h.p.	ROVER Car	£25 0
8773.	3½	h.p. 1912	2-sp. SINGER, Sidecar	£38 10
8781.	3½	h.p. 1913	T.T. RUDGE	£28 0
8782.	3½	h.p. 1912	T.T. TRIUMPH	£25 0
8784.	3½	h.p. 1909	BRADBURY	£17 0
8753.	4	h.p. 1914	3-speed TRIUMPH and Bramble Sidecar	£60 0
8737	6	h.p. 1912	ZENITH and Canoelet	£45 0
8732.	3½	h.p. 1914	2-speed P. & M. and coach-built Sidecar	£69 0
8710.	4	h.p. 1914	3-speed TRIUMPH and Gloria coach-built Sidecar	£63 0
8708	2¾	h.p. 1910	DOUGLAS	£17 10
8705	3½	h.p. 1912	F.E. RUDGE	£27 10
8702	2	h.p. 1912	MOTO-REVE	£14 0
8682	6	h.p. 1913	2-speed V.S.-J.A.P. and Sidecar	£45 0
8671	7	h.p. 1911	2-sp. INDIAN, Sidecar	£35 0
8654	3½	h.p. 1910	standard TRIUMPH ..	£22 10
8640	3½	h.p. 1912	F.E. RUDGE	£27 10
8592	3½	h.p. 1908	QUADRANT	£17 10
8568	3½	h.p. 1910	BRADBURY	£20 0
8561	3½	h.p.	VINDEC and Sidecar	£17 10
8554	8	h.p. 1913	2-speed air-cooled WILLIAMSON and Sidecar	£80 0
8551.	2¾	h.p. twin	FAIRY	£12 10
8502.	3½	h.p. 1908	TRIUMPH	£20 0
8412.	3½	h.p. 1908	TRIUMPH	£20 0
8367.	8	h.p. 1912	3-sp. CHATER-LEA and Sidecar	£55 0
8359..	6	h.p. twin	BROWN and Sidecar	£22 10
8338	3½	h.p. 1910	BRADBURY	£22 10
8336.	2¾	h.p.	F.N.	£13 10

9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone: Holborn 5777.
Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

Ariel.

ARIEL, 3½h.p., 1913, 3-speed model, and coachbuilt sidecar, good condition throughout; £40; exchanges considered.—A. Holland, Clarendon St., Coventry. [X9606

ARIEL, 1913, 3-speed model, kick starter, decompressor little used, capital order throughout; worth £40 easily, price £32/10, cash only.—Laytons, Bicester, Oxon. [X9538

ARIEL, 1914, 3-speed, counter-shaft, with Phœnix £11/5 torpedo sidecar; £60, cost £76; not done 500 miles.—260, Coldharbour Lane, S.W. 'Phone: Brixton 2042. [0577

Arno.

ARNO, 1912, 2¾h.p., free engine, perfect condition; £16.—Warn, Shalford, Surrey. [6995

A.S.L.

1913 3½h.p. A.S.L., Precision, thoroughly overhauled; £24 cash, or terms.—Toms, Catherine St., Leicester. [X9524

Auto-Wheels.

AUTO-WHEEL, been used very little; trial; £11.—Buckingham, Tindall St., Chelmsford. [7034

AUTO-WHEEL, quite new, but slightly shop-soiled; £12/15, usual price £16/16.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6989

Bat.

BAT, 1914, 4½h.p., 2-speed model, perfect for sidecar or solo work, brand new, but slightly shop-soiled; catalogue price £57/10, cash price £50.—Laytons, Bicester, Oxon. [X9599

BATS.—A few various models, which have been used for trial purposes, all are in splendid condition; to be cleared cheap.—Bat Motor Manufacturing Co., Penge, S.E. [6765

Bradbury.

4h.p. 1912 Bradbury, 2-speed, free engine, splendid condition.—Donaldson, Allandale, St. Andrews. [X9440

BRADBURY, 6h.p., 3 speeds, shop-soiled only; offers wanted.—Turpins, 22 and 29, Preston Rd., Brighton. [0510

3½h.p. Bradbury, splendid condition, take sidecar; £15 cash, or terms.—Toms, Catherine St., Leicester. [X9525

BRADBURY, late 1912, 2-speed, chain drive, clutch, kick starter, coachbuilt sidecar; £35.—Leigh, 51, Arthurdon Rd., Brockley, S.E. [7024

BRADBURY, 1912, 4h.p., 2-speed, free engine, cane sidecar, 2 lamps, good condition; £32, or near.—Whiteley, 80, Lighteliffe Rd., Brighouse. [7073

BRADBURY, 4h.p., counter-shaft 2-speed and free, chain-cum-belt, perfect throughout; £29, or exchange high powered twin; after 6.—102, Station Rd., Crayford. [7051

4h.p. Bradbury (1913), Bramble sidecar, 2-speed gear box, complete accessories, first-class condition throughout; £45.—80, Shakespeare Crescent, Manor Park, E. [X9536

BRADBURY, 1912, 4h.p., standard model, semi-T.T. bars, Bosch watertight mag., Druid forks, guaranteed perfect; £25.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0479

BRADBURY, 3½h.p., 1913, fitted with N.S.U. 2-speed gear, belt drive, kick starter, Godiva coachbuilt sidecar, in fine condition; £36/10, a bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6984

Brough.

T.T. Brough, 500 c.c., horizontal twin, 1914, just fitted with latest engine August, absolutely perfect; £38/10.—W. S. Life, The Cliffe, Southport. [0575

BROUGHS.—Immediate delivery from stock of the 500 c.c. horizontal twin 2-speed overhead valve models.—The West Lancashire Motor Co., Southport. [0585

Brown.

BROWN, 3½h.p., and wicker sidecar; £15.—Premier Depot, 20, Holborn Viaduct. [7093

B.S.A.

B.S.A., 1914, 4h.p., counter-shaft 3-speed model in stock; best cash or exchange quotations.—Laytons', Bicester, Oxon. [X9601

B.S.A., 1912, 2-speed, free engine, Millford sidecar, F.R.S. lamp, all accessories; nearest £40.—Keey, Arcade, Bristol. [X9503

B.S.A., 1914, 4h.p., counter-shaft 3-speed, only done 200 miles, as new; 48 gns., lowest.—6,661, *The Motor Cycle* Offices, Coventry. [X9456

NEW B.S.A. De Luxe Auto-wheel Outfit, fitted with speedometer, cyclometer, and carrier, used once; cost over £30, take £25; good reason selling.—Goddard, Southwold. [7041

B.S.A., 1914, 4h.p., 3-speed counter-shaft, chain driven, Cloria sidecar, and all accessories; cost £84 June, accept £55.—Carter, Osborne House Summerfield Rd., Chesterfield. [X9621

MOTOR CYCLES FOR SALE.

B.S.A.

B.S.A., 4h.p., new April, 1914, sidecar, all accessories and insurance; cost £85, £60.—Dr. Bolton, Convalescent House, Murrayfield, Edinburgh. [X9479

1914 B.S.A., 4h.p., counter-shaft, chain drive model, new August 1st, lamp, horn; cost £65; best cash offer.—Barber, Builder, High St., Boston, Lincs. [X9283

B.S.A., 1913½, and Cancelet sidecar, 2-speed, drip feed, 2½in. tyres, Lucas lamps, horn, 5 gn. Cowey speedometer, every refinement, 1,500 miles; 50 gns.; perfect condition; bargain.—Holford, 160, Romford Rd., Stratford, London. [7053

Calcott.

CALCOTT, 1912, 2½h.p., new tyres, just thoroughly by makers, lamp, horn, etc.; £16/10. — Dove, Wragby, Lincolnshire [X9507

Calthorpe.

CALTHORPE Minor, 1914, 10h.p., new, shop-soiled; list 160 gns., accept 150 gns.—P. J. Evans, John Bright St., Birmingham. [X9587

CALTHORPE, August, 1913, 8h.p., counter-shaft 2-speed, combination drive, with sidecar; £50.—Watson, Dentist, Bedford. [6975

CALTHORPE Junior, slightly soiled, guaranteed as new, complete with lamp and horn; 20 gns.—Colmore Depot, 31, Colmore Row, Birmingham. [X9432

Campion.

1914 Campion Lightweight, 2h.p., 2-speed, perfect condition; sacrifice, £18. — 41, Vann St., Leicester. [7078

3½h.p. Campion and Sidecar, clutch, new tyres; owner going on foreign service; best offer above £25.—Apply, G. R. D. Shaw, Welburn Manor, Kirby Moorside, Yorkshire. [X9457

Chater-Lea

CHATER-LEA and Sidecar, 2-speed, and F.E., 3½h.p. engine, mag., tyres nearly new, very low; £18/10, or cycle and cash.—406, Garratt Lane, Earlsfield, S.W. [7121

CHATER-LEA, No. 7, 8h.p. J.A.P., 3-speed gear box, chain drive, Rom tyres, coachbuilt sidecar, ready for tour; £38.—1, Albion Terrace, Child's Hill. [X9575

Clyde.

CLYDE, 2¾h.p., mag., good order; £7/10; seen by appointment.—Motor Cycle, 602, King's Rd., Fulham, S.W. [6999

Clyno.

CLYNO, 1912, 5-6h.p., twin, 2-speed, good condition; £29.—Premier Depot, 20, Holborn Viaduct. [7092

CLYNO, 1913½, 6h.p. combination, 3-speed, hardly soiled; £63, bargain, offers.—C., 4, Dollis Rd., Church End, Finchley. [7023

CLYNO and cane sidecar, 1912, speedometer, 2 lamps, excellent condition; 35 gns.—Macdonald, 757, Lea Bridge Rd., Walthamstow. [7065

CLYNO 1914 No. 6 Combination, brand new, shop soiled only; accept £75, list £91.—P. J. Evans, John Bright St., Birmingham. [X9586

1914 Clyno, 2-stroke, 2 speeds, clutch, etc., perfect condition, mileage under 500, special competition engine, Lucas lamp and horn; £32.—133, Gladstone Rd., Watford. [6966

CLYNO, 1912, 5-6h.p., 2-speed, kick starter, thoroughly overhauled and in perfect condition, tyres almost as new, F.R.S. lamp; £33, new, offer considered.—Wooldridge, Lydd, Kent. [X9428

1913½ Clyno Combination, 3-speed, kick start, interchangeable wheels, spare wheel; £65, cost £104; take good lightweight part exchange.—Lees, 332, Coronation Buildings, Stacksteads, Lancashire. [X9386

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De Dion.

2¾h.p. De Dion, very fast, good condition, low; £8.—Page, 8, Fulwich Rd., Dartford, Kent. [6979

Douglas.

1914 Douglas, model V, lamp, etc.; £45, or near.—Stockwell, Hampton Hill. [6978

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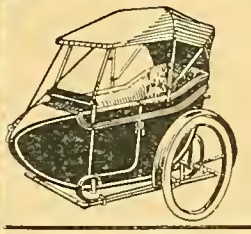

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LATE 1914 Douglas, 2 speeds, kick starter, footboards, lamp, horn, nearly new, not done 2,000 miles; cost £55, accept £42.—Haslam, Rossington, Doncaster. [X9518

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ENFIELD, 2¼h.p. twin, B. and B. carburetter, Dunlop belt, silent and reliable, new condition; £22, bargain.—Key, 18, Belgrave Gate, Leicester. [X9518

ENFIELD, 3h.p., 1914, 2-speed, done 300 miles; accept £38, or exchange for combination, cash adjustment.—Blackhurst, Empress Hotel, Blackpool. [7109

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F.N., 1911, 4-cyl., must sell owing to war; £16, offers.—Morgan, Moville, Ireland. [X9614

F.N., 5-6h.p. 1912 model, condition perfect; £21/10.—73, Church St., Camberwell Green. [7036

F.N., 7h.p., 4-cyl., 3-speed gear, latest type, early deliveries.—F.N. Agency, 95, Aston Rd., Birmingham. [0463

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HUMBER, 1912½, 3½h.p., 2-speed, new tyres, new belt, Millford sidecar, lamps, horn, complete accessories; bargain, £33.—Martin, 4, Merridale Lane, Wolverhampton. [X9482

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INDIAN, 1914, Hendee Special, 7h.p., dynamo electric self-starter and electric equipment, complete with Millford coachbuilt sidecar, very little ridden, in excellent condition, equal to new; £72, or nearest offer.—Can be seen at 62, Manningham Lane, Bradford. [X9286

1914 Hendee Special, with coachbuilt sidecar, in royal blue (Mills-Fulford), electric self-starter, horn, lamps, etc., complete, scarcely used, in perfect condition; 75 gns., no offers; owner going abroad sole reason for selling.—Box L5,470, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4829

Ivy.

1914 Ivy, 2-stroke, used demonstration; cost £28; £23/14 cash, or terms.—Toms, Catherine St., Leicester. [X9527

1913 Ivy-Precision, 3½h.p., nearly new Kempshall and Dunlop, lamp, horn; cost £45, sell £17.—21, Westdown Rd., Catford, S.E. [6971

Ixion.

IXION, brand new, 2½h.p., 2-stroke Villiers engine; cash £22.—Mayfall, Hillsbro' Sheffield. [7062

James.

JAMES, 4h.p., and £19 Millford sidecar, splendid condition; bargain, £25.—94, Dora Rd., Small Heath, Birmingham. [6982

JAMES, 4½h.p., 1914, Canoelet sidecar, all accessories, 3-speed gear, new condition; cost £85 March, accept 55 gns., offers. — Woodward, 15, Mill Lane, West Hampstead. [7089

JAMES, 1914 models, in stock, shop-soiled and second-hand, at bargain prices; the latest 2½h.p. 2-stroke, 2 speeds, James lightweight, for immediate delivery; best terms; trade supplied.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0409

JAMES, 1914, 4½h.p., big single, and Canoelet sidecar, 3-speed, list price 73 gns., new, special price 65 gns.; new 3½h.p. 3-speed twin, 54 gns.; also James 2-stroke, 35 gns., for immediate delivery.—Stevens (James specialist), Gooch St., Birmingham. [0432

J.A.P.

J.A.P., 8h.p., 1913 engine, and wicker sidecar, hand operated free engine device, perfect condition right throughout; £26.—Colmore Depot, 31, Colmore Row, Birmingham. [X9429

1914 Twin J.A.P., sidecar, splendid combination, low coachbuilt, 2-speed gear, free engine, new March, will ride 30 miles, give good trial; bargain, £45.—Box L6,119, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7003

J.E.S.

J.E.S. Motocyclette, almost new, splendid condition; £15.—Nobbs, 162, Goswell Rd., London. [6969

Kerry.

KERRY-ABINGDON, 3½h.p., 1911, fine order; genuine bargain, quick sale.—53, Park Rd., Wandsworth. [6965

KERRY-ABINGDON, 3½h.p., late 1911, overhauled, good condition, Senspray carburetter; £20, or exchange.—Vincent, Melrose Rd., Weybridge. [X9434

KERRY-ABINGDON, 3½h.p., Armstrong, Hutchinson tyres, practically new, makers' reliability and competition machine this year; genuine bargain, £29.—Newman, Hollies, Acock's Green, Birmingham. [X8769

KERRY-ABINGDON, 1912, 2 speeds, clutch, in absolutely new condition throughout; £20, or with splendid torpedo side entrance sidecar, £24, offers, or exchange lightweight and cash.—Peat, 127, Trentham St., Southfields, S.W. [7082

Kynoch.

KYNOCH, 1913½, 3½h.p., 7-speed, free engine, accessories; £35.—Raudles, Marford, Wrexham. [6980

Lea-Francis.

LEA-FRANCIS, 1914, run about 4,200; £46.—Apply, "Cycle," Aunstead, Chat-Hill, Northumberland. [X9397

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

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LEVIS, 2¼h.p., splendid condition, all accessories; £25.—Wood, 156, Balfour Rd., Ilford. [7009

LEVIS, 1914, 3½h.p., 2-speed counter-shaft gear, Lucas lamp set and horn, rear light, complete as new; £38. — Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0478

Lincoln Elk.

ONE 3½h.p. Lincoln-Elk, 1912 model; £20 net.

ONE £14/14 Bramble Sidecar, shop-soiled only; £10/10 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0537

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Torpedo.

TORPEDO Lightweight, 2¾h.p. Precision, Palmer tyres, almost new; £25, cost £35.—5, Walmer Rd., Waterloo. [X9597

1912½ 2½h.p. Torpedo, free engine, lightweight, just been thoroughly done up; £20.—Buckingham, Tindal St., Chelmsford. [7035

TORPEDO-PRECISION, 2-speed, 2-stroke, lightweight, 1914, ridden 60 miles, with horn, lamp; £24, or near offer.—41, Mill Rd., Merton Rd. [7068

Triumph.

TRIUMPHS.—Premier Motor Co., Aston Rd., Birmingham. [0559

TRIUMPH, 1913, 3 speeds, all accessories; going at £40.—Midland Motor Co., Oxford. [X9543

TRIUMPH, 1913, T.T. model, fine machine; £33; exchanges invited.—Bunting, Harrow. [X9549

1911 Triumph, perfect condition, speedometer; £18.—L.P., 34, Nella Rd., Fulham Palace Rd. [7010

2¼h.p. Junior Triumph, ridden 600 miles only, condition as new; £36.—Robinson's, Green St., Cambridge. [6867

TRIUMPH, 1912¾, Sturmey-Archer, light sidecar; £40; will separate.—48, Victoria Rd., Aston Manor. [X9500

TRIUMPH, late 1913, F.E., new condition, best Lucas fittings; £36; owner enlisting.—32, Woodwarde Rd., Dulwich. [6991

TRIUMPH, late 1912, clutch, lamp, speedometer, horn, etc., good condition; £32.—21, New Bond St., Leicester. [X9514

2-SPEED F.E. Triumph and Coachbuilt Sidecar, tyres, etc., in good condition.—Helps, 17, Christ Church St., Frome. [X9291

TRIUMPH (1913½), 3-speed, all accessories, perfect condition; £36.—Williams, 49, Trafalgar Terrace, Swansea. (D) [X9462

1909 Triumph, clutch, lamp, £18, no offers; also 1910 cylinder, 15/-. — 14, Palace Grove, Bromley, Kent. [7076

1910 Triumph, perfect condition; £20; any trial.—260, Coldharbour Lane, Brixton, S.W. 'Phone: Brixton 2042. [0476

TRIUMPH, 1913, 3-speed, and Millford coach 1914 sidecar, all accessories; going at £45.—Midland Motor Co., Oxford. [X9542

1914 Triumph, 3-speed, model C, 4h.p., shop-soiled; £52/10.—Turner, 181-182, Railway Approach, Shepherd's Bush, W. [X9568

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TRIUMPH, 1912 3½h.p., free engine, equal to new; £33 cash.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0473

TRIUMPH, 1912¾, free engine, splendid condition, lamp, horn, tyres as new; £28/15.—Egbert Spearman, Bishop's Stortford. [6796

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2¾h.p. Werner, B.B., T.T., ready to drive away; £6/6.—1, Southey Rd., Tottenham. [7025

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ZENITH, 8h.p., 1912, good condition, Montgomery sidecar, F.R.S. lamp, new back tyre, Avon; £42.—70, Holmesdale, Hampton Wick. [7012

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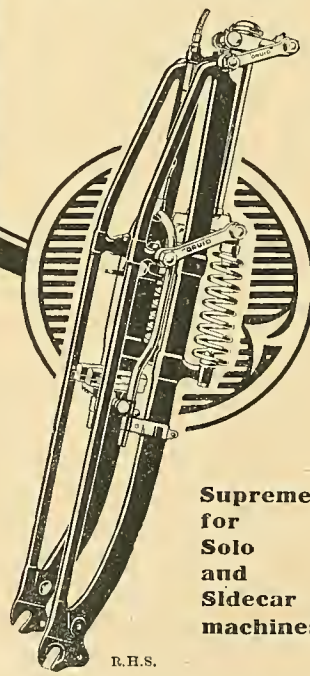

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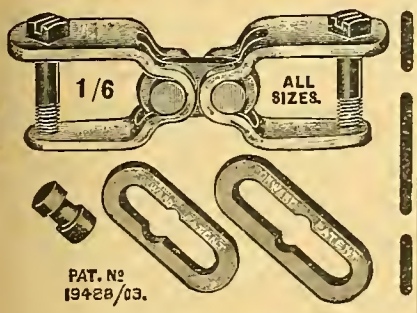

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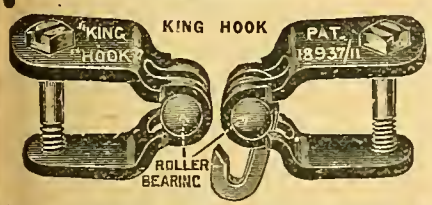

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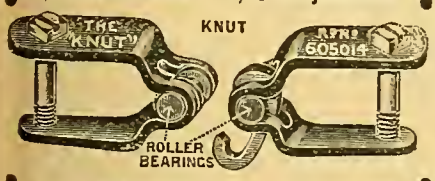

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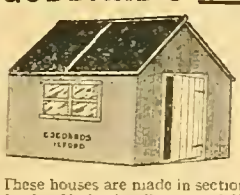

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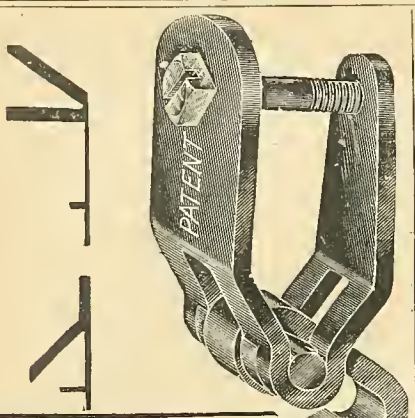

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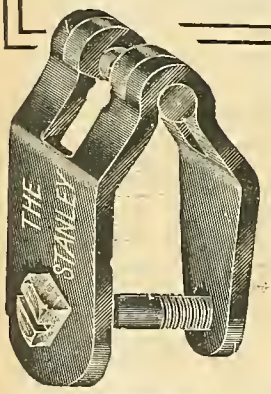

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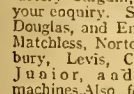

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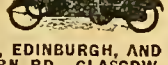

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SMART 2-seat. Light Car, exchange modern high-powered chain-drive combination, Indian preferred.—Woodside, Robin Hood Lane, Sutton, Surrey. [X9546

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HALIFAX.—Special exchange allowances against new 1914 Williamson and Rex-Jap models; also new 1913 Rexes at special bargain prices.—Motor Exchange, Westgate, Halifax. [0488

ADVERTISER, having recently purchased 1914 7h.p. 2-speed chain drive Excelsior, which he has not used, is desirous of exchanging same for 2-seater car.—Write, H. Seymour, 7, President St., E.C. [7122

EXCHANGE 8h.p. Bat-Jap, 2-speed, kick starter, and sidecar, fully equipped, many spares, excellent condition, very powerful, any trial, for lightweight and cash, or sell £42.—Offers to A. Sealey, 88, Princes Av., Watford. [6992

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COUNTER-SHAFT Gears.—We can now quote the trade for our Rex-J.A.P. 3-speed gear at inclusive prices, including fitting to old machines.—The Premier Motor Co., Ltd., Astoo Rd., Birmingham. [0246

VALVES.—Nickel steel valves, any size, 3/6; per pair 6/-.—C. R. Foster, Kirkstall Rd., Leeds. [0253

WELDINGS, Ltd., Dept. M.C., 235, Gt. Ancoats St., Manchester.—Oxy-acetylene welding experts.

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No. 108b—2/-, Complete as illustrated. with three Flags. Postage 1d. No. 108c—2/7, Any combination of Nationalities may be had Size of Flags 4" × 2".

No. 108a. Large Motor Cycle Size, 6/9 complete, Postage, 2d

All with Polished Aluminium Number Plate Clip.

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Motor Cycle Flags mounted on Nickel-plated Pins, with solid brass ornaments.

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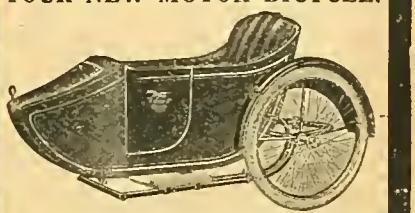

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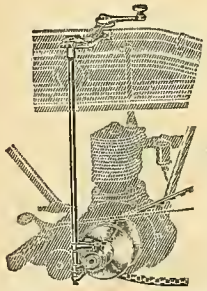

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"Advance" Adjustable Pulley

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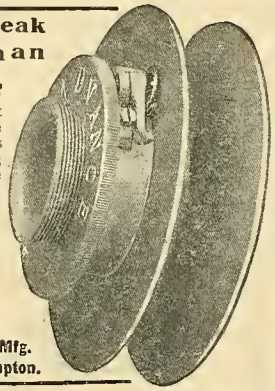

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MINERVA Spares, cylinders ground, pistons fitted, rebushing, parts duplicated.—Ellenborough Motor Works, Ellenborough Rd., Wood Green, N. [8594

PISTON, fitted with top and bottom, step-cut rings, hardened steel gudgeon pin, and your cylinder re-bored and ground, 24/-.—C. R. Foster, Kirkstall Rd., Leeds. [0310

PISTON Rings 9d., valves 2/-, postage extra; specially made to order; material, accuracy, and quick despatch guaranteed.—W. E. Poole, Grove Lane, Handsworth, Birmingham. [X8843

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F.N. Owners Note.—W. Earl, late foreman at the Highbury repair works, is at your disposal for all repairs. Our special engineering plant and the personal attention of a recognised F.N. expert will ensure a minimum expense.—Below.

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WAR.—To keep our factory going full time we will do your repairs at practically cost. Our well-known high standard of excellence will be maintained. Every job will bear our full guarantee. The sole difference will be the prices, which hold only during the crisis; our ordinary rates will be charged as soon as normal times return. Cylinders re-bored, ground, fitted new pistons, rings, and gudgeon, 15/6; re-bushing, overhauling, welding, frame alterations, etc., all at cost. Send jobs along at once. You will be thoroughly well satisfied in every way.—Tennant Engineering Co., Pershore St., Birmingham. Official repairers to A.C.U. [X9576

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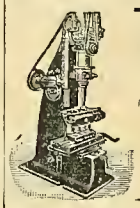

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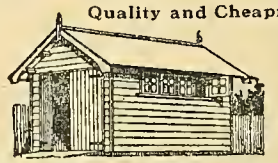

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An index to advertisements will be found on the page facing the back cover

Cheap Petrol. How it would Energise the Motor Industry.

PETROL at a shilling a gallon! Would that this could become an accomplished fact! But has any reader stopped for a moment to consider what it would mean in the present state of affairs, how it would revive the motoring industry, attract new converts, and extend the uses of motor vehicles in scores of directions? Let us seriously ponder further over this bold suggestion. It is only a few years ago that petrol was sold in this country at less than a shilling a gallon, and that on a comparatively small output. Nowadays the price is 1s. 9d. per gallon, and at the moment people practising economy to the letter are constrained to use it sparingly. It seems to be the general belief that petrol is sold in this country at a ridiculously inflated figure. That may or may not be the case, but support is given to this assumption by comparing the present price with that prevailing a few years ago in connection with a small output—certainly not one-tenth of present-day consumption.

Supposing that a shilling a gallon for petrol *would* bring in a profit to the distributers, can any reader even imagine what might be the tremendous and far-reaching effects of such a reduction? First and foremost we must remember that the motor industry as a whole, representing millions of pounds of capital, is to a very large degree dependent upon petrol, and incidentally the controllers of that precious spirit. In other words, the actions of a comparatively small ring of petrol dealers could greatly affect —either adversely or otherwise by an increase or reduction in price—the entire motor industry. At the moment (though the supply of motor spirit has not so far been curtailed) the demand is considerably restricted, mainly owing to motorists holding up their cars and motor cycles, but also to the large number of public vehicles which have been commandeered by the War Office for use abroad and thus no longer run on our roads, and there is little prospect of an improvement in this state of affairs, in the immediate future at any rate. The petrol suppliers must know best to what extent the country has been affected by war conditions, and thus can gauge better than anyone how many in this country have for the time being dispensed with the luxuries of a car or motor cycle. And this country, it must be remembered, is the only one of those engaged in war wherein what may be described as normal conditions prevail. But the holding up of orders for new vehicles on the score of expense is a very serious matter.

Considerations such as these must convince any thinking person that nothing could conduce to revive normal conditions, in the motor world at any rate, more than a substantial reduction—say to a shilling—in the price of petrol. Indeed we cannot picture where the good effect of a price reduction would cease, for cheaper motoring would be bound to revive orders and business generally, seeing what a huge hold motoring has made on our business and private lives. As is well known, the motor trade rely upon a great many allied trades for supplies. The petrol companies are organised for a tremendous output and a marked reduction in the consumption of petrol must unquestionably affect their organisation seriously. Here is an opportunity of at least keeping the output at the normal standard, and in order to share in the inevitably increased business in motor vehicles and petrol, retailers must forego part of their profits per gallon.

Finally, we should explain that our suggestion, which is prompted by consideration for the general welfare of the motoring movement, is not made without the knowledge that our stocks of spirit are more than sufficient for ordinary needs. Board of Trade returns show that the record number of seventeen million gallons of petrol were imported into Great Britain during July last, and even during the first month of the war another twelve and threequarter million gallons arrived in this country.

Testing the Intelligence Department.

Scenes at the Examination of Military Riders in the Broad Walk, Kensington Gardens.

BEFORE war was declared the Broad Walk, Kensington Gardens, was consecrated to the use of nursemaids, perambulators, and children; save for baby carriages and an occasional cart belonging to the gardens, its gravelled neatness was never disturbed by vehicular traffic until it was devoted early last month to the parking of motor cars for the War Department.

A scene in the Broad Walk, Kensington Gardens. A candidate takes on the riding test.

The other evening near the gate opposite Prince of Wales Terrace were to be seen three Rudge-Multis in charge of mechanics from their makers' Tottenham Court Road depot. Rudge-Multis are the machines chosen by the War Office for the Intelligence Department, and several candidates for this important branch of the service were to be examined as to their technical knowledge. All had passed the languages test, but, unfortunately, linguistic and technical abilities do not always go hand in hand.

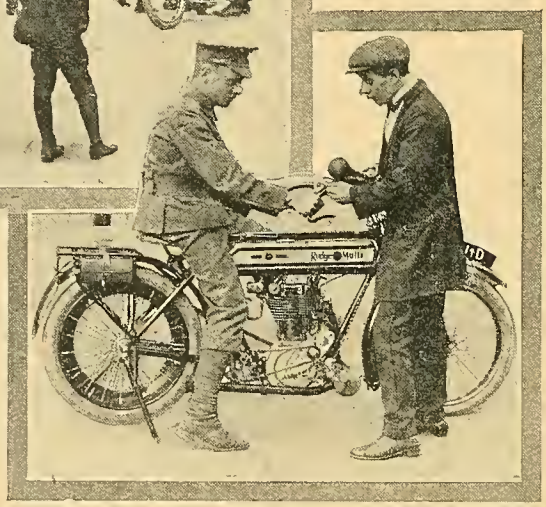
The Intelligence Department at Sea.

The examiner, Mr. Hugh Gregory, chief of the Technical Department of the Royal Automobile Club, asked No. 1 to show him the exhaust valve of the resplendent machine near which we were standing, and gave him a pencil the more clearly to indicate its position.

No. 1 took the pencil, scratched his head, waved the pencil about for some seconds, and then acknowledged defeat. He was sent back to the R.W. depot for further instructions. Yet, he told us, he had driven a motor bicycle a good many hundred miles, but when anything went wrong someone else had put it right for him.

No. 2 spotted the exhaust valve correctly the first time, and being asked how to remove it pointed out that the inlet dome was taken off. The examiner asked him if any other operation was necessary, but no reply was forthcoming. He was then asked what he would find to allow the valve to be taken out after the dome had been lifted off, to which he answered, a small screw. Sent back for further instruction.

No. 3 came up on his own machine and got through with flying colours. Next he passed the riding test, which consisted in his riding to the top of the hill and then describing the figure 8.



An Anglo-French Territorial receives instructions from a Rudge tester.

No. 4 found the exhaust valve without difficulty, also the float chamber and contact breaker. He was, however, rather hazy about the symptoms of a punctured float, could not accurately describe the adjustment of the platinum points on the C.A.V. magneto, though he knew the correct amount they should separate, and when asked where the jet was pointed to the petrol pipe union. Referred back for further instruction.

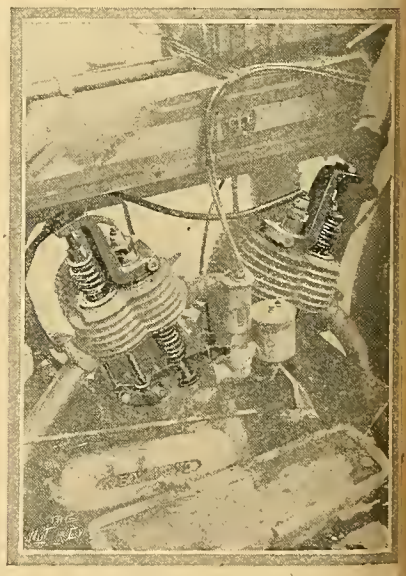
Then came his driving test. The mechanics showed him the control, and he started up the hill as Pullin did when he set forth to win the T.T. Nursemaids, children, dachshunds, and Pekinese fled for safety, and then returning at break-neck speed he skidded almost to a standstill, and thanks to the excellent Rudge clutch he just managed to execute an 8.

No. 2 distinguished himself by passing between a motor car, belonging to a friend of one of the candidates, and a seat on which several ladies were sitting, an exhibition which did not improve their peace of mind.

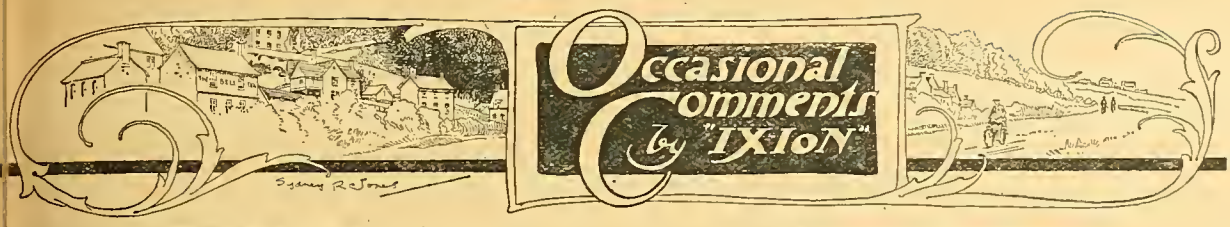
The last man to be examined charged down the Broad Walk at full speed, and, as he could not stop, the park keeper opened the gate and let him through. On being told all was over the two mechanics leaped upon their machines, flew through the gate, swung past an "island" in the street on which a policeman was standing, and left him and two park keepers speechless with surprise. It may be added that there are no vacancies in the Intelligence Department.

DE LISSA VALVES ON A REX.

Our photograph shows an interesting conversion from the standard poppet valve to the de Lissa type. The engine is a twin Rex, the property of Mr. A. Collinson, of 621 Manchester Road, Bradford Yorks., who is prepared to convert any machine to these lines under the de Lissa patents. It will be remembered that one of the main points of the de Lissa valve is that it keeps much cooler than the mushroom type owing to the large surface exposed to the air, and besides this its shape removes nearly all the pressure from the valve head, and consequently reduces the work on the cams very considerably but it needs a stronger valve spring. Incidentally the engine shown has been fitted by the owner with roller bearings to the connecting rods both in the big and little end bearings, a piece of work which requires considerable skill.



A twin Rex machine fitted with de Lissa air-cooled valves.



Rear Springing.

Whenever I allude to rear springing I am inundated with sympathetic correspondence. It is evident that there is no innovation on which the mind of the general motor cycling public is so firmly fixed; and one imagines with some vividness the groans and curses that have escaped the lips of the motor cyclist gallopers at the front as their rigid frames jar and bump over trench *pavé*, and over roads worn into incredible waves and potholes by the passage of innumerable military vehicles. Well, here is the trade's chance. There is a certain inevitable lull in production. Outputs must necessarily be reduced until peace returns; the responsible staffs, technical and otherwise, are relieved by a breathing space from the prolonged hustle of competition, production, and development. They have time to tackle such urgent problems, and the problem which I identify is far from insoluble—simply to insulate the rear half of the frame from violent road shocks, as the fore half has long since been insulated. We want a design that is not too obtrusive and ugly in aspect, that adds no absurd avoirdupois, and that is tolerably cheap to make. Are British brains unequal to the challenge? The firm which first meets it will reap rich dividends.

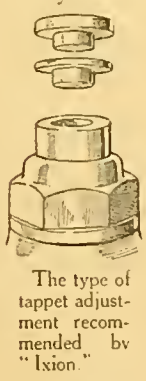
Weak Mixture and Misfires.

We live and learn. I have been trying to reduce the petrol consumption of an engine equipped with a magneto possessing a visible safety sparking gap. After various adjustments I thinned the mixture down a shade too much, and misfiring set in. I not unnaturally ascribed my trouble to the carburetter, but chanced to see the engine running in the darkness of its shed at night, and saw sparks leaping from the outside of the plugs to the engine. This captured my attention, and further research, aided by advice from a kindly correspondent, showed (a) that the plugs did not leak when the carburetter was furnished with a normal mixture, and (b) that when the mixture was weakened beyond a certain point, the spark at the plugs' electrodes ceased, and either a spark occurred at the safety gap in the magneto (with one type of plug) or between the outside of the plug and the cylinder (with a less strongly insulated type of plug). This looks as if a very weak mixture offered peculiar resistance to the passage of the spark, and that if a large advance in petrol economy might conceivably be obtained by using a heavier spark.

In this connection one remembers that this very claim has been advanced for the "B" spark of Sir Oliver Lodge's patented ignition. I regard the latter without great enthusiasm, because the present-day spark is quite searching enough for the present-day sparking plug, and I have no wish to use a stronger spark unless some genius provides a more resistant insulator than we possess as yet, or alternatively persuades engine makers to tap their engines for plugs of much thicker diameter.

A Curious Experience.

Here is a diagnosis for the experts. A Scott rider was compelled to remove his magneto by the roadside, and, in replacing it, timed it too fast. Being a novice, it did not occur to him to retard the ignition lever on hills; as the engine could just make shift with the surplus advance on the flat, he ran merrily on for a good distance, putting up with the knocking on hills. During the day's run he broke three sparking plugs. The Reliance plug is recommended for the Scott engine: it has a shielded porcelain butt to its insulation in which is mounted a very slender platinum-iridium wire electrode, which emerges through a tiny hole drilled in the centre of the metal dome at the business end. In each case the tip of the porcelain holding the electrode was broken clean off and shivered into fragments. After he retimed the ignition more correctly, a single Reliance plug lasted for thousands of miles. *En passant*, these Reliance plugs are "absolutely it" for smoky engines; they soot up less readily than any plug I know, and, thin as the central electrode is, it never seems to burn away.



The type of tappet adjustment recommended by "Ixion."

Adjustable Tappets.

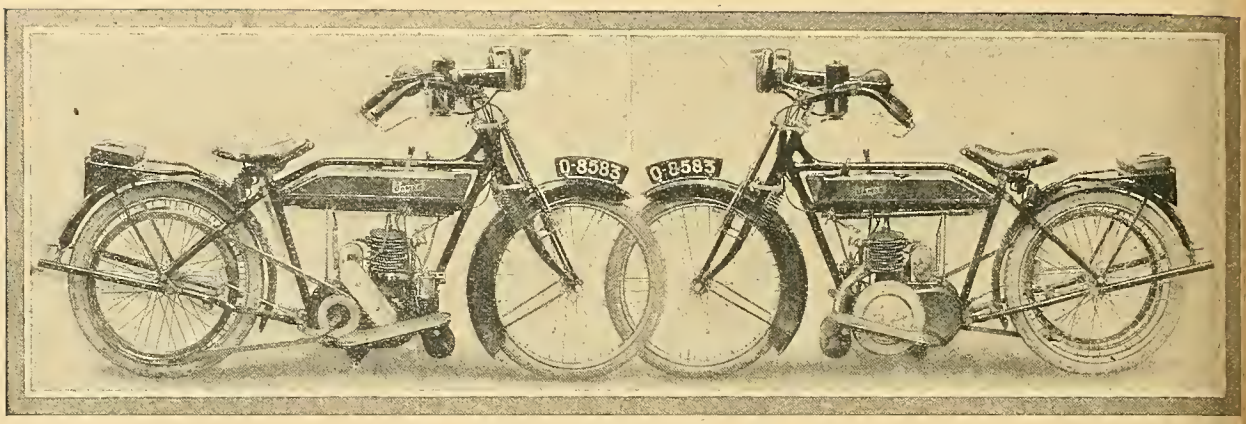
I illustrate herewith the type of adjustable tappet employed on a certain foreign cycle car. As the sketch shows, the tappet is very cheap to make, and the adjustment is made without the aid of tools by the substitution of a thicker capping disc. I think it is preferable to the usual type of adjustable tappet, which embodies two or three nuts, and is a fiddling thing to set.

A Small Self-contained Lamp Needed.

A special type of lamp is really needed for the host of cheap lightweights now flooding the market. It is only within recent years that a genuinely satisfactory lamp for the Douglas type of machine has been marketed, and these lamps are too bulky and expensive to suit the twenty-five guinea featherweight machine. I daresay there are suitable lamps in a few makers' catalogues, but up to date I have not encountered them. I was riding a borrowed 100 lb. two-stroke last week, and as I expected to reach my destination late at night, I sorted over my lamp shelf, but in vain. The smallest lamp it contained was a Lucas self-contained "Acetyphote," which was too heavy for the light tongue bracket. Before leaving the town I called at the two best local dealers; one had nothing between push bicycle lamps of the flimsiest character and the big £3 sets; the other had nothing smaller than the 30s. type, usually bought for 2¾ h.p. machines. I fancy the self-contained lamp may prove best suited to the little two-strokes; where weight is of importance one wants a lamp which can easily be removed on daylight rides.

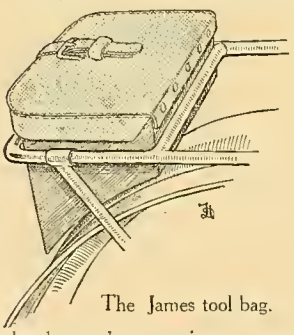
MACHINES ON THE ROAD.

THE 2¼ h.p. TWO-STROKE JAMES.



Both sides of the 2¼ h.p. two-stroke James.

WHENEVER it has been our lot to visit the works of the James Cycle Co., Ltd., at Greet, Birmingham, the roads have invariably been "up." Whether for sewers, water pipes, gas, or for the laying of tramlines, the fact remains that the roads were up. This has nothing to do with motor cycles, the reader may say, but in this particular instance it has, seeing that we started out of the James works on a two-stroke mount entirely strange to us, and at once commenced winding in and out a network of ropes and notices "Road up," often with less than the space of a yard between the roped off portion and the stone kerbing of the pavement. But this was no anxiety; in short, the controllability of the little James leaves nothing to be desired. Its control can be mastered by any novice in a few minutes. It starts with the greatest ease by a dig with the foot on the ground whilst sitting in the saddle, and we repeated this operation regularly during the time the machine was in our possession—no matter whether the engine was stone cold after standing some time, or warm after a run. It will crawl along on low gear two-stroking regularly by the simple expedient of retarding the spark lever and cutting down the throttle opening, and immediately accelerate when the throttle is opened. A blow-back or spluttering through the carburetter was occasionally experienced when the compression release was operated, but this failing applies to practically every two-stroke engine on the market, and the obvious remedy is to govern speed on the throttle only.



The James tool bag.

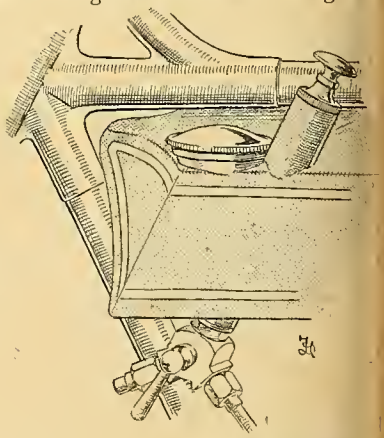
An Ordinary Stock Model for Trial.

The particular machine we sampled was not one got ready specially for test, but was in just such a state as we prefer to try new models.

Those who know Meriden Hill, on the Birmingham-Coventry Road, will gain some idea of its hill-climbing abilities when we state that it ascended this quarter mile rise of about 1 in 12 at 25 m.p.h.—on top gear of 5½ to 1, of course. As a matter of fact, we formed the opinion that a slightly higher ratio for the top gear would be an advantage, as when travelling at full speed on the level vibration in the handle grips and footplates made its presence felt. It would be a difficult hill that could stop a 226 c.c. two-stroke James with its low ratio of 10 to 1.

A Well-protected Mount.

What particularly impressed us about the James was its cleanliness. Large and efficient mudguards with side extensions, an enclosed flywheel and footboards of large dimensions, combined to screen the rider very thoroughly, so efficiently indeed that we found that legging overalls were unnecessary for short runs.



Two-way oil tap on the James lightweight

The riding position of the two-stroke James has been well studied. The handle-bars are of large size and gracefully swept back to allow a natural pose with the result that one does not get tired even after long runs in the saddle. The detail work generally is very good. The lubrication, it may be mentioned, is by the "petroil" system, that is, the usual mixture of petrol and oil, but we like the idea of an auxiliary pump direct to the crank case so that one may inject an extra charge of lubricating oil if deemed desirable. In a word the James is a very attractive town mount on account of its extreme handiness and low build, and it is nevertheless able to average a speed of nearly 20 m.p.h. over give and take roads.

A DASH FOR LIBERTY.

Thrilling Adventures of a Scott Rider in Germany and Belgium.

(*Concluded from page 354 of the last issue.*)

THE bicycle was far more serious. A couple of spare sparking plugs excited suspicion, and the defenders of the Kaiser involuntarily stepped a ce back when by negligence I dropped one on the ound. The tank was believed to have a double ttom. Every possible thing was dismantled. The nerator of the lamp went to bits and the carbide d to be put very near several noses to convince erybody that it was not explosive. These were tails, but when the old sergeant insisted upon my king off the cylinders I went on strike. After a ng talk he was satisfied at seeing the pistons move and down. Once having to remove the sparking ugs it seemed a kind action to show him what the rt he had previously doubted was there for. A rn of the kick-starter produced the spark, but in- ead of clearing matters it complicated them, and other lecture was needed to clear myself.

Unpleasant Advice from the Mob.

All this took place in the yard of the village school. uring the examination the crowd had climbed the rrounding wall and were hurling advice at the *ndarme* and compliments at me. Russian spies had isoned the waters in Mainz the day before, and venteen were to be shot that evening. This did t improve the temper of the population of the dis- cts, and when my identity had been fully estab- hed I resolved to get back to Mainz and take a in to the frontier rather than risk another such p which might not end so well.

At Mainz I found a train as far as Cologne; with ck I should find one there to take me further, t the railway company refused to forward y machine. This was most distressing, and little little it dawned upon me that I had only dertaken the journey because I objected to English bicycle being the means of rendering vice to an enemy of my country, as would have been e case had I remained or left it behind.

Petty Officials to be Avoided.

During the whole of the journey I had found that e higher placed the official, the more agreeable it s to deal with him, and, therefore, determined to straight to the commanding officer of Mainz and im the safe passage which my military passport aranteed but could not enforce. The old "Platz- mmandant" (commander of the town) was awfully e and gave orders that my mount was to be taken far as the Belgian frontier. All went well until logne, and here difficulties recommenced, the tionmaster flatly refusing the assistance of porters transport the bicycle from one train to the other. t seeing the weight and thinking no doubt of the irs to be gone up and down, he informed me with ironical smile that I might do the job myself. Two ssengers were soon bribed to assist me, and together managed to get it into a luggage van just as the t train was leaving for Herbstal. So close had been shave that we were forced to stay in the luggage van til the next station was reached. The train journey was uneventful. Passengers were informed that any open window near a bridge or tunnel would be shot at without warning and that certain compartments were not to be used.

Over the Belgian Frontier.

At the frontier station the officer in command made a last gallant stand to detain the machine, and it needed many words to convince him that it was no use trying for a thing which had failed so far. With a sarcastic remark about not finding any fuel I was allowed to pass. Luckily I speak English, French, and German equally well, and once on Belgian soil my English nationality, as well as the command I had of the French language, procured me a good reception. A Belgian gentleman was only too glad to give me the little petrol he could spare. This would save me from the Germans, he said, and further from the frontier there would be no difficulty.

Ultimate success now seemed sure, and I felt more at ease than I had done for a long while. Before riding off I could not conquer the desire to bid farewell to the German officer who so generously had let me pass because he was convinced that lack of petrol would prevent my getting away. He was soon found again, and with the engine running very smoothly I thanked him for letting me through. He did not wish me "*Bon voyage.*"

The railway line to Verviers had been taken up, and the road was full of people who were forced to proceed on foot. Just before Verviers a heavy barricade made me turn back. This was a different thing from that which had barred the way in Germany A couple of upturned carts placed across the road, a few felled trees, and yards of barbed wire were stretched from wall to wall.

After a short search some sort of cart track was discovered which seemed to lead to the town. It was tried like other ones had been before, but it was frightful. About fifty yards down I met a peasant who informed me that the track led to Verviers, but that I would never get there. "Why?" '*Parceque vous allez vous cassez le cou*" ("Because you will break your neck"). To be sure, there was a chance. The surface was abominable—ruts, holes, stones, and a gradient which must have been at least 1 in 4 in several places made me fancy myself riding in the A.C.U. Six Days Trial.

Running the German Gauntlet.

In the town all the shops were closed, but a chauffeur consented to let me have some petrol. While praising my luck and filling up, I saw, to my dismay and disgust, that German troops were in possession of the main road and were marching on in an endless stream. This not only made the main road unrideable, but, as the inhabitants told me, would make progress impossible. The marching column had to be crossed somehow, so I waited in a small bye-street with the engine running, and as soon as a somewhat larger space than usual between two guns seemed to justify the attempt, in went the clutch. There were

A Dash for Liberty.—

shouts, and I had the impression that the horses towing the next gun made movements other than were necessary merely to pull their load. The clatter of hoofs proved beyond doubt that some horsemen were giving chase. I don't think that I ever opened the throttle with such a jerk. The machine fairly leaped up the long hill in front of me, and by the time the next corner was reached the sound of hoofs had become fainter. There was nothing to fear except that it might occur again.

So near and yet so far!

How now to get to Brussels? The distance was nothing, about eighty miles. Leaving the main road did not worry me much. I had picked my way over many a mile the day before along byeways and lanes to avoid forts and too frequent stops. The proposition now, however, was different, as wherever I turned the road was barred by felled trees and such like. My military passport had run out when crossing the frontier, and the only permit I had was a paper given by the Customs officer, allowing me to go as far as the first Belgian military post (not much use in time of war).

I had a vague idea what direction to take and rode on, most of the time along the ditch lining the road. When this became unrideable whatever happened to be the other side of the ditch had to do. As often as not this was field; if so it was always protected by a barbed wire fence.

A Regular Cross-country Scramble.

Scruples about cutting the wire soon vanished, and a new pair of pliers did the work beautifully. How the bicycle did not drop to pieces sometimes I failed to understand; the strain, especially on the front forks and frame, must have been tremendous. Sometimes the poor machine was ridden through meadows, sometimes through woods, then again I would find it possible to make use of the road. Thus I kept on, but the job was getting tiresome. I had scarcely tasted any food since Sunday lunch, and had had no sleep since Sunday morning. It was now near Tuesday noon, and no wonder that the strain began to tell. The worst thing was that no end to all these obstacles could be seen. I had stopped counting the times which the luggage was unstrapped to lift first the machine, then portmanteau over a felled tree or something equally objectionable. Once a patrol of guides came up and one man dismounted to help. Once a Belgian artilleryman hurrying to his regiment gave me a lift when I was near giving up. But as long as a drop of petrol remained there was hope, and as long as there was hope the struggle would last. In the morning I had dreamt of lunching in Brussels, but now I dreamt of lunching anywhere.

Information about the Enemy.

About eleven o'clock saw me in Longwy, the outpost of Belgian lancers. A short examination convinced the commanding officer that my hatred for the Germans was as strong as his, and I was questioned

"Just before Verviers a heavy barricade made me turn back. . . . A couple of upturned carts placed across the road, a few felled trees, and yards of barbed wire were stretched from wall to wall."

Dash for Liberty.—

bout the German movements. The little informa-on I could give seemed useful, and was at once wired o the rear. At the town hall a passport to Brussels as made out and things once more looked rosy. oads were now free, at least compared with those hich had been left behind.

Arrested by the Belgians.

Next stop was to be Liège. I managed to pick my ay through the line of forts in front of the city, nd at one o'clock entered Liège itself. With visions f dinner at Brussels I rode on, but while trying to et past the second line of fortifications a lieutenant rrested me as a suspect. By persuasion of a revolver soon gave up my machine, my eyes were bandaged, nd I was marched to the fort of Hologne. The rowd at once sprang up, and the murmur getting uder showed that it was increasing. A stone on my ead proved that its mood towards me was none too iendly.

Arrived at the fort, the customary examination by e commander followed, and then, with my eyes still ndaged, I was led to a cell, handcuffed and guarded a man with a loaded rifle.

Apart from these rather vigorous measures they eated me kindly. I was allowed to smoke and given me water to drink. The commander paid a visit d gave strict instructions that I was to be treated urteously. This consideration must have been the sult of mentioning a few well-known families in russels, a photograph of a Brussels hockey team th the son of the Minister of the Congo sitting next me proving especially convincing. There seemed be doubts, however, and the commander of the *ndarmerie* was summoned. While waiting the alarm ng out. Doors were slammed, troops could be ard rushing along the passages and forming up in e yard. Orders were given, and all the while the gle sounded. I felt distinctly uncomfortable. The rmans could not be far off, and to be detained as a spected spy during the bombardment in a fort might exciting, but it was not what I desired. My fears re soon put at rest. The chief of the *gendarmerie* rived and took me off in an enclosed car to the adquarters. Another cell, another wait, another amination and search and, finally, the news that the cycle was to be confiscated and I would be taken to ège to be court-martialled.

Rough Reception at Liege.

Still handcuffed they drove me back to Liège. re things became serious. It was getting dark, and ng the lighted streets the Belgian troops were rching on to the fight. The car had to stop. ring half an hour we waited, all the while the diers passing, cheering and being cheered by the wd which packed the streets. With one breath i cried, "*Vive l'Armée, vive la petite Belgique*" (Long live the army, long live little Belgium"); in t next, "*Mort à l'espion!* ("Death to the spy!") At the beginning of my ride I had found it ticklish rk to look down the muzzle of a loaded rifle, but v I found that to face, handcuffed and utterly pless, a howling mob which considers you a spy s a far more serious proposition. Had not my two rds drawn their pistols and offered to shoot the t man who came on the car there would have been nothing of me left to prove my identity. It seemed ages before we moved again, and when we landed at the Palais de Justice there was only the *concierge* to be found. He seriously advocated that I should be shot at once. "*Il faudra le fusilier de suite,*" and I was too tired out to answer anything else than "*Vous êtes trop aimable, Monsieur.*"

Then we had another drive through the mob, this time to the headquarters of the *garde civic*. Here the thing was done in style, and the scene seemed most realistic. A group of officers were seated around in a semicircle, in the centre of which was standing the prisoner, still handcuffed and looking very dirty and fagged out. A guard was on each side. The cross-examination that followed was extremely lively, but things went well, and after about ten minutes I was a free man again.

Free Once More.

A *permit de voyage* was made out by the commanding officer of the *garde civic*, and with another interesting document in my pocket I went in search of an hotel. Wednesday morning an early start was made for the Hologne fort to get the machine. While attempting this I was only arrested once. By midday all the formalities had been gone through, and soon the engine was humming merrily, but it was not to last long. Barricades caused trouble, and houses along the roads being blasted to give better views for the artillery were a sad sight.

At the second line of forts there was another check. A sentry led the way to the officer in command, who immediately decided that my papers were too good to be true and ordered a search. The usual questions were asked, and when it came to light that I held a German degree of engineering someone remarked, "He is a German engineer, that's enough." I was not handcuffed or blindfolded this time, merely placed with my back against a wall and guarded by a man with a rifle. The crowd once more had the pleasure of viewing "a German spy" for half an hour while the *gendarmerie* was summoned. At the headquarters a telephone call soon put matters right.

The Sound of the Big Guns.

By now I had got heartily sick of these hold-ups, and decided to finish the last fifty miles to Brussels by train. It was near the evening of the 5th then, the guns could be heard roaring, and, as I learnt later, the front line of forts was already stemming the German advance.

The siege of Liège had commenced, and a few more of those checks could get me into a more serious position than I had any wish to be in. The remainder of the journey is of no interest. Steamers from Ostend to Folkestone were running, and soon I set foot in London town.

But all my troubles were not at an end. After reaching my home in South Wales the story of my escape from Germany soon got about, and the police promptly informed me that, having been born in Germany, I must be a German. I asked if being born in a stable constituted being a horse?

I have only one regret. My poor motor cycle, to which, besides my life, I owe three of the best days' sport I have ever had, is still in Brussels, and though it is stored away in a cellar I tremble when I think of it, defenceless in a city held by the enemy. W.S.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Sidecar Mudguards.

Sir,—I was much interested in "Ixion's" remarks about broken sidecar mudguards in your issue of September 3rd. In eighteen months the stays on my sidecar guard have broken four times. After a stay made especially for me had broken, I decided to try and fix a light sheet metal flat guard to the chair, which is wicker. This can be made to look quite neat, and is very light, and does not shake to pieces. It is made of sheet iron bent over at the edge and fixed to the chair by means of light metal angle brackets. There is plenty of clearance between the wheel and guard, but, of course, this would not always be the case with low racing sidecars. EAST ANGLIA.

The Buttress, Hebden Bridge.

Sir,—In reply to the article, issue of September 10th, describing Mr. Maurice Greenwood's ascent of the latest freak hill, known as Naze Hill, at Todmorden, I beg to inform you that I climbed the said hill on August 14th; therefore I claim to be the first to climb the hill. Also I should like to mention that the machine that I rode was 2 h.p. less than the one my friend rode, my machine being a 6 h.p. Bradbury with sidecar and 11 stone passenger.

He also states that he filled up the ruts, which were a good 7in. deep, to avoid breaking the sidecar frame. I did not do this. I jumped them just as they were, not having examined the hill first, thus proving that the Bradbury will stand hard usage. Then I took it across the moor when I had ascended the hill, and got across without any assistance whatever.

In reply to a letter received by you from "W.L.," I beg to inform you that I successfully climbed the Buttress on a 6 h.p. Bradbury and sidecar with an 11 stone passenger. The gears used were 4¾ to 1, 8 to 1, and 14 to 1. The tyres were Dunlops, 650×65. The hill was ridden under ordinary touring conditions.

I send two photographs of the machine ascending the hill, and you will see from the surrounding houses the big rise that the hill takes in a very short distance. The hill is almost half a mile long, and has never been climbed before with a sidecar. WILL GOODWIN.

The Difficulty of Hearing Sentries.

Sir,—For some time past there have been various instances of motor cyclists being shot at by sentries, sometimes even fatally. Do you not think something should be done to try and prevent this? For example, imagine yourself on a big twin, having a ride on a good road at night, with your head lamp burning brightly. As you come past the sentry he jumps out and shouts "Halt!" but owing to the noise of your exhaust and the metallic rattle of your machine on the road you cannot hear. The next thing is the hospital or elsewhere.

Now, I think you will agree with me that it would be better if something were done. For instance, a red light might be placed in the road where the sentry is; this would necessitate the drawing up of cars and motor cycles, and then the riders might have a chance of hearing or seeing the sentry. RED INDIAN.

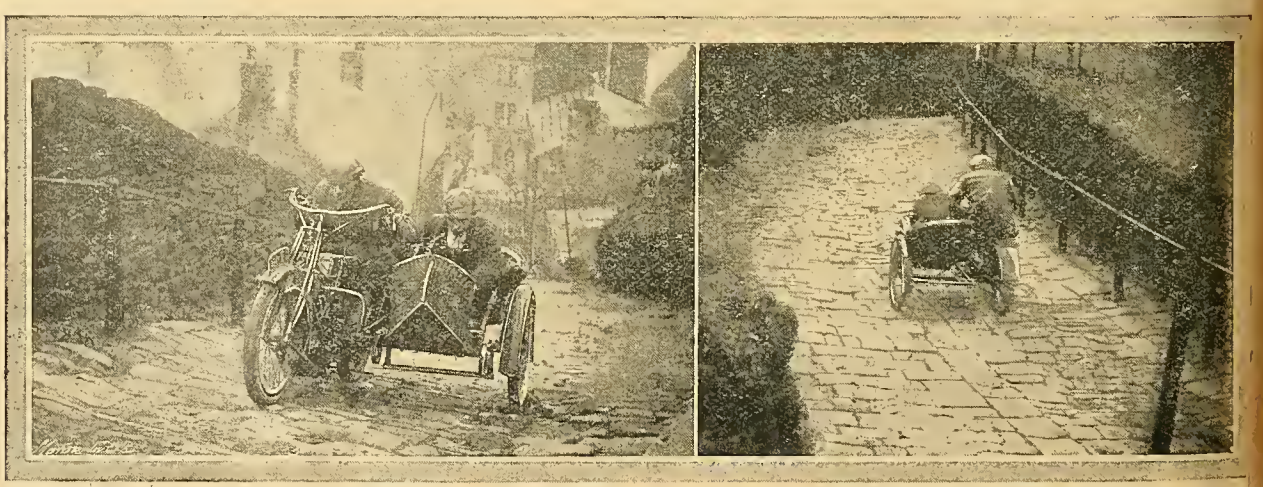
"Wake Up, England."

Sir,—I have been glad to see so many articles and letters in *The Motor Cycle* advocating the pushing of British trades in foreign markets. By all means do so; but do it at once.

Why does the average American succeed where (I regret to say) most of us Britishers would fail? Simply because he sees his opportunity and embraces it, and is content to make things to his customers' specification and not to dictate to him.

Sometimes our friend "Ixion" apologises for his growls. May I do so now for mine? If English firms want to capture foreign trade they must be prepared to supply goods more promptly than they usually do to us here in Ireland. For many years I have bought things direct from English manufacturers, and in every instance except two (Sturmey-Archer and Wolf) I have had to wait for a long time before I received the goods.

I once sent a small repair to a large Birmingham firm, and had to wait for seven months before I received the part cleaned and polished up nicely, but not repaired. I at once started and made the whole affair from A to Z. I had only a small forge and a foot lathe to help me, but in a little less than three hours I had the job finished.



W. Goodwin ascending the Buttress, Hebden Bridge, on a 6 h.p. Bradbury sidecar (see letter).

Experience has taught me that new firms who have not yet made a name will go to a great deal of trouble to oblige a customer, and will supply goods promptly, while the larger and older firms do not seem to care whether small orders are ever filled or not. Of course, there is some excuse at the present time, but I have always found it the same.

Would it not be wise to be a little more prompt? Certainly, if we wish to compete with our American friends we will have to buck up. Of course, the high quality of English-made goods counts for a lot, but customers do not like to be kept waiting indefinitely. I quite agree with "Made in England." There is no reason why this country should not be supplied with home-made magnetos. All success, say I, to the B.T.H. and other companies.

H.H.B.

The Size of Tyres.

Sir,—Not long ago I bought a lightweight, which I have since disposed of. It was cheap, and, as I found out later, nasty. One of my troubles was a tyre which wore down to the canvas in nine hundred miles! I wrote to the tyre company (a well-known firm), and received a letter stating that if I sent them the unsatisfactory cover they would see what they could do for me; they also said my cover was for machines up to $1\frac{3}{4}$ h.p. (My machine had an engine of $2\frac{1}{2}$ nominal h.p.) I was very surprised at hearing my tyre was too small for its work, and wrote to the tyre company asking why they supplied an undersized tyre. I received the following answer:

"We supply the —— Co. with the tyre in question because it is our business to execute orders which we have the pleasure to receive from manufacturers, and we are only their servants in the matter."

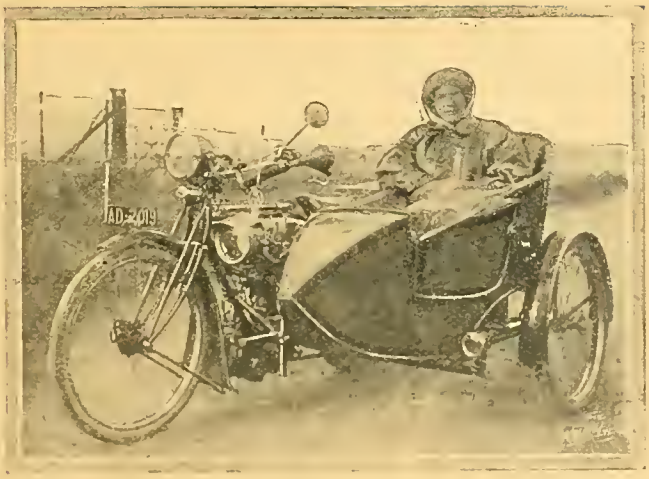
I would much rather have paid half as much again for a really good machine. We now see why "cheap" machines are cheap—at the expense of quality. I do not infer the tyre was not of a quality suitable for $1\frac{3}{4}$ h.p.

UNDERTYRED.

[We have repeatedly urged upon our readers the necessity of using tyres of adequate size and strength. It is not fair to blame the tyre maker, who, naturally, supplies any tyre asked for by the manufacturer of the machine. The buyer can always specify a large tyre. This adds to the first cost, but is an economy in the end.—Ed.]

Electric Lighting.

Sir,—I enclose herewith a photograph of my 1914 Triumph and sidecar. The sidecar, rear and head lights are electrically lit. Sidecar, rear and speedometer and watch lights are four volts and head light eight volts. The current is supplied by two accumulators of four volts each, the second accumulator being used only for obtaining the eight volts for head light. These accumulators stand up well to their work, and have given complete satisfaction. Besides the light the accumulator supplies current for an electric horn, operated by a push button from the sidecar. The lamps are all F.R.S. lamps; the centre one is the acetylene 1,000 foot F.R.S. That lamp alone gives a most magnificent light, and enables one to keep a very good average during night runs. The machine runs and pulls exceptionally well, and keeps up a very good average. I forgot to mention the lights are all controlled by switches. The accumulators are carried in a tin box under the sidecar, which prevents them from being jolted too much.



A reader's Triumph sidecar equipped with electric lamps. (See letter.)

AN ELECTRIC LIGHT ENTHUSIAST.

What is the Ideal Frame?

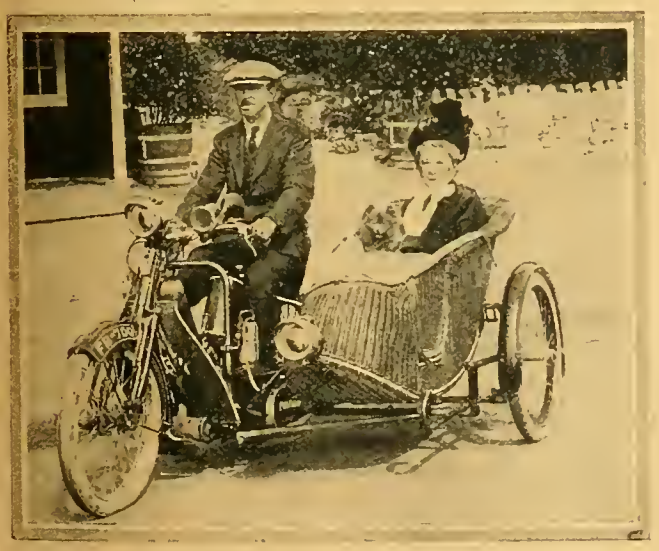
Sir,—Though not as yet an owner of a motor cycle, may I have the liberty of expressing my views through the medium of your columns? Perhaps the most notable change in frame construction is the new model made by the New Hudson Co., with the engine, magneto, etc., designed as a single unit. Is not this the ideal frame? I should be much interested to hear the views of your other correspondents on this matter.

C.F.C.

The Latest Recruit.

Sir,—In these exciting times of "enlisting," the accompanying picture may be of interest as showing what is really possible in the way of recruiting. My respected relative, at the great age of 95, forsakes her bath chair for the more comfortable properties of a Mills-Fulford Cabrio sidecar, and enjoys her morning drive on the sea front with no restriction on the speed whatever. The sweet running of the Scott at any speed from three to forty miles per hour is perhaps the greatest factor in bringing about this "capture."

Bournemouth. R. F. G. KELLY.



A 95 year old passenger on a reader's $3\frac{3}{4}$ h.p. Scott. (See letter from R. F. G. Kelly.)

Wanted—a Three-speed Pedalling Gear.

Sir,—A very light motor cycle, if aided by pedalling, can go practically anywhere, and, as a general thing, it is only now and then that such assistance is required. Moreover, it is surprising what slight assistance is required. The real difficulty is that the gear of the pedalling is very low and one cannot pedal quick enough to keep up with the engine. Two or three speeds are required—the low gear to start on and the middle and high gears for use to reinforce the engine on hills and against wind. This would make an exceedingly light and handy and yet perfectly effective cycle, and the occasional pedalling would be a welcome break in the monotony of riding and also afford a little exercise, the absence of which is the great drawback to motor cycling for recreation. But where can such two or three speeds be got? The spindle or axle of the ordinary pedal hub gear is too short, as the belt rim has to be allowed for. Can anyone help?

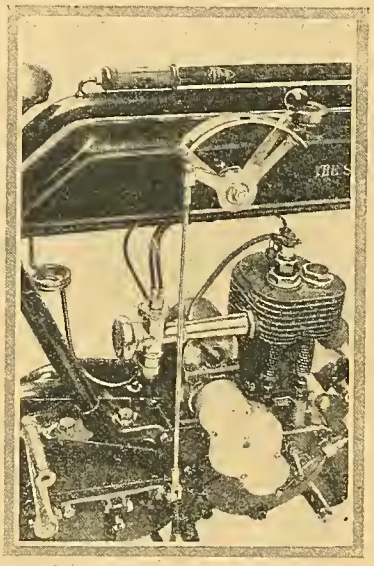
W.D.H.

The 2¾ h.p. Sunbeam.

Some Notes on the Running of a 1914 Model 350 c.c. Motor Cycle.

WE have already commented in these pages on the good running of the 1913 2¾ h.p. two-speed Sunbeam, and so well were we impressed by its capabilities that at the last Olympia Show we placed an order for one of these handy little mounts.

This fact alone will show that the question of reliability was not worth bothering about, because it will easily be imagined that reliability is a *sine quâ non* in a journalist's mount. Our faith in this branch of the machine's good points has been fully justified, and never have we suffered from any involuntary stop on the road, save for one puncture after about 2,300 miles' running. Incidentally, as showing how large a part luck plays in tyre troubles, we may mention that this was our first and last stop for tyre trouble for three years. True, we select good tyres and keep them properly inflated, examining them frequently with a view to extracting any flints which may have become embedded in the tread, but it probably points also to the fact that the 2¾ h.p. Sunbeam is light on tyres, despite chain drive. However, we have never inclined to the belief that chain drive *per se* is hard on tyres—and indeed when running under the ideal conditions provided by the makers of the Sunbeam, and assisted by the beautifully sweet clutch, it is as gentle and smooth a transmission as any belt.



The 2¾ h.p. Sunbeam power unit showing kick-starter.

Of this clutch we really cannot speak in too high terms of praise, and it has made us a determined advocate of hand control for this important part of the mechanism, the advantage of having both feet free to steady the machine being obvious to all. Gear changing is quite easy if just a slight pressure of the finger is applied to the clutch lever, and it is quite unnecessary to raise the exhaust lever at all or even to throttle down the engine.

Of the engine, all we need say is that its pulling powers remind us more of a good 500 c.c. rather than a 350 c.c. which it is. It possesses great powers of acceleration; and the Amac carburetter also allows exceedingly slow running to be indulged in when required. The kick starter, entirely enclosed in the chain cases, is easy, handy, and sure in action, and very substantially constructed. Mention of the chain cases compels us to say that these fitments take rank with anything on the market. It is an exceedingly difficult matter to design chain cases which are oil retaining, silent, and easily detachable, and probably not more than about half a dozen firms have really succeeded in perfecting this part of the machine. Indeed, the designer of one of the finest chain-driven motor cycles on the market confessed to us some time ago that he found greater difficulty in making a really satisfactory job of his chain cases than with any other part of his complete machine.

Let it be said that the Sunbeam designers, with their vast experience of manufacturing oil-bath cases for the chains on their pedal cycles, have succeeded at the first attempt with this tricky part of the motor cycle, with the result that the transmission on our machine is silent, clean, and wonderfully efficient.

An All-weather Machine.

Although tall beyond the average, the writer finds the riding position very comfortable, and in no wise cramped. Instead of the usual footboards, footrests were selected which, if not quite so cleanly, are to the owner's mind, more comfortable and neater in appearance. The handle-bars are of the semi-T.T. pattern, and give a riding position which is easy and provide complete control on the greasiest or roughest roads. One of the points that pleases us most is the almost entire absence of nickel plate. Handle-bars, hubs, footrest bars, fork springs are all black, and the general finish is black with fine gold lines, which is very smart and does not necessitate any undue amount of elbow grease when cleaning takes place, an occasion, we regret to say, rarer than the use of such an excellent mount warrants. The 2¾ h.p. Sunbeam is an eminently workmanlike job, and is most sturdily built throughout. The disposition of the counter-shaft gear box close behind the engine gives it an excellent feeling of good balance on bad roads, and any undue bouncing of the back wheel is obviated, thus adding to the comfort of the rider and the longevity of the 2¼in. Bates tyres with which the machine is shod.

A Little Criticism.

On the principle of giving all the points of the machine, we will here add a little minor criticism. Our only grumbles are that the orifice to the tube

Support the Prince of Wales's National Relief Fund. Contributions should be forwarded to H.R.H. the Prince of Wales, Buckingham Palace.

An appeal to PATRIOTISM

Will YOU answer it?

Continental tyres are made in Germany by the enemy. Their purchase here assists him, while the use of **any foreign** tyre diminishes employment for British workpeople.

BRITISH-MADE

DUNLOPS

are far superior in quality, and can be supplied in unlimited quantities at usual prices.

Fit them to your motors and cycles and help to keep the flag flying.

Should our villages and countryside continue to display German advertisements?

What is YOUR answer?

By appointment motor tyre manufacturers to H.M. King George V.

The DUNLOP RUBBER Co., Ltd., Founders of the Pneumatic Tyre Industry

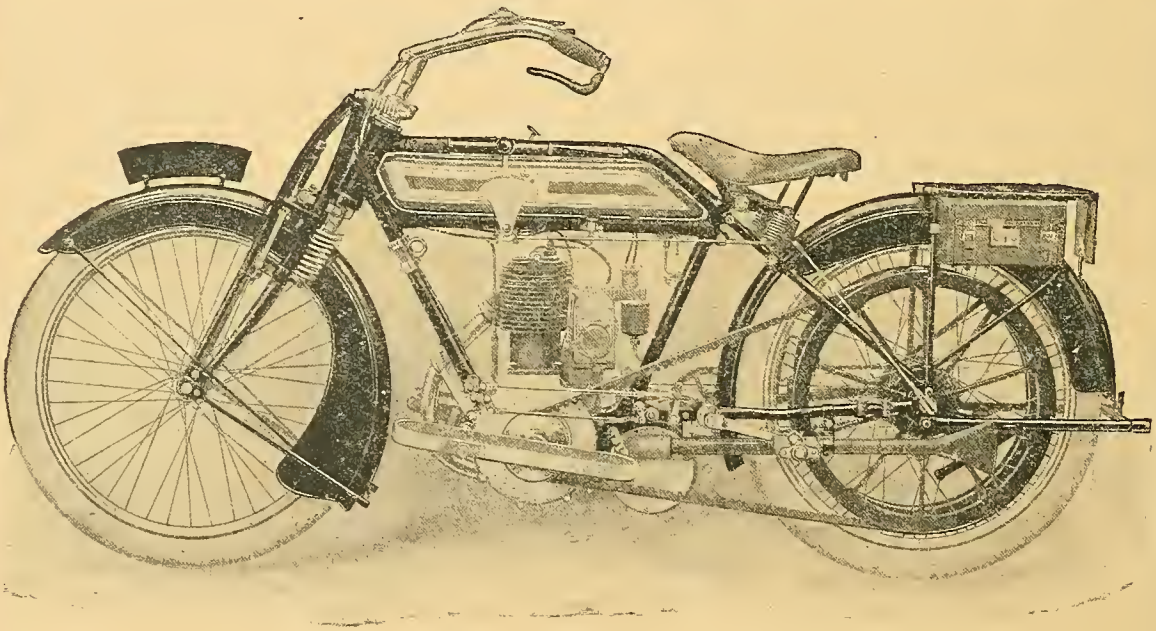
Aston Cross, Birmingham; Alma Street, Coventry. Branches—London, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

DUNLOP SOLID TYRES FOR HEAVY COMMERCIAL VEHICLES.

THE

3½ h.p. ROVER

THREE-SPEED MODEL.



£58 - 0 - 0.

Footboards - - £1 - 0 - 0 extra.

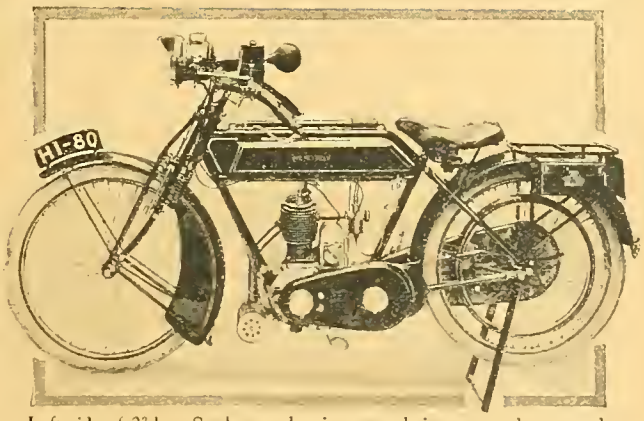
THE BEST, CHEAPEST, AND MOST COMFORTABLE MEANS OF TRANSPORT.

THE ROVER COMPANY, LIMITED,
Meteor Works, COVENTRY.

The 2¾ h.p. Sunbeam.—

through which oil is poured to the gear box is not larger, so as to expedite the injection of the lubricant, and that there is no left and right-hand thread adjustment provided on the rod from the lever on the quadrant to the gear box. If there were one it would simplify gear adjustment, and would not necessitate the removal of a nut and bolt at the end of the rod as at present. This is a minor point, but when one possesses such an eminently high-class and high-priced machine as this, one has, perhaps, a right to be ultra critical.

In all other respects we can only say that the 2¾ h.p. Sunbeam in every way fulfils the very exacting demands we have put upon it, and that is about as high praise, in a few words, as we are able to bestow on any machine.



Left side of 2¾ h.p. Sunbeam, showing neat chain cases and protected position of magneto

The Motor Cycle Export Trade.

An Interesting Report showing where our Manufacturers may extend their Activities.

A REPORT giving comparisons of export trade done by Great Britain, Germany, and Austria in motor cycles and parts thereof to various parts of the world has been issued by the Commercial Intelligence Department of the Board of Trade. The figures available relate to the year 1912 as far as Germany is concerned and to 1913 for Great Britain and Austria.

Needless to say, the great bulk of trade in motor cycles all over the world, except in the United States, where they are fully capable of supplying their own market, is done by our own manufacturers; but all the same, quite a considerable amount of business might still be secured which has up to the present been held by Germany. To Norway, Sweden, Denmark, Portugal, and Russia, Germany exported in 1912 a total of 1,417 machines, valued at £57,450, together with a considerable number of parts, and this trade, in addition to that secured by our enemy in the British Empire, might very well, in the opinion of the Board of Trade, be annexed by our own manufacturers.

Austria has very poor figures to show, her grand total of machines exported to all destinations only amounting in 1913 to some 157 machines and some parts, together worth £6,690.

A Valuable and Growing Market.

South Africa has for some years been our best customer, and the figures giving the value of the imports of motor cycles from all sources to that Union from 1908 to 1913 are so remarkable that we reproduce them herewith:

	£
1908	10,634
1909	12,743
1910	22,031
1911	72,938
1912	154,236
1913	225,524

The United Kingdom has been far the greatest exporter, and her share of the trade represented by the figures above has been over 90% for the past four years. It is interesting to quote an extract from a recent American Consular report: "In South Africa the popularity of the motor cycle is growing with remarkable rapidity. The imports run to about 100,000 dollars (£20,833) annually, and are increasing. A somewhat less expensive machine than that now on the market is desired; it should be of 3½ h.p. or more, with an especially strong frame, powerful spring forks and brakes to suit rough roads, chain instead of belt drive, and general ease of control."

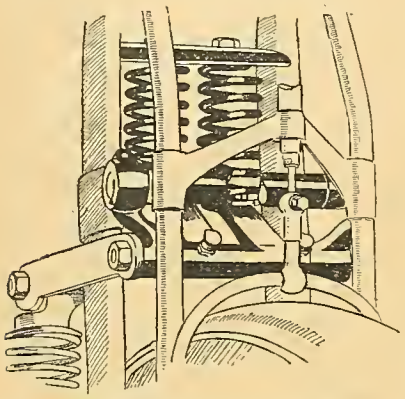
This shows that our American rivals are keenly seeking to fill this valuable market, and Japan is another country where they have actually made headway at the expense of the British manufacturers. The British Commercial Attaché at Tokio, in his report on the trade of Japan in 1913, states that the value of the imports of motor cycles was only £6,900 in that year, as compared with £9,800 in the previous year. The imports from the United Kingdom diminished by £2,800, while those from the United States and other countries increased. This seems a market which our manufacturers might well seek to regain.

Miss D. B. Everdell, the first lady motor cyclist in Stamford, on her 2¾ h.p. free engine Singer. This lady is quite an enthusiast and, we are told, thinks nothing of a run to London.

NEW DESIGN DRUID FORKS.

Backward and Forward as well as Vertical Movement Possible.

THE Druid spring fork, the most extensively used shock absorber on motor cycles, has stood the test of nearly ten years' use in practically every country. How well we remember early in 1906 the late Mr. A. Drew calling at our offices with one of these forks attached to a 3 h.p. magneto Singer, and demonstrating its efficiency

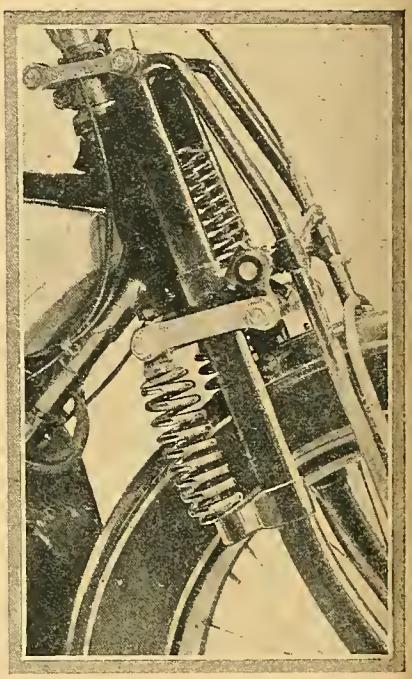


Showing the action of the latest Druid spring fork.

to us on a piece of rough paving near our offices. Now, nearly ten years later, an improved type of fork has been introduced, with the object of overcoming the dithering or bouncing action which users of Druid forks well know occurs when striking a rough stretch of road at speed. The characteristically neat appearance of the Druid fork has been in no way affected by the provision for combined action of the forks—which is the feature of the latest design—indeed, one might not notice at a cursory glance that the new forks are different from the standard type.

The action of the new fork is particularly neat and simple. The top links are attached as usual, but the forward ends of the lower links, instead of being pivoted to the main fork, are attached to a floating bar which is pivoted to the fork at the bridge piece, its movement being governed by a pair of coil springs acting on arms formed with the floating bar. The construction, therefore, permits of a slight forward and backward movement of the wheel, while the normal Druid up-and-down motion is retained in the usual way. A neat bridge piece is formed to take the brake stop, and the shoes are arranged to permit of quick detachment of the front wheel.

We have tried this new fork on a 6 h.p. A.J.S. sidecar outfit, both from the sidecar seat and from the driver's saddle. We were interested to observe from the sidecar seat that the springs were all the time on the move, absorbing large and small pot-holes as they were encountered. In the driver's seat one noticed the unusual effect that any jolting from the handle-bars was less pronounced than in the case of the saddle, and it will be agreed that to obtain this effect, provided a good saddle is used, the forks must be remarkably efficient and the springs of the correct tension for the load. The upper pair of springs are three inches in length; the increased weight is only two pounds, and the extra cost will, it is expected, amount to about ten shillings per fork.



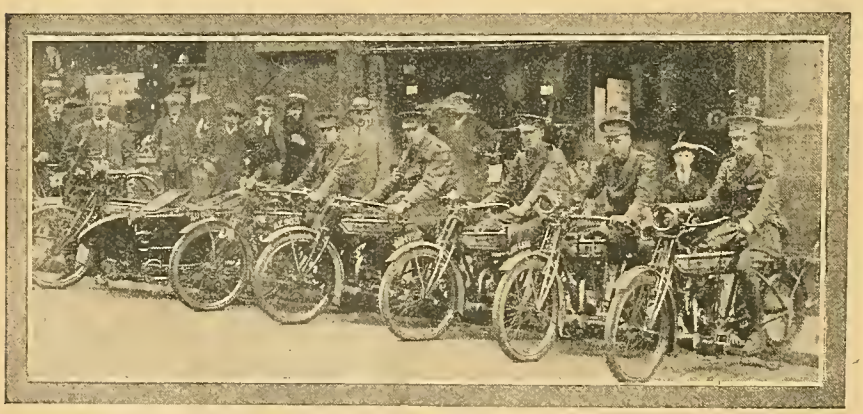
The latest Druid spring fork which has four springs.

Auto Cycle Union Notes.

MEMBERSHIP OF THE A.C.U.—As a special inducement the Auto Cycle Union has decided to give motor cyclists the facilities of membership to December 31st, 1915, upon payment of one year's subscription; thus motor cyclists joining at the present time will receive the facilities of membership for a period of over fifteen months for the one payment. We are informed by the secretary of the Union, that, despite the prevailing circumstances, the influx of members during August has been extremely gratifying. In addition, the North-Eastern A.A., which has a large motor cycle membership, has also become affiliated to the Union.

CLUB SUBSCRIPTIONS TO NATIONAL RELIEF FUND.—A suggestion has been made by the Nottingham and District M.C.C. to the A.C.U. that a subscription list should be opened to which clubs affiliated to, and members of, the Union should be invited to subscribe with a view to handing over the proceeds to the Prince of Wales's Fund. The Nottingham Club has offered to head the list with a substantial donation, but, in view of the fact that several clubs and members have already contributed to the fund, the Union has requested the club to subscribe this amount through the local facilities provided for subscribing to the fund, and the Union expresses the hope that this example will be followed by all other motor cycling clubs.

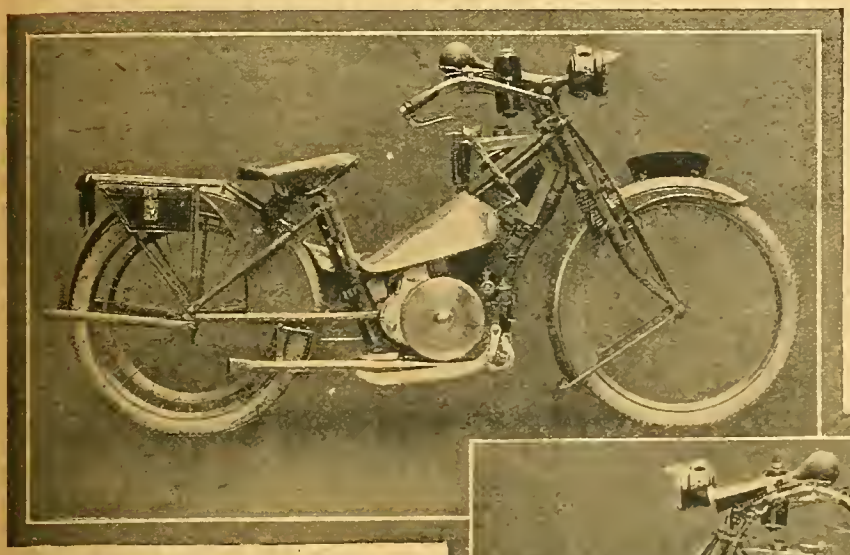
AUTUMN ONE DAY TRIAL ABANDONED.—Although the A.C.U. decided some little time ago to proceed with the organisation and carrying out of the Autumn One Day Trial, yet it is considered that the prevailing circumstances are so adverse that the cancellation of the trial is the only course open to the Union.

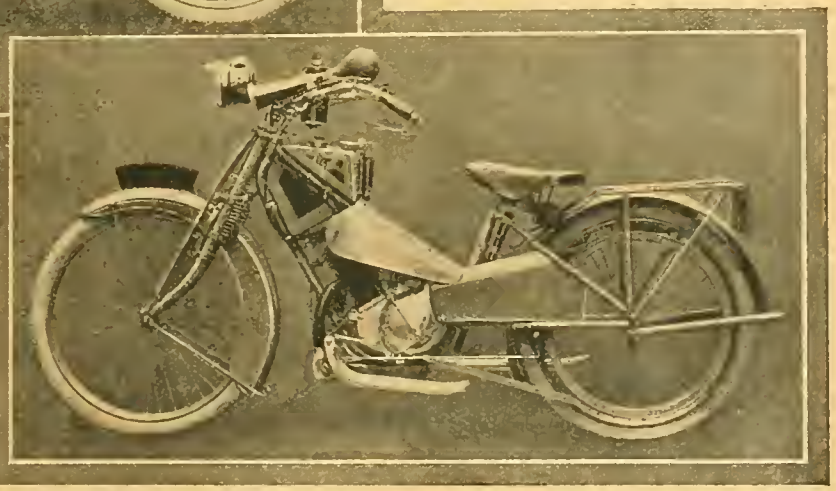


Five despatch riders attached to the Legion of Frontiersmen who left Nottingham for Paris on Wednesday morning last week. All are mounted on Rudge motor cycles. Left to right their names are Spendlove, Charlton, Aldershaw, Edwards, and Hyde.

A New Lady's Model.

THE CLYNO TWO-STROKE ADAPTED FOR LADIES' USE.



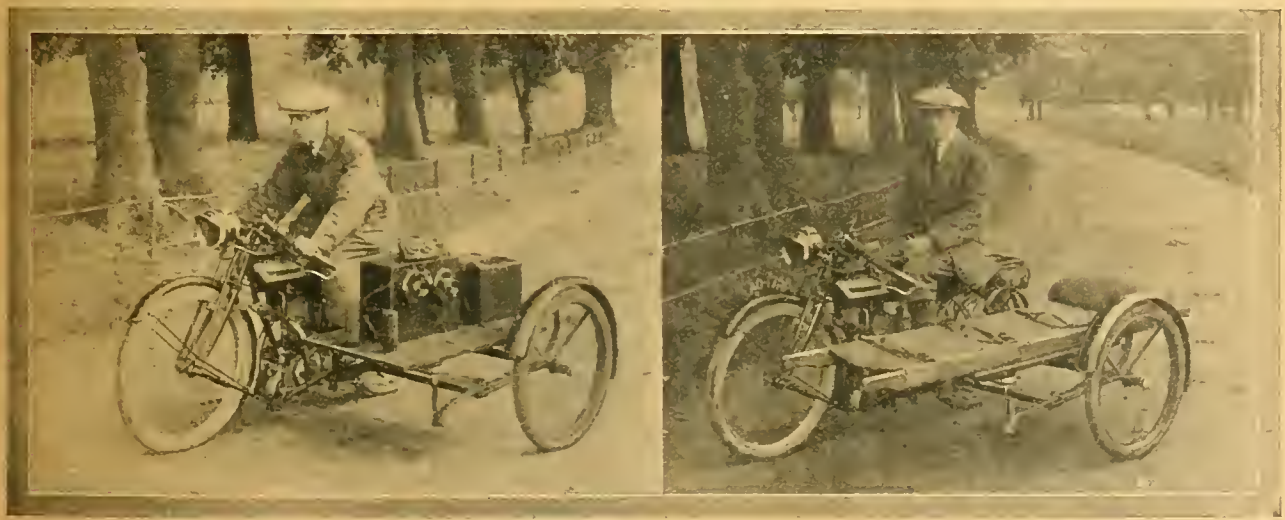


Right and left side views of the new lady's Clyno two-stroke machine

ONE of the smartest open frame models we have yet seen comes from the Clyno factory at Wolverhampton, and its graceful lines are sure to attract the attention of the weaker sex. The power unit is the combined two-stroke engine and two-speed gear exactly the same as on the standard men's model. A large plate clutch is carried inside the 6in. belt pulley and is operated by a convenient handle-bar lever. The normal engine position is retained, and this, in itself, is peculiarly adaptable to the open frame. The loop frame design is similar to the standard except that the top tubes are replaced by a double sloping tube, between which the tank is fitted, overlapping at the top so as to give a very neat appearance. The arrangements for dress guarding are excellent; the flywheel is enclosed in the usual way, and a belt guard has been added to the clutch cover. In addition to this, a neat and quickly detachable engine shield is fitted, and the rear guard is provided with a very deep valance to protect the dress from the wheel. All the controls are very conveniently arranged, and a glass sided oil pump ensures a full charge of oil reaching the petrol tank for mixing purposes. The long, curved aluminium footboards provide ample protection for the feet, and the machine is equipped with lamp, generator, horn, tools, etc.

Showing protection of the cylinder and driving belt.

THE USES OF THE MOTOR CYCLE IN WAR.



A Rover sidecar which has been converted, by removing the body and substituting a wooden platform on the chassis, into a means of carrying either field telephones or an ambulance. The work was done by E. F. Gilbanks, the motor cyclist seen in the photographs, who is captain of the Cumberland County Motor Cycle Club

TIMES TO LIGHT LAMPS.

Sept. 24th	...	...	6.55
,, 26th	...	...	6 48
,, 28th	...	...	6.44
,, 30th	...	...	6.42

600th Issue of "The Motor Cycle."

Founded on March 31st, 1903, the present is the six hundredth consecutive issue of *The Motor Cycle*.

Manxmen for the Front.

We hear that D. M. Brown, of Douglas, left for "the front" on Saturday last, taking with him a 3½ h.p. Rover, which he has used during the past season. We understand that Brown is the first Manxman to be accepted for despatch riding. He volunteered in Birmingham six weeks ago.

A Reassuring Outlook.

An article in *The Times* of Thursday last was very comforting reading. The writer pointed out that the trade of this country had not been affected by the war to anything like the extent that had been anticipated, owing to the splendid manner in which the trade routes had been kept open by our Navy. It therefore behoves all manufacturers to keep their works open so far as possible, and to see that lucrative trade, which might be obtained by this country, does not pass elsewhere.

The Fate of the Olympia Shows.

Although not primarily of such importance to motor cyclists as the motor cycle show, the fate of the great Olympia motor car show concerns every one interested in road travel, and the news of the abandonment of the 1914 show will be received with mixed feelings by the public, as it has been by those intimately connected with it in a business sense. However, the decision was arrived at on Friday last by the Council of the Society of Motor Manufacturers and Traders that no show should be held this year. This decision, of course, reflects the opinion of the majority of the council, but there are several prominent members of the motor car industry who do not view the abandonment with favour. Apart from the purely business aspect of the matter, quite a number of members felt that it would be hardly fair to our French and Belgian friends to hold the show, even if we were able to do so, at a moment when our Allies could not possibly participate in it themselves. At the moment of writing the fate of the motor cycle show hangs in the balance, but the decision of the Manufacturers' Union will be found elsewhere in this issue if received before going to press.

B8

A Military Trial Abandoned.

An open military trial was to be held by the Streatham and District M.C.C. on Saturday, but last week the arrangements were abandoned.

Petrol at 1s. a Gallon.

Why not? The possibilities of such a reduction and the good effect to the motor industry generally are discussed in our leading article this week. If the different trade societies were to take up the matter seriously there is a strong feeling that a substantial reduction could be made in the present price of motor spirit.

Preference for British Machines.

Statistics of motor cycle importations into New Zealand make interesting reading. The following figures show the number of motor cycles imported into New Zealand for the years ending March 31st, 1913 and 1914:

	1913.	1914.
British ..	2,778 ...	3,530
Other ...	303 ...	362
Unknown ...	153 ...	225
Total ...	3,234 ...	4,117

Taking the average retail value of a motor cycle at £75 the values show—1913, £242,550; and 1914, £308,775.

SPECIAL FEATURES.

CHEAP PETROL
THE MOTOR CYCLE IN WAR.
MORE NEW DESIGNS.

Auto-wheels for Invalid Chairs.

A hand-propelled invalid's chair has been seen near Woolwich with a wounded officer in charge. To aid hand propulsion an Auto-wheel was fitted to the rear driving wheel.

Indians Favour a Show.

Mr. W. H. Wells has left in the *Mauretania* for the United States, where he will finally decide on the improvements in the 1915 Indian models. Mr. Wells, it is interesting to note, is strongly in favour of holding a show.

The Motor Cyclist Special Reserve.

Two years ago a scheme was drawn up by the Technical Reserve Advisory Committee for the enlistment of motor cyclists on certain terms of service. Unfortunately recruiting was not brisk, and upon mobilisation the War Office found itself short of a good number of motor cyclists. The A.C.U. was approached, and in thirty-six hours the War Office had as many despatch riders as were needed.

During the blackberry season the sidecar combination will be much in evidence in out-of-the-way places.

Works Still Busy.

We hear that the Swiss works of the Motosacoche at Geneva are still busy in spite of the war. The English works at Willesden are, of course, open.

More First Descriptions of New Models.

This week *The Motor Cycle* is able to provide its readers with an exclusive description, accompanied by illustrations, of an entirely new Druid spring fork, also a new Clyno two-stroke lightweight specially for ladies' use.

Motor Cycles as War Booty.

In the course of their march through Belgium the Germans levied blackmail, as is well known, on various towns. Ghent, in addition to being ordered to supply a large number of cigars and barrels of petrol, had also to supply ten motor cycles. We hope they were not in perfect running order!

A Chance for Would-be Despatch Riders.

The Bristol Motor Cyclists' War Committee inform us that they are in urgent need of more good men for active service. It is interesting to hear that the last contingent included Eric Williams and his brother of Junior T.T. fame. The committee has offices open all day long at Queen's Hotel, Clifton.

A Swing Bridge Mishap.

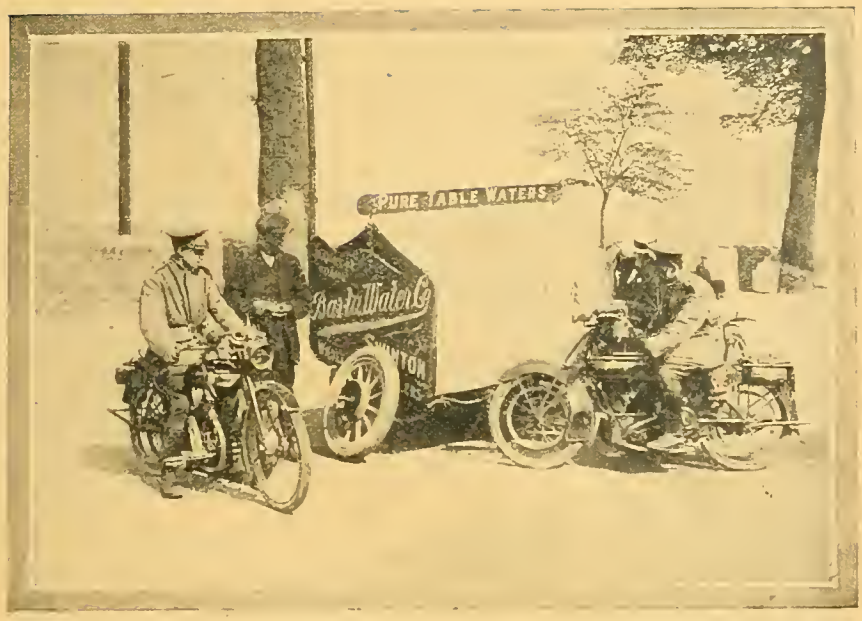
A somewhat remarkable accident occurred at Aberdeen Harbour on Sunday last. A motor cycle and sidecar, carrying three Navy men as passengers—two in the sidecar and one on the carrier—was proceeding to cross the swing bridge, the driver failing to observe that it was open to allow a vessel to pass, with the result that the party ran heavily into a concrete wall. The driver himself was unhurt, but the three passengers were all injured, and, unfortunately, one shortly afterwards died.

Plenty of Petrol About.

As showing the entire absence of any need to worry about the supply of petrol in this country or any likelihood of an advance in price in the near future, we may mention that in July last record shipments amounting to over seventeen million gallons reached our shores, and this was followed up by a further twelve and three-quarter million gallons in August. In addition to this, colossal supplies have reached France for the use of the Allies. Germany, on the other hand, is very short of petrol owing to the closing of the Danube route from Galicia, the source of her main supply, by the Servians.

A New English Magneto.

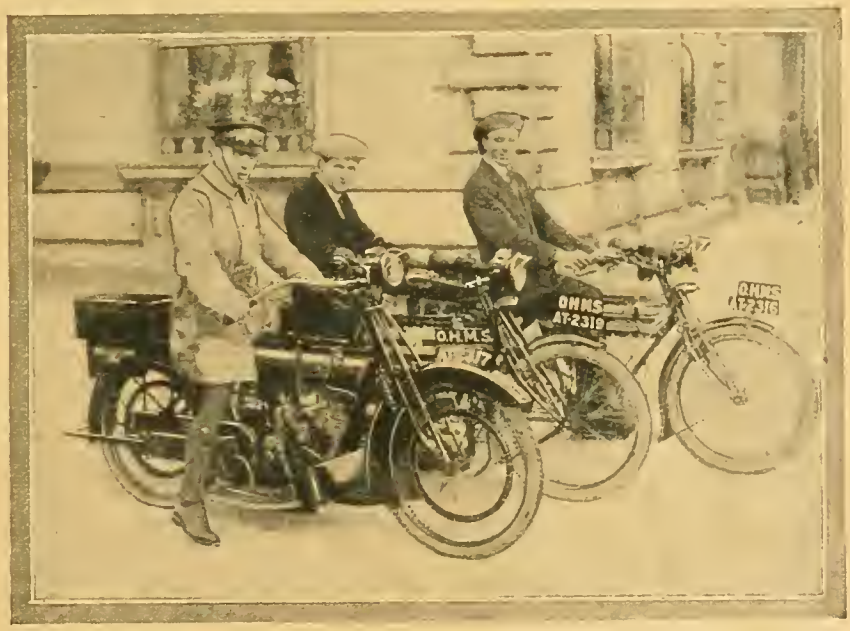
There is no doubt that electrical engineers in this country are doing their best to cope with any possible future demand for magnetos. Messrs. Morris and Lister, of Lockhurst Lane, Coventry, are at the present moment putting through a batch of magnetos suitable for single-cylinder machines. The device is designed to fit standard magneto platforms, and closely follows the general lines of the well-known Bosch instrument. The makers have already had great experience with windings similar to magneto armature windings, and repetition work in small electrical fittings.



Motor cyclist scouts assist with a lorry which had suffered a broken axle. The lorry in question was conveying supplies to the camp. The motor cycles are a Rover and Lea-Francis.

Territorial Motor Cyclists.

Within seven days of the outbreak of hostilities the Territorial units were all filled, and in addition a large number of motor cyclists were on the War Office waiting list. Also, the A.C.U. has a list of 1,500 motor cyclists indexed in the various localities in which they reside, and from which motor cyclists can be supplied as required. The Liverpool office of the A.C.U. has supplied a large number of men for the Mersey defences. Indeed, so great has been the response that it is unlikely that many of the riders who have offered their services will be required, and our readers are advised to seek other outlets for their patriotism, *e.g.*, the firing line, where it is reported that the coveys of Germans are very numerous, well grown, strong on the wing, and likely to provide excellent sport.



FIRST APPEARANCE OF THE O.H.M.S. BADGE ON HULL MOTOR CYCLES.

Three of the Royal Engineers Despatch Riders who have just been appointed and supplied with up-to-date motor cycles for Humber Defence Headquarters. The riders are W. R. Storey (Lea-Francis), E. Woodwood (Triumph), and H. Havercroft (Triumph). Another member is W. Hodgson (off duty on day of photograph), whose mount is a B.S.A.

"The Motor Cycle" Suggestion to Combine the Shows.

We observe with interest that three contemporaries this week revive the original suggestion of *The Motor Cycle* in its issue of September 3rd to combine the car and motor cycle shows this year.

B.S.A. Profits.

The directors of the Birmingham Small Arms Co., Ltd., resolved last week to recommend to the shareholders final dividends for the year ended July 31st, 1914, payable on October 5th next, as follow: On the "A" preference shares 2½%, making 5% for the year; on the "B" preference shares at the rate of 6% per annum for the half-year; on the ordinary shares 5%, together with a bonus of 1s. per share, free of income tax, making with the interim dividend a distribution equal to 15% for the year.

Vacancies for Despatch Riders.

We are informed by Lieut. H. B. C. Pollard, Inspecting Officer, London Motor Cycle Reserve Committee, that there are still vacancies for men, not limited to home defence only, as despatch riders.

Motor Cyclist as Range Finder.

The Express relates a stirring story of the earlier stages of the battle of the Aisne. A motor cyclist dashed almost within touch of the German troops in order to ascertain the accuracy of our heavy gun fire. Speeding back unscathed, he reported that some of the shells were falling some four hundred yards short. The range was then corrected with deadly effect. Later in the day the same motor cyclist had his machine literally blown to pieces from under him by the bursting of a shell; the rider was wounded, but escaped death by a miracle.

A Triumph sidecarist breasting Beacon Hill, near Rednal, in the South Birmingham M.C.C. informal trial on Saturday afternoon last. The hill was dry but the surface rough. There were only two or three failures.

Motor Cycles for the Armies.

The motor bicycle is proving its worth in the war, as everybody with a knowledge of motor cycle matters years ago predicted would be the case. British-made machines are being favoured by all the Allied Armies, and large orders were received last week from Russia, Belgium, and France, whilst the British Government has, too, recognised the valuable work of the motor cyclist despatch rider on the Continent and is placing further contracts. The result is that a number of manufacturers, whose works were on short time, suddenly find themselves extremely busy on urgent orders, and overtime is now the order. It may be added that Russia favoured P. and M. machines, Belgium ordered Enfield mounts, France has requisitioned a fleet of Triumphs, whilst the British Government has mostly purchased Triumph, Douglas, and Rudge machines. Practically every well-known make of motor cycle is in use on the Continent.

Sidecar Samaritans.

The Rev. P. W. Bischoff writes to us with reference to our leaderette last week under the above title. He says that, as far as Bristol is concerned, and probably with regard to all centres where the wounded are being nursed, sidecar owners should not write individually to the hospital authorities, who have an immense burden of correspondence to bear. Riders should organise themselves under one man who alone should approach the authorities. This greatly simplifies matters. It must be remembered that soldiers in hospital are under full military discipline, and can only be allowed out after certain definite formalities have been carried out. In Bristol, this side of the nursing arrangements was placed, some time ago, in the hands of the Bristol Motor Cyclists' War Committee, Queen's Hotel, Clifton, of which Mr. Bischoff is honorary secretary. They will be pleased to accept offers of sidecar drivers for this benevolent work. It is worth noting that all such Samaritans in any part of the country should equip their sidecars with a good warm rug, and also with a small firm cushion, in case any damaged limb needs support during the run.

Quick Delivery.

We learn from Messrs. Douglas Bros. that on Saturday last they received an order from the War Office for ninety Douglas motor cycles, and that the whole of these were duly delivered by the following evening, Sunday, September 20th.

Machines for War Use.

We have received a letter from the 25th County of London Cyclists' Battalion, Fulham House, Putney Bridge, S.W., which reads as follows: "I beg to announce that the makes of machines accepted by the War Office have been limited to the following: DOUGLAS, TRIUMPH, P. and M., RUDGE, ROVER, B.S.A., and JAMES (single-cylinder).—Hugh B. C. Pollard, Inspecting Officer, London Motor Cyclists' Reserve Committee."

Germany's Tyre Trade.

In 1912 the Board of Trade announce that Germany exported motor car and motor cycle covers and tubes of a gross value of £1,731,600. Of this total, France was the largest customer with £422,300. England comes next with £298,400. Australia is another important market for this class of goods, which our own manufacturers should secure in future, as is also the Argentine Republic. The total value of covers and tubes exported from Great Britain in 1913 amounted to £749,300, but this figure does not include tyres fitted to exported cars and motor cycles. Austria's export trade in tyres is insignificant, amounting in 1913 to only £47,600.

Motor Cyclist Competition Riders at the Front.

Many readers will learn with interest that S. A. Rowlandson and W. L. T. Rhys (the Rudge riders), D. H. Noble and C. T. Newsome (the Rover riders), and Emery (the old Norton rider), are in the 69th Company Motor Transport Section, Army Service Corps. They sailed on Sunday last from Avonmouth for an unknown destination at the front, where their lorries will carry the food supplies of the Indian Army. Newsome is a lance corporal and Emery a sergeant.

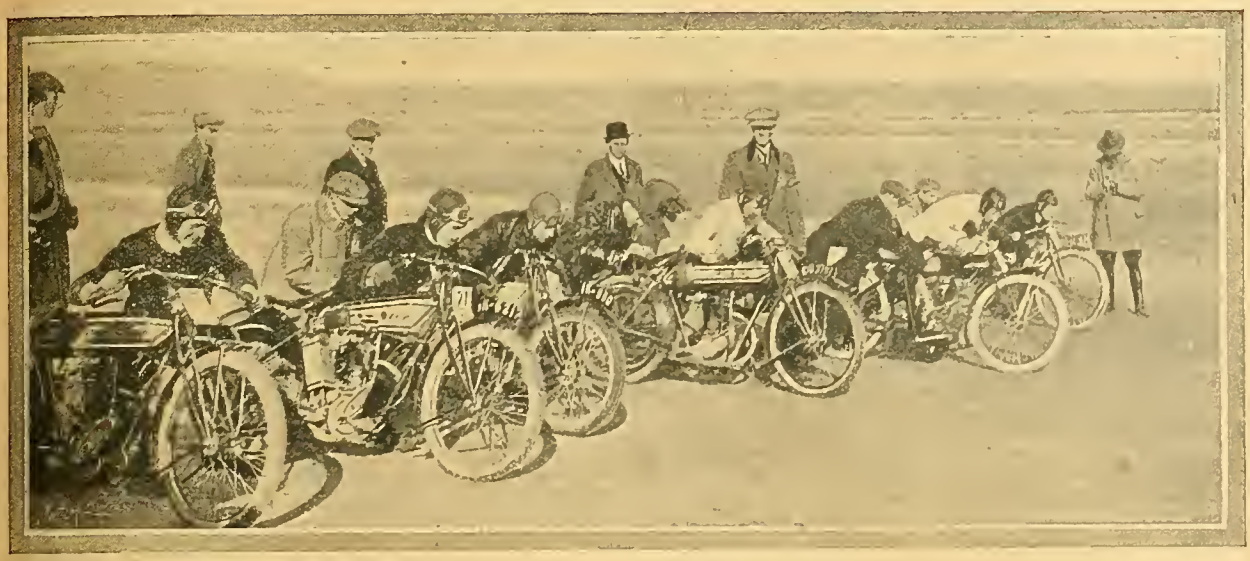
Norman Lea (of Lea and Francis, Ltd.) has been accepted for service in the Motor Transport Section.

THE SHOW ABANDONED.

At a meeting of the Cycle and Motor Cycle Manufacturers' and Traders' Union, held on Tuesday afternoon last, it was resolved, owing to Olympia being taken for purposes of war, not to hold a Show this year.

The suggestion of "The Motor Cycle" in the issue of September 3rd, to hold a combined Car and Motor Cycle Show was considered, but having regard to the fact that the S.M.M.T. had already decided that it would not hold a show for cars this year, the scheme could not be pursued.

RACING AT PORTMARNOCK.



Start of the scratch race on Portmarnock Beach last Saturday.

THE last meeting at Portmarnock for 1914 was held on Saturday afternoon under the auspices of the Dublin and District M.C.C. Granting that there were exceptional circumstances that interfered with the success of Saturday's racing, it must be confessed there has of late been a distinct falling away of interest in racing on the sands, and the entries have been much smaller than those received for competitions on the road. It is felt that the game is becoming too highly specialised, and, apparently, the average motor cyclist thinks it hardly worth while to devote the time and attention to the tuning up of his mount that is called for to ensure success. The lightweight race on Saturday did not fill, and for the two open events the entries were on the small side. The scratch race resulted in a very easy win for C. B. Franklin on a 3½ h.p. Indian, as, indeed, many scratch races at Portmarnock do, and in the fifty miles handicap J. Healy followed up his win in the one hundred miles event at the last meeting by an equally easy victory, winning by about three miles. Results:

SIX MILES OPEN SCRATCH RACE.—Under 500 c.c.

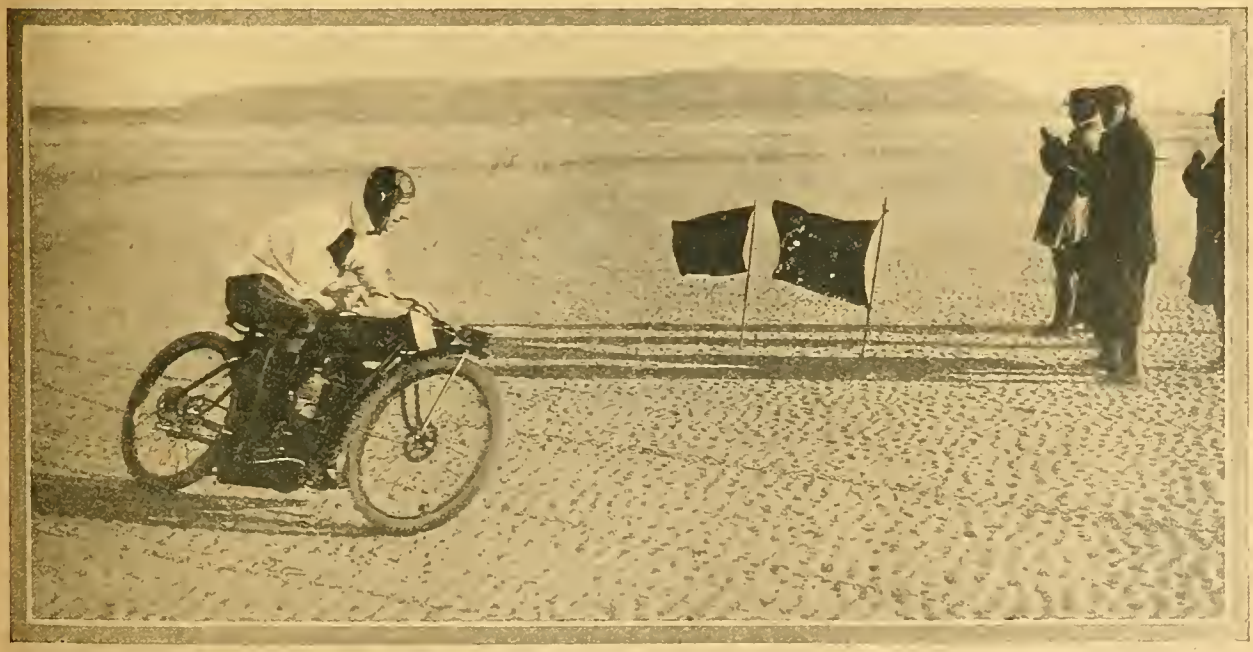
1. C. B. Franklin (3½ h.p. Indian).
2. F. Holmes (3½ h.p. Rudge).
3. T. E. Greene (3½ h.p. Rudge).

Won by twenty-four seconds; four seconds between second and third. Winner's time, 7m. 10s.

FIFTY MILES OPEN HANDICAP RACE.—Unlimited c.c.

	Start.
1. J. Healy (3 h.p. Enfield)	12m. 30s.
2. F. Holmes (3½ h.p. Rudge)	2m. 0s.
3. R. White (3½ h.p. Rudge)	8m. 0s.

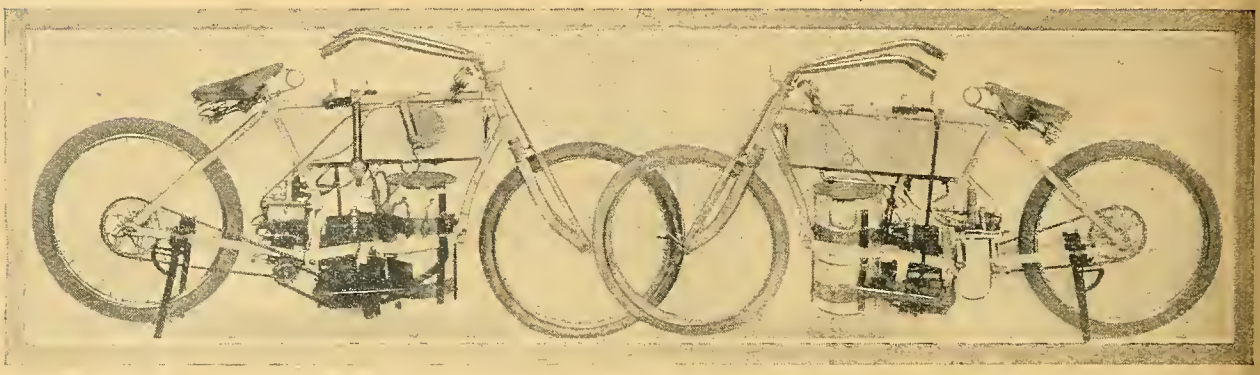
Won by three miles; a poor third. Winner's time, 1h. 12m. 25s.



C. B. Franklin at the turn. This Indian rider has scored many successes since the inauguration of motor cycle racing at Portmarnock.

ANOTHER STEAM MOTOR BICYCLE.

A Twin-cylinder Machine, the Result of Six Years' Experimental Work.



The Field steam motor cycle, showing the disposition of engine, generator, and water pump.

FLEXIBILITY is a point which is aimed at by all motor cycle designers, and is a much more difficult problem to deal with when internal combustion engines are the power units employed. By adopting a steam engine it is possible to utilise a better system from whence flexibility can be obtained. There are, of course, many difficulties which arise when such a source of power is applied to the motor cycle, as trouble is experienced in cutting down the overall dimensions and weight to really practical limits. At the same time, Mr. Field, of 101, Rosemary Road, Clacton-on-Sea, has succeeded after six years' experimental work in building a steam motor cycle of a thoroughly practical nature. His experience has led him to adopt a two-cylinder single-acting variable expansion high pressure engine. The bore and stroke are 45 mm. × 50 mm., and the cylinders are fitted with mushroom valves of special steel. The pistons are practically the same as those generally used in petrol motors, and are fitted with three rings. The crankshaft is so designed that the crank pins are opposed—that is, at 180°—and the big end bearings of the connecting rods are split and are also similar to the usual type which are used in petrol engines. There are only two timing wheels in all, one being on the camshaft and the other on the crankshaft. The valves themselves are placed on one side, and are operated by ordinary tappets. It is possible to vary the lift of the valves by moving the cams, and if necessary the whole of the movement imparted to the valves can be eliminated. The action corresponds to the valve system employed on the motor cycle engine. A steam generator of the instantaneous flash type is fitted, and is supplied with a feed water heater, the whole concern being housed in an asbestos-lined steel case which also contains the burner. This, it will be noticed on referring to the illustration, is placed in front of the engine.

Absence of Controls.

There are no hand pumps other than the ordinary pump used for lubrication, which is identical with that on a petrol-engined machine. The fuel supply is entirely automatic, and is carried out in the following way. There are two fuel tanks, one of which contains a small amount of fuel at a pressure of from about thirty-five to forty pounds to the square inch. By means of this the fuel is conducted to the burners, and as it becomes used up means are provided by which a similar amount is supplied automatically. By such a system it is possible to fill up the main fuel tank whilst the engine is running. The water pump is housed behind the engine and takes up very little room. It is possible with such an engine to utilise a very high gear, consequently the gear ratio is in the neighbourhood of 2½ to 1. Even with a ratio such as is employed the machine can be started on the stiffest of gradients. Chain transmission is fitted from the engine to the countershaft, which is utilised for driving the pump mechanism as well as for conveying power to the rear wheel by means of a chain. The design of the machine generally is well carried out, and the designer has made a special point of getting the centre of gravity as low as practicable.

Power and Simplicity.

The engine is capable of developing from 6 to 8 h.p. owing to the high pressure of steam that can be used. It will, therefore, be seen that a motor cycle on these lines should be excellent for sidecar purposes. The total weight is 160 lb., and this, of course, compares favourably with petrol machines of similar horse-power. The machine is started up in the following way: a small quantity of methylated spirit is poured into the burner channel, and allowed to burn for three or four minutes. When sufficient heat has been imparted to the burners the water and fuel regulators are opened, and by walking the machine for three yards starting can be effected. The control is on the burner and generator, and if an instantaneous stop is necessary the cutting off lever on the side of the tank puts out of action a cam and so stops the valves from opening.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and all that are notified to us are inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

The Motor Cycle in War.

Instructive Military Experiences with Different Machines at the Front.

By VERNON BUSBY, CORPORAL, ROYAL ENGINEERS.

AS the motor cycle is playing such an important part at the front at the present time, a few words as to my experiences with about fifteen machines attached to the 2nd Army Headquarters, for the satisfactory running and keeping in order of which I was responsible, might not be out of place. I was only privileged for a short time to be with them, viz., about three weeks, before being wounded, but I may truthfully say my observations taught me a good deal even in this time.

To start with, the motor cycle sections were so quickly organised and formed that I regret to say they did not always contain the men best fitted for the work, although several most useful people have gone, whose combined experiences, both military and motor cycle, are excellent. There are still several, I believe, who were disappointed in the tremendous rush, but it is to be hoped their services will be eventually requisitioned. I refer particularly to Public School and University men who have served in their Officers' Training Corps, and have good and practical motor cycling experience, but, in my estimation, long motor cycling experience is of more value than military, although it is desirable to have plenty of both. I am also of the opinion than a man should be taken on wherever possible with his *own* machine in preference to being provided with a Government mount, which will most likely be strange to him, and a machine has to pay very heavily for its rider's lack of knowledge of it, as a good number of those I saw were having a terrible time.

What the Machines have to Stand.

The machines in my section were for the most part three-speed Triumphs, the remainder consisting of a Douglas and a Rover and my own T.T. Sunbeam, which, by the way, was still doing good work in the hands of another rider when I left. I will not attempt to criticise these machines, as many would think my opinion biassed, and, again, their total mileage was nothing very extraordinary. If I may be allowed to suggest what long experience has taught me to be the most practical form of machine for the purpose, I say without the slightest doubt that it requires an absolutely special model. I might mention here that the majority of machines, especially the Government ones, were suffering from the riders' lust for speed, and were being pulled into all sorts of queer shapes, handle-bars, footrests, etc., some, but not all, at the rider's will, others by numerous falls, as most of our gallant recruits thought it necessary to indulge in the highest possible speed where the road was not crowded with troops.

The Type of Machine Required.

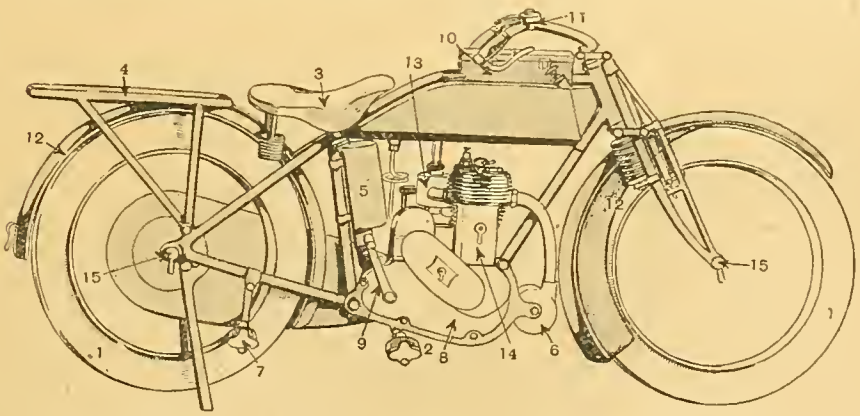
It is a most mistaken idea to think that the 60 m.p.h. racing machine stripped as much as possible is the one for the purpose, although I agree a modified T.T. mount conforms somewhat to my ideals, as far as speed is concerned. I consider 40 to 45 m.p.h. all that is necessary, and maintain that a 500 to 600 c.c. engine so constructed will give a higher and much more reliable average speed over, say, 2,000 to 3,000 miles than the faster engine is likely to do. It should be constructed in the simplest possible way, accessibility should be studied to a fine point, and it should be possible to be dismantled quickly with the simplest tools by any ordinary man of a mechanical turn of mind. The valves, and, if possible, the magneto timing should be simply marked.

The frame is a most important matter, as it is necessary to carry the kit on the carrier, and this being bulky and somewhat heavy naturally upsets the steering considerably. Again, the motor cycle proved itself very useful at Mons, by taking officers on the carrier who had lost their horses, and served no end of other useful purposes, while it is easily possible to bring along wounded men (suffering from arm and leg wounds) in the same manner. Consequently, one may have to depend upon putting considerable weight on the carrier, and I think it very advisable to fix the saddle position further forward than on standard machines; there is also room for ingenuity in discovering how best to pack away one's kit conveniently, as the carrier position is rather high. The frame should be rather stronger than usual, and designed neatly to take a two-gallon tank and half-gallon spare tank. The fork springs should be rather stiff, and incapable of breakage.

The practice of small brazed lugs instead of clips, which is now almost universal, is to be highly recommended.

Gear and Transmission.

Although, perhaps, one may think that I may be biassed, I assure the reader I have an intimate experience of all the well-known machines on the market, and can promise him I have found nothing better than the enclosed chain and spring drive transmission. The chains of my own machine have only been adjusted once in ten thousand miles and appear almost as good as when new. The majority of enclosed chain drives give most excellent results, and I personally consider them all superior for war purpose to either belt or chain-cum-belt drives, although very good results are obtained from both these systems.



SKETCH OF MILITARY MOTOR CYCLE SUGGESTED IN VERNON BUSBY'S ARTICLE.

1. 3in. tyres
2. Big ground clearance.
3. Saddle far forward.
4. Extra large flat top carrier.
5. Spare petrol tank.
6. Large silencer.
7. Footrests for pillion rider.
8. Engine and two-speed gear unit
9. Kick starter
10. Tool box on top tube.
11. Handle-bar control for plate clutch.
12. Large guards with big clearance.
13. Exhaust heated carburetter.
14. Enclosed valve gear.
15. Detachable wheel.

A SCENE IN CAMP.

Motor cyclist despatch riders attached to the Leicestershire Yeomanry at Diss (Norfolk). B.S.A., Campion, Douglas, Matchless and Humber motor cycles are used.

Two or Three Speeds?

As far as the gear is concerned, I think a two-speed counter-shaft gear box with sliding dog clutches the most suitable by reason of its light weight and the fact that it is more likely to stand rough handling, and, although, of course, a three-speed gear possesses advantages, I do not think the extra weight and complication are worth while if a low top gear is fitted, and a good reliable (plate) clutch that will stand almost continuous slipping. Finally a neat and reliable kick starter is a great asset.

I can think of nothing better than the detachable wheels now on the market, and consider them splendid fitments. The spokes should be of stronger gauge than standard, and as to tyres and rims, I strongly recommend a three-inch tyre for the tremendously hard work called for. It should not be necessary to touch the brakes to take out either wheel. They should be efficient, simple, and should possess large braking surface. I am not in favour of wires for working them if these can be avoided, as they are hard to replace in case of breakage. An efficient silencer which is well clear of the ground, and a quiet and protected valve gear are desirable.

The Country Traversed.

Some may think my points far fetched, but I can assure them that to be of any real use the machine must be carefully and thoughtfully designed for the extraordinary conditions it has to encounter. The motor cycle is quite capable of doing the most wonderful work, even though it has to be driven perhaps by several different drivers in a reckless manner, and over terrible surfaces, when every minute counts. We ourselves in one instance drove across ploughed fields, when our machines dropped in the mud up to their axles with the wheels still revolving, and yet the machines stood it, although they would have done much better had they been fitted differently; while upon two separate occasions they were left to the full blast of a thunderstorm all night long.

Points to be Observed.

Summing things up, the essential points are:

High ground clearance.

Ability to resist all weather conditions.

Absolute reliability, and ability to cover the longest distances with the minimum attention possible; consequently the ultra-efficient engine is unsuited.

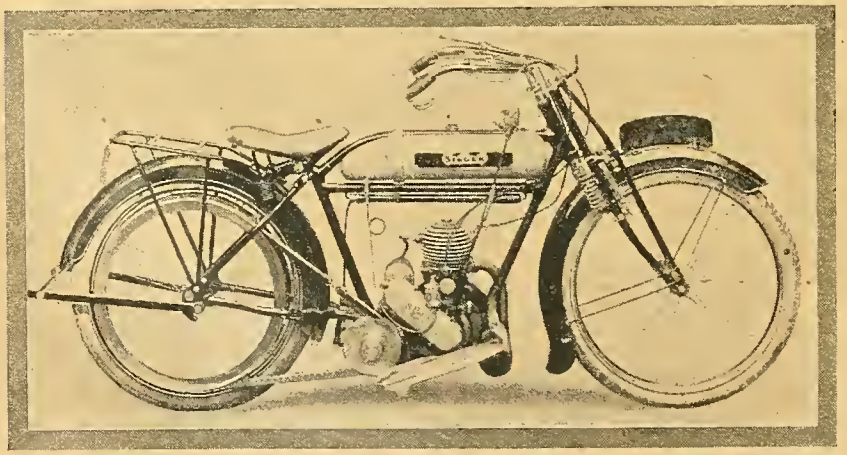
Simplicity of construction and control.

Perfect standardisation and standard threads.

Some Suggestions.

An excellent thing would be to be able to change complete power units, including gear box, in a few minutes, as should a machine have to be abandoned very often room may be found on a lorry for the unit, whereas the machine may be too bulky, and also, in case of damage to frame, etc., it would be easier to fit a new unit quickly. Bowden wiring, simple and easily detachable with interchangeable cables; low compression; carburetter to be kept as warm as possible, so as to be able to run on the crudest fuels; large petrol filter, and the filler caps *non*-detachable; nail-catchers fitted; good clearance mudguards and strong *stays;* small undershield protector; proper fittings for carrying spare tyres and tubes; tool-bag on top tube, and map case fitted on top of that—are all important details, and an all-black machine is essential. Before going to the front, we had to black all the bright parts to minimise the risk of detection by searchlights.

In conclusion, I may say that it is most desirable that the machine should be of a slow and sure type, as absolute reliability is essential, but high speed is not so necessary



ANOTHER ADDITION TO THE LONG LIST OF TWO-STROKE MACHINES.
Belt side of the 2¾ h.p. Singer, showing position of carburetter, footboards, and lubrication.
A description, with illustrations, appeared in last week's issue of this journal, page 350.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose.

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continues to carry all before it. For example, at the Coventry and Warwickshire Open Hill Climb on August 29th, a 3½ h.p. Sunbeam made the fastest time in both 500 c.c. and 750 c.c. classes.

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That has been proved by riders everywhere, and the latest evidence is the selection by H.M. War Office of the

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4½ h.p. solo as a mount efficiently fulfilling all the exacting requirements of that department and capable of standing up to all demands which active service make upon it.
Note these items of its specification — 4½ h.p. Armstrong 3-speed Gear and Free Engine — Dunlop Tyres and Belt — Bosch Magneto — Senspray Carburetter — Quadrant Spring Forks — also the price, which is less by far than other Motor Cycles of renown.
And then — ask us for our latest folder.

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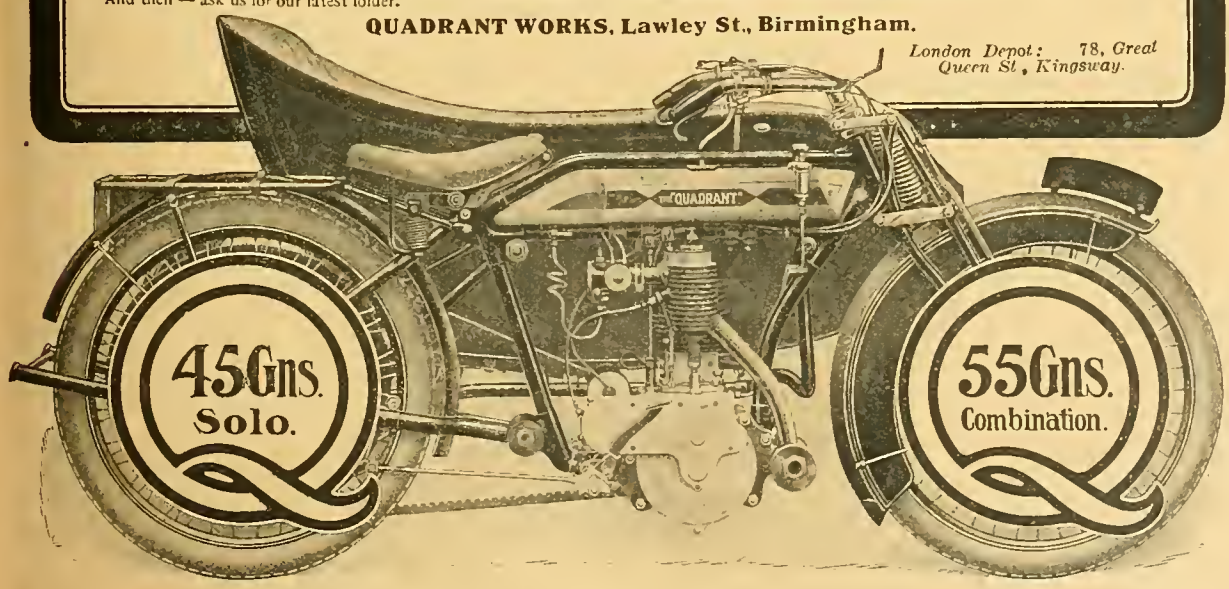

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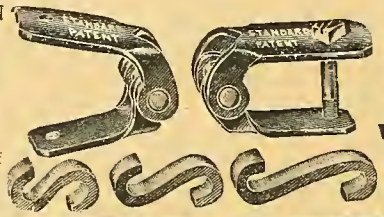

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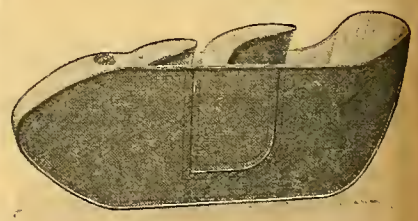

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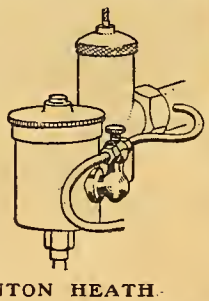
Send for interesting booklet; it will teach you something about carburetters, and you will soon add another to my splendid collection of TESTIMONIALS.

The Rex Motor Manufacturing Co., write ordering four BADCOCK'S BY-PASSES, fitted to B. & B. carburetters for "Daily Mail" delivery vehicles, same as Order No. 17175. When the best is wanted BADCOCK'S BY-PASS is fitted.

Speaking of carburetters with Pilot Jets, the EDITOR of "The Motor Cycle" says "Such carburetter practically conforms with our IDEALS," etc., etc. "IXION" in "The Motor Cycle" says of BADCOCK'S BY-PASS, "evidently the job of a practical rider," "functions well," "well worth the money," etc.



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A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

R.A.C. Horse Power Formula.

Can you tell me how the R.A.C. rating of an engine is obtained? Is the power of a motor cycle engine found in the same way as that of a car engine?—F.D.S.

The R.A.C. formula is not much use for motor cycle engines. It is the same formula for both motor cycles and cars, and is as follows:

$$\frac{D^2 \times N}{2.5} \text{ or } \frac{D^2 \times N}{1613}$$

D^2 = diameter of cylinder squared.
N = number of cylinders.
2.5 = constant when diameter is in inches.
1613 = constant when diameter is in millimetres.

Sidmouth to Northwood.

Can you give me assistance in planning out the best route from Sidmouth (Devon) to Northwood (Middlesex), and from Northwood to New Cross and Clapham Common, from which point I wish to return to Sidmouth?—J.L.

From Sidmouth, go through Honiton, Chard, Crewkerne, Yeovil, Shaftesbury, Wilton, Salisbury, Andover, Whitchurch, Basingstoke, Bagshot, Staines. After crossing the river, go straight on through Colnbrook, follow the signposts to West Drayton and Uxbridge, and at the latter place ask your way to Northwood, which is comparatively easily found. For the route from Northwood to New Cross and Clapham Common, see the R.A.C. Official Map of Recommended Routes Around London, obtainable from these offices, price 1s. 8d. post free. From Northwood to New Cross is a tiresome journey, but as there is not very much traffic in London at the present time it should not be so difficult as ordinarily. The best way to proceed would be to get into London through Pinner, Wembley, Willesden, Harrow Road, Edgware Road, Park Lane, Grosvenor Place, Vauxhall Bridge Road, Kennington Oval, Camberwell New Road, New Cross. To return, your best way would be to go down New Cross Road, Camberwell Green, Acre Lane, Clapham Common, Wandsworth, Upper Richmond Road, Mortlake, Richmond, Twickenham, Sunbury, Staines, and back to Sidmouth by the route previously given through Basingstoke and Salisbury.

Condensation on Inlet Pipe.

I have a $2\frac{3}{4}$ h.p. motor cycle of this year's make. I find that there is always a damp deposit on the top of the induction pipe where it joins the carburetter when the machine is running. I suspected a leak at first, and had a new washer fixed between carburetter and induction pipe, but with no result. What do you think is the cause of the dampness?—J.B.

The trouble of which you complain is due to condensation through the extreme cold of the inlet pipe, caused by the vaporisation of the petrol. It may be cured by taking steps to see that the carburetter is adequately warmed, either by the exhaust or by fitting a funnel through the intake close up against the cylinder. If this is done a marked improvement in the running will be the result. Such a funnel can probably be obtained from the manufacturers of the machine.

A Question of Balance.

With my engine ($3\frac{1}{2}$ h.p.) warm, plug, etc., removed to relieve compression, and the belt removed, I find that if I place the piston on the firing stroke it will fall to the bottom of the stroke. Does not this point to the piston being too heavy? Would you advise a little drilling to make lighter, or increase the counter-balance? If the latter, how? I mention the firing stroke to show there can be no question of valve spring pressure. Would too heavy a piston cause early knocking on hills, as the compression and bearings are excellent?—BALANCE.

You cannot judge your balance by the method indicated, and if the engine is sufficiently free the piston should drop to the bottom of the stroke, as the total weight of the reciprocating parts is never completely balanced. As a general rule, in single-cylinder engines the rotating parts and half the reciprocating parts are balanced. This would leave at least half the weight of the piston to cause it to drop to the bottom. A heavy piston is not likely to be responsible for the knocking on hills, unless the weight is very much in excess of what it should be. From what you tell us, we should imagine the compression is slightly too high. A thin plate under the cylinder would probably cure this. Try benzole to cure the knocking.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance, should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

Valve System Conversion.

Is it possible to convert automatic inlet valves, as fitted to a Peugeot engine, into mechanical valves? If so, what is the best procedure, and the approximate cost?—N.E.

We should not think it would be at all advisable to convert the automatic inlet valve on your machine to a mechanical one. The difficulty would be in designing the new timing gear, which would be an expensive matter, and, in our opinion, not worth while carrying out. We imagine from your remarks that you are not satisfied with the automatic valve. As a matter of fact, excellent results can be obtained from this type of valve with a little experiment with valve springs. See hints in "Motor Cycles and How to Manage Them."

Machine Runs Too Fast.

I have a $3\frac{1}{2}$ h.p. horizontally opposed twin with Amac carburetter, and 26 jet. I should be glad if you will kindly tell me by what methods I can reduce the speed of the machine? It is a new machine, and runs too fast for me, for on a little more than a quarter throttle the speed is 30 to 35 m.p.h. Would the 24 jet slow the machine and fire and start correctly, and would a decompressor give slower running?—T.P.

You could reduce the speed of the engine quite well by using a smaller jet. This will also allow you to lower your petrol consumption considerably. Starting should not be affected. We do not think it will be necessary for you to fit a decompressor for slow running, as in the majority of cases, especially where mixture is allowed to escape into the atmosphere, the fuel consumption is raised unnecessarily. It should be easy to be able to throttle down a twin of this type to run slowly, as the engine balance is almost perfect.

Difficulty in Starting.

Can you tell me why the following symptoms invariably occur when starting up my motor cycle, which is fitted with a kick starter on the counter-shaft gear? Whenever I start the machine it always seems to fire back with such violence that the kick starter flings my foot off it, and sometimes strikes me on the leg. The lever flies back with tremendous force. I invariably inject a small amount of petrol, and open the throttle about one-third. Sometimes I use a decompressor. Also, can you tell me why, when starting, one loud explosion frequently occurs?—F.M.B.

From what you say we should imagine that the trouble is simply due to the ignition being advanced too far. Try starting with the spark more retarded, and if this proves difficult check the ignition timing to see that it is correct. It should be adjusted so that the points of the magneto are just breaking when the piston has reached the top of the stroke and the spark is retarded. The explosion you speak of at starting is probably caused by an unexploded charge being drawn into the silencer and fired by the next exploded charge.

Rain on Goggles and Glasses.

I have lately taken to a motor cycle in my calling as a commercial traveller, but, owing to the fact that I have to wear glasses, have been greatly worried by the rain settling on them and confusing my outlook. As winter comes on this will be worse, but I have heard that there is a material with which you can polish the lenses so that rain will not lodge on them. Can you let me know what this material is and where it can be purchased?—K.S.

We can fully sympathise with you in this difficulty, as we know it can be very troublesome. At places like Dunhill's and Gamage's you can buy a pencil to rub over the glasses, or a simple plan is to rub the finger over the glasses as soon as they get wet. This will prevent any drops forming and enable you to see much better. Another alternative is to wear goggles and to do the same thing with these. There is a preparation known as Glasso which is also effective up to a certain point, but, broadly speaking, it is always difficult to ride in heavy rain when wearing glasses. A very little thin vaseline rubbed over the glasses is also said to have a beneficial effect.

Increasing Cylinder Bore.

I am writing to ask if you would give me advice regarding the renewal of a cylinder. I have an 87 × 87 mm. single-cylinder machine, the cylinder of which was some time ago bored to 89 mm. It is now showing wear and need for reboring or renewal. I think it would hardly stand the former, but what I want to know is this. Would an 89 × 89 mm. cylinder be suitable, or would the extra 2 mm. clearance at piston head give too low a compression? My 87×87 mm. had a too high compression and knocked on hills, but after turning some of the metal off the underside of the exhaust valve cap I obtained a good flexible engine with apparently no loss of power.—A.E.N. (Durban, Natal).

We should not advise reboring the cylinder a second time In all probability the 89×89 mm. cylinder would be quite satisfactory because the compression would be somewhat lower, but probably you would have an increase in petrol consumption. If compression were found to be too low you could probably fix a plate on your valve caps or obtain new and deeper caps. This is better than putting a plate on the piston head. If you attempt to fix these plates on the valve caps make sure that the valve head does not throw up to a sufficient degree to foul the caps. We should be inclined to advise you to consult the makers before carrying out the experiment.

To Cure Sluggish Running.

I have an 8 h.p. twin with sidecar to which I have fitted a Roc two-speed gear. The machine has been running splendidly for a long time, but now it seems to me to lose power on approaching hills, and when running on the level road it does not pull as it ought to, but the engine races a lot. Could you give me advice as to what ought to be done to remedy it? Both low and high gear seem to be all tight and firm, and the gears change properly.—W.S.C.

The trouble seems to be in the engine requiring a general overhaul. After running for some time the valves require grinding in, the strength of the valve springs requires testing, and if they appear to have become weak, stronger springs should be fitted. The carburettor should be taken down and cleaned, and particular care should be taken to have the inlet joints perfectly airtight. Also it is quite probable that the pistons are badly carbonised and require cleaning. Get a competent man to do it, if you do not care to do the work yourself, and when cleaning the pistons see that the rings have no carbon behind them, and that they are a good fit.

EXPERIENCES WANTED.

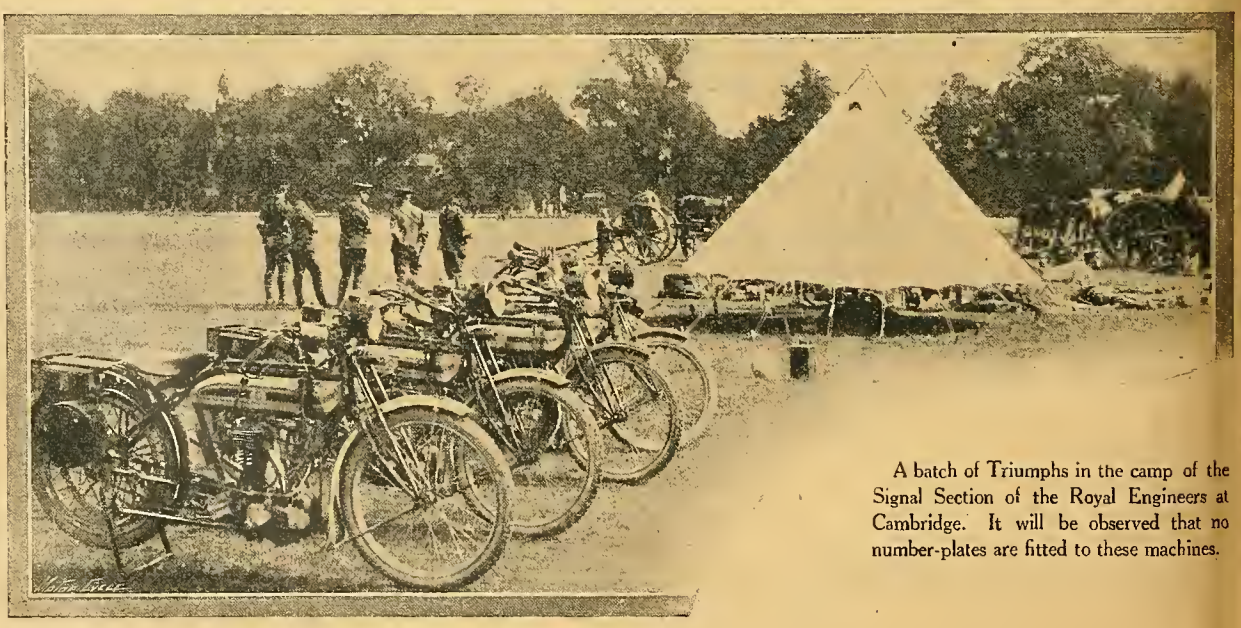
"T.W." (Bristol).—Efficiency of dissolved acetylene and dynamo lighting.

"P.N.S." (Broadway). — Reliability petrol, and oil consumption of 3½ Douglas Model B.

"A.G." (Cornwall). — 3½ h.p. twin James. Efficiency, consumption, average speed, and hill-climbing powers.

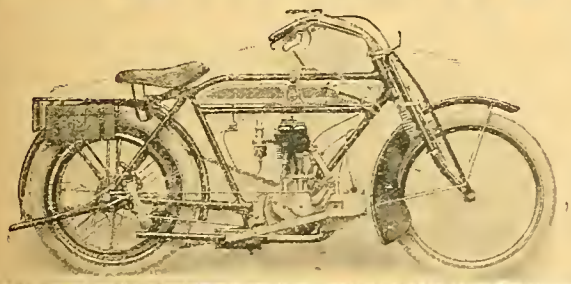
"G.H." (Southampton). — 2¾ h.p. A.J.S. and 2½ h.p. Calcott. Speed durability, and general behaviour.

"A.L.L." (Broseley).—Reliability and efficiency of Binks three-jet carburettor and the Wilkinson twelve-jet on a 3½ h.p. twin-cylinder engine.



A batch of Triumphs in the camp of the Signal Section of the Royal Engineers at Cambridge. It will be observed that no number-plates are fitted to these machines.

OVER-SEAS



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THE OVER-SEAS MOTOR CO., LTD.,
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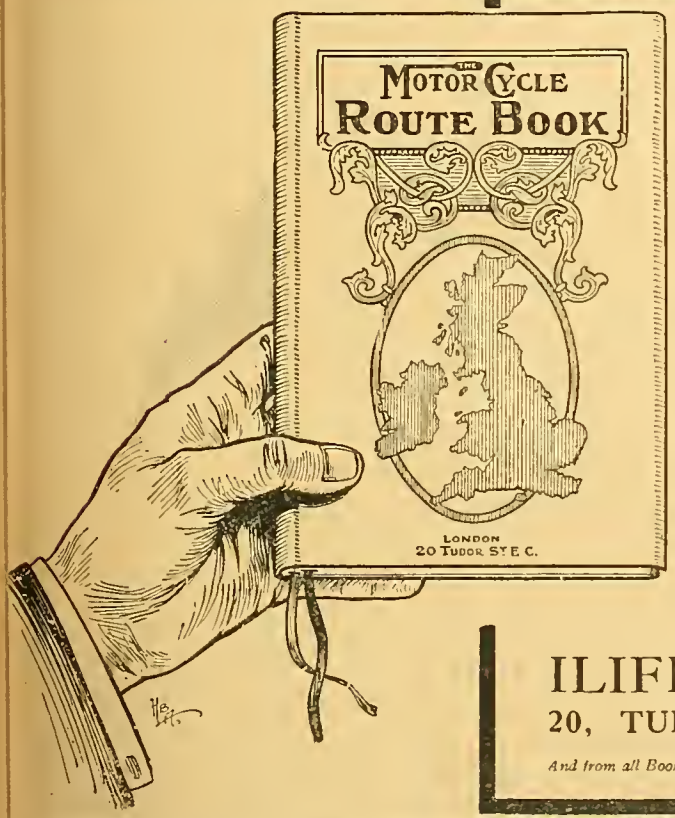

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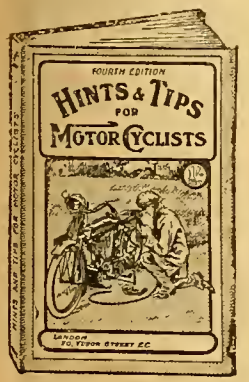

A Useful Little Pocket Companion.

¶ Every motor cyclist should make use of this book It is brimful of sound advice respecting the care, management, and repair of motor cycles. Every hint and tip is numbered, and reference is made very simple by a very exhaustive alphabetical index.

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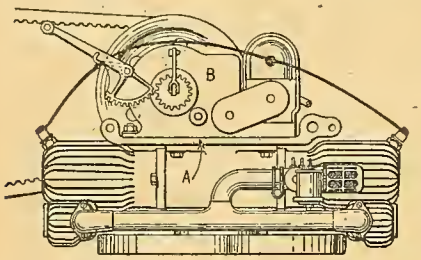
A Horizontal Engine.

This engine has twin horizontal cylinders arranged beneath a platform A, above which is mounted the gear box B and the magneto. The whole power unit is therefore attached to the platform A, and can be bodily fitted to the frame. The crankshaft is vertical, the flywheel lying beneath the cylinders, whilst the



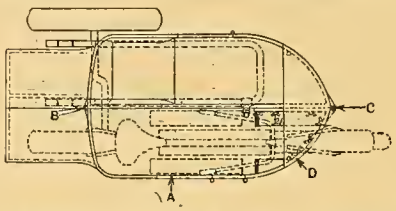
crankshaft projects upwards into the gear box, driving the horizontal gearshaft through a worm gear.—G. F. Rayner, No. 1,404, 1913.

A Novel Sidecar.

In this arrangement the sidecar body has attached to it a shield which embraces the centre of the motor cycle, and is shaped to conform with the sidecar body. The appearance obtained is, therefore, that of a wide sidecar body with two seats. The body is spring-suspended from the sidecar frame, and the shield A, which embraces the motor cycle, is

PATENTS by Eric W. Walford

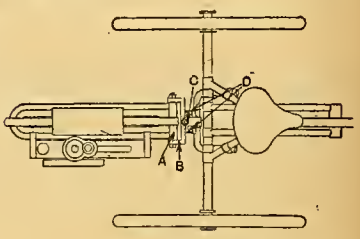
attached at B and C by hinges, the pins of which can be easily removed so as to provide access to the machine. The front portion D of the shield is separately



detachable, and a side door is provided to allow the rider free access to his seat. —N. Daniel, No. 12,221, 1913.

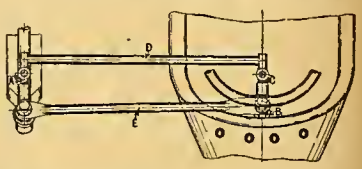
Auto-wheel Attachment.

For the attachment of an auto-wheel to the rear axle of a tricycle it is provided with a horizontal pivot pin A, carried by a fork B, which can swivel about the vertical pin C. It is important that the auto-wheel should always tend to come into a straight line immediately after turning, and to induce this, spiral springs are arranged at D and stops are provided to prevent the auto-wheel swivelling too much.—F. Hucklebridge, No. 29,345, 1913.



Sidecar Steering.

To enable a motor bicycle to be steered from the sidecar, the steering stem has attached to it an adjustable arm A, and a socket B is fixed to the front of the sidecar to accommodate the handle-bar. This is provided with an adjustable arm C, and the two arms are connected



together by a link D. A stiffening stay E is used to connect together the two steering heads. In this way a substantial steering gear is provided on the sidecar. —G. R. James, No. 9,827, 1913.

COMMENTS

Troops Billeted in Factory.

We hear from Mr. Norman Barrett that the U and I sidecar factory, King's Road, St. Albans, is being used for drilling troops, and that three hundred men are billeted in the factory itself. However, a certain portion of the factory is being kept open for repairs and for carrying on export business on hand.

Name for New Chemico Oil.

We hear from the County Chemical Co., Ltd., Bradford Street, Birmingham, that the competition which they inaugurated to find a suitable name for the new Chemico motor cycle oil has resulted in the first prize of ten pounds being awarded to Mr. F. Stafford, George Road, Erdington, who suggested the name "Coolie," and in future this lubricant will be known as "Coolie" motor cycle oil.

British Tyres for War.

Motor cyclists employed in military service should, of course, pay the greatest attention to tyres, and take care to utilise only those which are made by well-established British firms. The Avon Indiarubber Co., Ltd., is specialising in a cover of very sound construction suitable for motor cycles up to 8 h.p. This is known as the Sunstone tyre, and the tread is so constructed as to be favourable for all types of road surface. We should also like to mention that this firm employ over 1,000 hands, and they are doing their utmost to keep on their men during the present crisis. They also state that there is no need to fear shortage of materials used in making the tyres, and their deliveries in England are not affected in any way.

British Company's Generosity.

Over £350 per week is being paid by the British Petroleum Co., Ltd., to their employees who have joined the forces. These number two hundred and twenty men, and their places are being kept open for them till the end of the war. This is practical patriotism worthy of much praise.

Enfields for the Front.

The Belgian Government has just placed an order for fifty 3 h.p. Royal Enfield motor cycles, and the machines were despatched to the front at once. We believe that this is the first Government order in this country for V twin machines, and from what we know of the Enfield, from personal experience, we should say that the Belgian Government will have no reason to regret their choice.

Famous Chain Maker's Advice.

Mr. Hans Renold, addressing his workpeople and office staff the other day, said that there were two ways in which a man could be of service, one was to shoulder a rifle and take his place in the ranks, and the other was to keep the business of the country going and thus contribute to the support, not only of those who were fighting, but also of their dependents who were left behind. He urged every young man without ties and family responsibilities to volunteer immediately.

An All-British Tyre.

Messrs. Oylers, Ltd., are the manufacturers of the British-made Skew all-rubber non-skid tyre, the tread of which consists of staggered indentations on its outer edge, and also of the Skew square tread tyre, the pattern of which is more or less standard.

A Big Order.

Some idea as to the extensive use which is being made of the motor cycle in the present crisis may be gleaned from the fact that Messrs. Herwin, Canny and Co., of William Street, Woolwich, have just despatched 5,000 of their Simplex Improved belt fasteners to our army in France.

Tyres for Auto-wheels.

We hear from the Palmer Tyre Co., Ltd., that, although very busy with Government business, they are in a position to deal with all orders that may be received, whether cycle, motor cycle, light car, motor car, or their latest production—a new special tyre particularly adaptable for the Wall Auto-wheel.

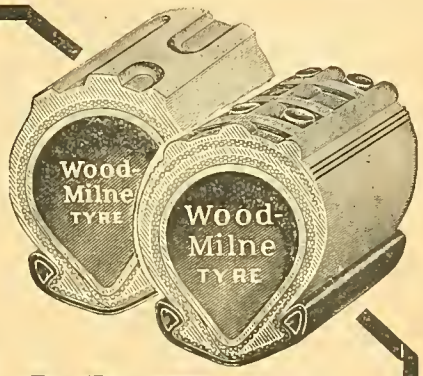
A Comprehensive List.

A remarkable price list has been issued by The Service Co., Ltd., High Holborn, W.C. It is a complete guide to every possible thing any motor cyclist, or even motorist, can require. The whole catalogue, which consists of over 300 pages, is admirably got up and profusely illustrated, and our advice to all motor cyclists and cycle car users is to get a copy at once, and then to avail themselves of the many excellent bargains contained therein. For overseas riders we can imagine nothing more useful.

All-British !

Duty and satisfaction coincide when you buy Wood-Milne Motor Cycle Tyres—duty in your support of British-made goods, satisfaction in having the strongest, fastest, and safest tyres in the market.

"Over 6,000 miles on back wheel," writes Mr. C. H. Watkins, Cardiff. "and the Wood-Milne Tyre is still good for another 1,000."



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No Advance in Prices. Write for list.

For perfect driving in all weathers fit the Wood-Milne Belt.

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The BRITISH MADE **Watford** Speedometers

The First MOTOR CYCLE SPEEDOMETER

to enter and pass an officially observed

AUTO CYCLE UNION 3,000 MILES TEST

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Dear Sirs,—You will be glad to hear I won the Special Gold Medal in the Exeter M.C.C.'s Trial, held from Exeter to Staines and back last Saturday. I used one of your "Trip" Speedometers, which was most accurate, both as to speed and mileage. The hand was perfectly steady at any speed; and ran with a stop watch perfectly. The milometer registered the miles to the 10th very accurately throughout the whole trip. I consider it an ideal instrument, and speak from a good deal of experience.

(Signed) J. E. D. MOYSEY.

Write for Catalogue to—**NICOLE, NIELSEN & CO., LTD.**, Inventors and Patentees of the Chronograph, 1862; Split Seconds, 1871, and Speedometer, 1904.

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Motor Cycle Speedometer and Watch.

Type 700 .. .. **£5 5 0**
Speedometer with trip and maximum speed hand.

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Speedometer with total and trip mileage counter.

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With Watch, **£1 - 1 - 0** extra.

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ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 1912, 2¾h.p., 2-speed counter-shaft, in perfect condition; £25.—29, Newtown Rd., Hereford. [X9801

A.J.S. 1914 Combination, fully equipped; £67.—Alfred Thornton, Kinnear Rd., Edinburgh. [X9983

6h.p. A.J.S., in stock, also 2¾h.p. 3 speeds, used demonstration purposes only, Lucas lamp, horn, etc.; £46.—Hilton and Son, Foxhall Sq., Blackpool. [X9929

A.J.S., 1914, 2¾h.p., excellent condition, Lucas head light, horn, spares, accessories, insurance policy; £35.—Wilkinson, 12, Oakfield Rd., Selly Park, Birmingham. [X9868

5h.p. 2-speed and F.E. and Kick Start A.J.S. Motor Cycle fitted with a superior torpedo shaped sidecar, includes speedometer, lamps, and horn; any severe trial given; £39 the combination.—Seen at Wauchope's, 9, Shoe Lane, Fleet St., London. [7195

1914 Special 6h.p. 3-speed A.J.S., and Millford Empress sidecar, special 750 c.c. engine (52 c.c. larger than standard), Senspray carburetter, T.T. handlebars, handle-bar magneto control, detachable and interchangeable wheels, horn, Lucas rear light and King of the Road head light, spares—1 valve complete, 1 new Avon combination cover, 2 tubes, 1 engine chain and extra links, 3 plugs, spare jets, 1 generator, machine specially built for fast work, new last May, only done 1,500 miles; cost over £100, price £85.—No. 6,686, *The Motor Cycle* Offices, Coventry. [X9922

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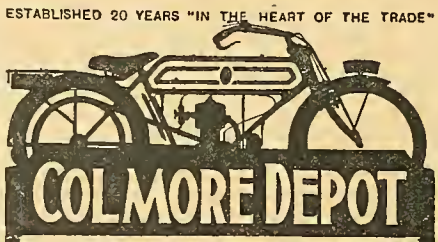

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THIS WAR

is not affecting the financial position of most of you; some will perhaps be worse off, on the other hand, some are even better off. We have confidence in British credit, and we are prepared now to arrange

Deferred Payments

with any customer who prefers that method of payment. We can supply any machine, either a new one or a second-hand, from our huge and varied overhauled stock, upon any reasonable proposed terms from, say,

£5 to £20 deposit

.. and ..

30/- to £5 monthly

We have new and second-hand of al makes. The following are

A Few Samples. There are 100 Others.

HUMBER, 2 h.p., overhauled; **£21**, or **£5** down and **25/-** monthly.
TRIUMPH, 3½ h.p., overhauled; **£29**, or **£7** down and **35/-** monthly.
SCOTT and Sidecar, fine condition; **£45**, or **£10** down and **55/-** monthly.
MORGAN Runabout, excellent; **£75**, or **£20** down and **£5** monthly.

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62, High Street, LEICESTER
31, Renshaw Street, LIVERPOOL
261, Deansgate, MANCHESTER

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 1912, 5h.p., with 2-seater Bowser sidecar, lamps, horn, speedometer, 3 spare tubes, etc., not run 1,500 miles since thoroughly overhauled by makers; £55.—Brooke, Temple Buildings, Swansea. [X9552

A.S.L.

1912 A.S.L., 3½h.p. Precision, mag., splendid goer; £16.—140, Dairy Rd., Edinburgh. [X9967

Ariel.

ARIEL, 1913, 3-speed model, kick starter, decompressor little used, capital order throughout; worth £40 easily, price £32/10, cash only.—Laytons, Bicester, Oxon. [X9941

ARIELS.—Immediate delivery; £86/10, or £22 down and 12 monthly instalments.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [7333

ARIEL, 3½h.p., 1913 model, 3-speed, Bosch, B. and B., Druids, etc., excellent condition; £35; take lightweight part.—A. Holland, Clarendon St., Coventry. [X9989

ARIEL, 1914, 3-speed, counter-shaft, with Phœnix £11/5 torpedo sidecar; £60, cost £76; not done 500 miles.—260, Coldharbour Lane, S.W. 'Phone: Brixton 2042. [0577

Auto-Wheels.

AUTO-WHEEL, nearly new; £10/10, cost £16/16.—Hilton and Son, Foxhall Sq., Blackpool. [X9930

1913 Auto-Wheel, new tyre, perfect condition; £11, or offer.—Stanley Mayers, Christleton, Chester. [7131

AUTO-WHEEL, 1914, scarcely ridden, and as new; trial; £12.—Box L6,158, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7293

AUTO-WHEEL, quite new, but slightly shop-soiled; £12/15, usual price £16/16.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6989

Bat.

BAT-J.A.P., 8h.p., 2-speed gear, speedometer, lamp, horn, engine equal to new; £30.—J. Martin, Harrowby Rd., Grantham. [7258

BAT-J.A.P. Combination, bought new 1914, chain, 2 speeds, kick start, faultless condition; £48.—Bleocathra, Highfield Rd., Walton-on-Thames. [X9927

BAT, 1914, 4½h.p., 2-speed model, perfect for sidecar or solo work, brand new, but slightly shop-soiled; catalogue price £57/10, cash price £50.—Laytons, Bicester, Oxon. [X9942

BAT Motor Cycle, 1912, 5-6h.p., with sidecar, dual ignition, free engine, spare tyre, all accessories, perfect running order, fast; approval, deposit; £40.—Goldsack, Guildhall St., Folkestone. [7175

Bradbury.

1913 Bradbury, 3-speed, Montgomery sidecar, new condition; £40.—Sims, Holbeach. [X9892

BRADBURY, 6h.p., 3 speeds, shop-soiled only; offers wanted.—Turpins' 22 and 29, Preston Rd., Brighton. [0510

BRADBURY, 1913¾, 4h.p., 3-speed, perfect, Harcourt radiators, tools, accessories; owner for service; £38.—Sergeant Howes, Lancer Depot, Woolwich. [7130

BRADBURY, 1911, complete with sidecar, just overhauled, in perfect order; £25 to clear, cash or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X9800

BRADBURY, 1912¾, 4h.p., 3-speed, free engine, in perfect order, just been overhauled and enamelled at makers, with coachbuilt sidecar; £42.—12, Rosebery St., Moss Side, Manchester. [X9627

BRADBURY, late 1912, 2-speed, chain drive, kick starter, £11/11 racing cane sidecar, 2 lamps, Klaxon, Stewart, mirror, and all accessories, good climber; accept £38/10.—Gifford, Overton, Hants. [7229

BRADBURY, 3½h.p., 1913, fitted with N.S.U. 2-speed gear, belt drive, kick starter, Godiva coachbuilt sidecar, in fine condition; £36/10, a bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6984

GENUINE Snip.—1914 4h.p. Bradbury, Sturmey-Archer 3-speed gear, heavy Dreadnought tyres, fitted with handsome lounge cane sidecar, underslung chassis, lamp set, horn, and tools complete, been very little used, and in quite new condition; accept £50.—Walbro Cycle Co., Saffron Walden, Essex. [X9856

Brough.

T.T. Brough, 500 c.c., horizontal twin, 1914, just fitted with latest engine August, absolutely perfect; £38/10.—W. S. Life, The Cliffe, Southport. [0575

BROUGHS.—Immediate delivery from stock of the 500 c.c. horizontal twin 2-speed overhead valve models.—The West Lancashire Motor Co., Southport. [0555

1913 6h.p. Brough, Armstrong 1914 gears, guaranteed perfect in every respect; £50, no reasonable offer refused; many spares.—Astley, Eaton Rd., Coventry. [X9940

MOTOR CYCLES FOR SALE.

J.E.S.

J.E.S. Motorcyclet, 1913, new tyres, fine condition; £13.—Auto Mart, 133, Hammersmith Rd., W. [7276

Kerry.

KERRY-ABINGDON, 1911, 3½h.p., new engine; sell £20, and push bicycle.—Thomas, 235, Victoria Rd., Wood Green. [7245

3h.p. Kerry, specially made for owner, light, low, fast, 4 months old; £34, or offer; B. Bros. sidecar, £3/10; money needed.—J. Fowler, 264, High St., Stratford, E. [7274

KERRY 5h.p. Twin, Chater-Lea frame, Bosch mag., B. and B., Whittle, Cowey, sidecar, tyres perfect, Mabon; photo; £20.—Bottle Stores, Acton Mews, Kingsland Rd., N.E. [7188

Lea-Francis.

LEA-FRANCIS, 1913¾, carefully used, excellent order, best accessories; bargain, £42.—Box L6,157, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7292

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [9448

Levis.

BABY Levis, nice running order, good throughout; seen any time; trial: £19/15.—502a, High Rd., Streatham. [X9953

1914 2¾h.p. T.T. Levis, new July, only run 600 miles, perfect condition; £35, all on.—John Aldrich and Co., Diss. [7280

LEVIS, 1914, 2¼h.p. (Baby model), used 1,500 miles, capital order, lamp, horn; £24, cash only.—Laytons', Bicester, Oxon. [X9948

LEVIS, 1914, 2¾h.p. De Luxe model, 2-speed gear, P. and H. lamp set, horn, not done 200 miles, guaranteed perfect; £34.—Below.

LEVIS, 1914, 2¼h.p., Baby model, shop-soiled; £28 cash to clear.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. 'Phone: 5548 Avenue. [0551

LEVIS, 2¼h.p., 1912, re-enamelled, overhauled, excellent machine, well tyred; £15/10, cash only.—Laytons', Bicester, Oxon. [X9949

1914 (September) 2¼h.p. Levis, 2-speed, free engine, never used, brand new; cost £47/10, accept £38/10.—King, Sunnyside, Staplesford, Cambs. [X9972

LEVIS, 1914, 2¼h.p., but slightly used, guaranteed perfect in every respect; £10 secures, and 12 payments of £2/5.—Colmore Depot, 31, Colmore Row, Birmingham. [X9794

Lincoln Elk.

ONE 3½h.p. Lincoln-Elk, 1912 model; £20 net.

ONE £14/14 Bramble Sidecar, shop-soiled only; £10/10 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0537

3½h.p. Lincoln-Elk, and sidecar; £28; guaranteed perfect late 1912 any trial.—Box L6,156, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7291

4¼h.p. Lincoln-Elk, 1913, 2-seat, sidecar, 2-speed gear, free engine, kick starter, fine condition; £35.—W. Yard, 3, Gelli Crescent, Risca, Newport, Mon. [X9893

Little Giant.

LITTLE Giant, 2h.p., 2-speed; 25 gns.—Longman Bros. and Aitken, 1, King St., Acton. Tel.: Chiswick 1578. [7217

Matchless.

MATCHLESS, 1913, 3½h.p., single, splendid condition; £28.—Chapman, Craigmore, Bexley Heath. [7133

1914 Matchless, 6h.p. J.A.P., T.T., 3-speed, perfect condition, fast; £45, bargain.—Smith, 14, Glebe Av., Enfield. [7138

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

1913 6h.p. Matchless, 8 speeds, free engine, kick starter, splendid condition; £45.—Doller, 29, Queen's Rd., Hersham, Surrey. [7243

8h.p. Matchless Combination, coachbuilt sidecar, 2-speed, twin belt, 3-gallon tank, lamps, speedometer, and spares; £55.—Knight, 5, Anglesea Rd., Woolwich. [7190

8h.p. Matchless, 1913, 2 speeds, chain drive, quantity of spares, with coachbuilt Millford sidecar, excellent order; £57/10.—1, Ventnor Cottage, Bulwer Rd., New Barnet. [X9934

MATCHLESS and Sidecar, 1913, 2-speed, kick start, 8h.p., storm apron, lamp, horn, complete, all in excellent condition; any trial to best offer over £38, bargain.—69, Greenside Rd., West Croydon. [7230

MATCHLESS, 8h.p., 1913 machine, 1914, latest sidecar, as new, 2-speed gear, chain drive, for £20 and 12 payments of £4, or write for cash price; bargain.—Colmore Depot, 31, Colmore Row, Birmingham. [X9795

MATCHLESS 6h.p. Combination, 2 speeds, V.S. gear, special roomy sidecar, 2 F.R.S. lamps and generators, horn, speedometer, clock, innumerable spares; trial by appointment; great bargain, £45.—78, James St., Oxford. [X9871

7-9h.p. Matchless Combination, 1914, M.A.G. engine, Watford speedometer, lamps, generators, tools, complete, spare tube, tyres perfect; seen any time; trial by appointment; 80 gns.; owner enlisted.—Wood, Gables, Crockenhill, Kent. [7172

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£11. 2-3 h.p. twin **MOTO-REVE,** magneto ignition, Druid spring forks, 26in. wheels, handle-bar control, fine order; **£11.**

£16. 3½ h.p. 1908 **REX,** M.O.V., Bosch, B. and B. carb., spring forks, 26in wheels, variable pulley; **£16.**

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£17. 3½ h.p. 1912 **RUOGE,** 1914 Senspray carb., nearly new belt, fine puller; **£17.**

£18. 3½ h.p. **PREMIER, Bowden 2-speed gear,** Bosch, B. and B., spring forks, 26in. wheels, fine goer; **£18.**

£19. 5 h.p. **VINDEC, 2 speeds,** kick starter, Bosch, spring forks, B. and B. carb., 26in. wheels; **£19.**

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£19. 3½ h.p. **TRIUMPH,** ball bearing engine, M.O.V., Bosch, B. and B. carb., spring forks, 26in. wheels, variable pulley; **£19.**

£19. 5 h.p. 1908 **REX** de Luxe, **2 speeds,** handle starting, Bosch, B. & B. carb., spring forks, 26in. wheels; **£19.**

£19. 5 h.p. 1908 **REX, 2 speeds,** kick starter, Bosch, Amac carb., spring forks, 26in. wheels; **£19.**

£25. 6 h.p. 1912 **REX** de Luxe, **2 speeds,** handle starting, Druids, 26in. wheels, very smart; **£25.**

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THE M. and M. 2-stroke, fully equipped, at £28, is England's best value in motor cycles, British all through.—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham, London. (D) [X9957

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3½h.p. Minerva, in good running order, £10; also good violin, £2.—Apply after 6 at 49, Chapel Rd., West Norwood, S.E. [7164

TWIN Minerva, 2-speed, free, counter-shaft, kick start, Bosch enclosed, B. and B., variable, 700×65, well shod Pillion seat, etc.; £18/10.—Butcher, Ironmonger, Waltham Cross, Herts. [7126

Moto-Reve.

£14 buys twin Moto-Reve, bought 1912, everything like new.—57, Rochester Rd., N.W. [7242

MOTO-REVE 2½h.p. Twin, good condition; £18, or nearest.—Sutton, Pillory St., Nantwich. [X9897

MOTO-REVE, 1911, 2¾h.p., free engine, adjustable pulley, Druid forks; £15.—Brook, 47, Church St., Rugeley. [X9890

MOTO-REVE, 2h.p., excellent condition, Bosch mag.; going cheap, £18.—Miss M. M. Ingram, The Priory, Wimbledon, London. [X9872

1912 Twin Moto-Reve, good tyres and belt, excellent condition; £15, or exchange good 3½h.p.—4, Broadway, Addiscombe, Croydon. [7159

Motosacoche.

£15.—2h.p. Motosacoche, fine condition; bargain.—Leadbetter, 3, Chapel Rd., Epping. [7184

1913 Motosacoche Lightweight, brand new machine; £25, cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0548

Neall.

NEALL 2-stroke Lightweight, 2½h.p., Hutchinsons, Saxon, U.H. mag., best of everything.—Neall Bros., Ltd., Daventry. [X9984

New Hudson.

NEW Hudson, 1912, 3½h.p., 3-speed, and clutch, splendid condition; £27.—Nevitt, Callow Land, Watford. [X9960

NEW Hudson, 2¾h.p. J.A.P. engine, 3-speed gear, 1912, free engine, excellent condition; absolute bargain; no reasonable offer refused.—Seen, Middleton's Garage, Strond Green Rd., London, N. [7176

NEW HUDSON 2-strokes in stock; £27/5, or £7 down and balance 12 monthly instalments; prompt delivery.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [7330

New Imperial.

NEW Imperial 2½h.p. J.A.P. Light Tourist Model, new July; £25.—Matthews, Pawnbroker, W. Croydon. [X9976

NEW Imperial J.A.P., June, 1914, 2½h.p., 2-speed, Druid forks, Bosch mag., Dunlop tyres and belt, Senspray carburetter, T.T. handle-bars, horn, tools, lamps; £26.—Winters Cottage, Byfleet, Surrey. [7189

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley 1745 Finchley. [0572

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N.S.U., 3h.p., mag., m.o.v., T.T. model; sacrifice £7.—45, Church Rd., Acton. [X9903

N.S.U., 3½h.p., 2 speeds, free engine, etc.; 12 gns.—66, Greyhound Lane, Streatham, S.W. [7269

1910 N.S.U., 2-speed, engine, tyres, etc., splendid; bargain, £14/10.—20, Chancer St., Leicester. [X9916

ONE 2h.p. N.S.U. Single-cyl. Lightweight, complete with 2-speed gear and free engine, 1913 model, shop-soiled; £30 net

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ONE 3½h.p. N.S.U. Single-cyl. Motor Cycle, complete with h.b.c. 2-speed gear and free engine, 1914 model, shop-soiled; £48 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0538

N.S.U. Twin, 4h.p., new tyre on back (very low, new 1913 frame); £17, or nearest, or would exchange for good lightweight.—Stanley Mayers, Christleton, Chester. [7132

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EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

O.K.

O.K. Junior, 2-speed, nearly new; £24, or exchange sidecar combination.—Deane, Butcher, 78, Whitehorse Rd., Croydon. [7194

P. and M.

P. and M., 1913, like new, £45; Canoelet sidecar, £10.—Ponzio, Whipp's Cross, N.E. [X9862

P. and M., 1911, 1913 torpedo sidecar, like new; £32.—T., 41, Ashford Rd., Cricklewood. [7262

1909 Phelon and Moore, 3½h.p., 2 speeds and free, engine, new tyre on back, in nice condition; £22.—Walbro Cycle Co., Saffron Walden, Essex. [X9858

PHELON and Moore, foot starter, new 2½in. tyres and chains, Montgomery family sidecar; buying P.M. twin; new condition.—Full particulars, 81, North End, Croydon. [7204

P. and M., 1908, 2-speed, and F.E., chain drive, engine recently overhauled by makers: any trial, £15/10; sidecar, 30/-; two lamps, horn, and tools.—393, Wakefield Rd., Bradford. (D) [X9979

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

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1914 2¼h.p. Premier, 3 speeds, clutch, not done 20 miles; £32/10.—12, Sohia Rd., Winchmore Hill, N. [7289

PREMIER, 1914, 2½h.p., new condition throughout, accessories; cost £40, accept £27; approval willingly.—Wright, Grimston, Norfolk. [7244

PREMIER (2) 1912 Models, 2 and 3-speed gears; £33 and £35, or on E.P. ¼ down and 12 payments.—Lamb's, 151. High St., Walthamstow. [7335

PREMIER, 1913, 3½h.p., 2-speed counter-shaft, sidecar, new Stelastic, splendid condition; £43.—Full particulars, 12, Mina Rd., Merton Park, S.W. [7286

PREMIER, 3½h.p., 3-speed gear, shop-soiled only, unridden; £15, and 12 payments of £3/10 secures. Compare our prices.—Colmore Depot, 31, Colmore Row, Birmingham. [X9792

PREMIER, 1914, 3½h.p., 3-speed counter-shaft, brand new, shop-soiled; £57/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

PREMIER, September, 1912, 3½h.p., with or without sidecar, Brampton gear and free engine, good as new, only ridden 1,000 miles; £30.—Baker, Southdown House, Hurstpierpoint. [7285

PREMIER, 3½h.p., 1911¾, 3-speed, engine recently thoroughly overhauled, new piston, rebushed, new tyres unpunctured, heavy Kempshall on back, new Service belt, lamp, mirror, horn; £27.—7, Staines Rd., Twickenham. [7143

Puch.

PUCH, 7-9h.p., 2-speed, F.E., mag., etc.; £14/10.—Longman, 1, King St., Acton. [7219

Quadrant.

3½h.p. Quadrant, splendid condition, fast, powerful, 26 wheels; sacrifice £9.—Prospect House, Augmering. [7165

3½h.p. Quadrant, modern, low, fast, mag., guaranteed running order; £10.—Reed, Henmead Hall, Cuckfield. [7197

3½h.p. Quadrant, perfect condition; £9; after 6 p.m., Saturday 2 p.m.—Napper, 336, East St., Old Kent Rd., S.E. [7192

3½h.p. Quadrant, tyres good, very low position, spring forks, etc., in good running order, complete with lamp, horn, etc.; quick sale £20.—Harrison, Perries Farm, Wennington. [X9836

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REGAL-GREEN, 4h.p., water-cooled, Sturmey 3-speed gear, complete with coachbuilt sidecar; cost £80, sell £47 turnout.—12, Bull Ring, Birmingham. [X9876

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1913 Rex, 6h.p., Bosch, etc.; approval; £24.—80, Bispham Rd., Southport. [X9900

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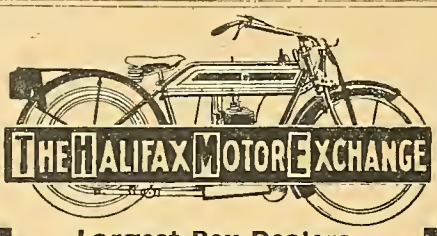
3½h.p. Rex, reliable, fast, £8; sidecar, £2; Darracq car, £30.—J. Heafield, Church St., Bloxwich. [7241

5h.p. Rex, twin-cyl., Bosch mag., excellent condition; £17.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0593

REX Sidette, 1914, 6h.p., 2 speeds, coach body, hardly soiled: £64.—Bastones, 228, Pentonville Rd., King's Cross, London, N. [6412



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1911 3½ **TRIUMPH**, speed gear and Sidecar	£33 10
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EXCELSIOR, 3½ h.p., 3-speed, and Sidecar	£24 10
NORTON, 4 h.p., 2-speed, and Sidecar	£19 10
REX, 1910, 2-speed Twin and Sidecar	£31 10
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N.S.U., 3½ h.p., 2 speeds, F.E.	£19 10
N.S.U., 3 h.p., 2-speed, F.E.	£16 10
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Rex.

3¼h.p. Rex, 2-speed, free engine, with sidecar; sell separate, or exchange lightweight.—Coe, 101, Mill Hill Rd., Acton. [7200

REX, 6h.p., 1912, sidecar, spare tyres, tubes, speedometer, etc., splendid condition; £38.—Cullum, 5, Forrest Rise, Walthamstow. [7136

REXES, brand new, 1912-1913, 2-speed twins; 15 to 30 per cent. off makers' prices.—Collier's Motories, Westgate, Halifax. [0445

REX Sidette, late 1913, 6h.p. twin, 2 speeds, Bosch mag., complete with Rex sidecar; sell bargain, £45.—Brown's, 12, Bull Ring, Birmingham. [X9875

REX, 1914, 6-8h.p., 3-speed, chain drive, countershaft model, with Rex coachbuilt sidecar, grand all-weather combination; £60; exchange considered.—A. Holland, Clarendon St., Coventry. [X9986

REX Sidette, 5-6h.p., 1912 model, bought new 1913, 2-speed gear, cane torpedo side entrance car, storm apron, large P. and H. lamp set, rear light, horn, and speedometer, complete, and in splendid order; £35 cash.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0491

Rex-Jap.

LATE 1913 Rex-Jap Combination; cost nearly £100, £50 cash.—11, Lesley Rd., Southport. [X9899

REX-J.A.P. 8h.p. 1914 Sidecar Combination, little used; cost £94/10, accept £69/10.—Collier's Motories, Westgate, Halifax. [0388

1913 6h.p. Rex-Jap and coachbuilt sidecar, all accessories, and spares, tyres as new; 50 gns., cash.—Paget, Blackwell, Bromsgrove. [X9990

REX-J.A.P. 1912 De Luxe Model, 8h.p., 2-speed, coachbuilt sidecar, in very good order; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

1914 3½h.p. Twin-cyl. Overhead Valve Rex-Jap, brand new; listed at £57/15, a bargain, £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0592

REX-J.A.P., 1913, 8h.p., De Luxe model, torpedo coachbuilt sidecar, overhanled and guaranteed perfect; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Roc.

ROC, 4h.p., m.o.v., mag., 2 speeds; sacrifice £13/10.—1, Ebner St., Wandsworth. [X9974

Rover.

ROVER, 1914, 3-speed model, new, slightly soiled; offers.—Eagles and Co., Acton. [X9961

ROVER, 1913, 3½h.p., 3 speeds, new condition; £35.—P. J. Evans, John Bright St., Birmingham. [7339

1913-14 Rover, 3 speeds, thoroughly overhauled, better than new; £45.—Oulsnam, Brassington, Wirksworth. [X9797

1911 Rover, free engine, in perfect condition; any trial; £26.—Williams, 6, Pittville Parade, Cheltenham. [7318

3½h.p. Rover, mag., B.B., h.b.c., excellent tyres, accessories, perfect running order; photo; £12, or offer.—London, Broadlands, Medstead. [7141

1913 Free Engine Rover, been carefully used, in quite new condition, complete with lamp set and horn; £33.—Walbro Cycle Co., Saffron Walden, Essex. [X9857

ROVER, 3½h.p., 1913-14, 3-speed, coachbuilt sidecar, every accessory, spares, perfect condition, ready to drive away; £47/10.—56, Grosvenor Rd., Highbury. [7145

FIRST P.O.O. £5/10 Secures 3h.p. standard Rover motor cycle, tyres as new, in perfect running order, a strong, sound lot, and a bargain.—Wallis, High St., Saffron Walden, Essex. [X9854

ROVER, 1913, 3½h.p., 3-speed, 1914 sidecar, Lucas horn, P. and H. lamp set, £3/3 speedometer, in splendid condition; £50 cash.—Toulson, Ashchurch Lodge, Ashchurch Terrace, Shepherd's Bush, W. [7180

1913 3-speed Armstrong Gear Rover Motor Bicycle, Dunlop cover front, 2½in. Hermatic cover back, Brooks B170 saddle, Dunlop belt, lamp, and horn, in absolutely perfect condition; £37.—Robinson's, Green St., Cambridge. [6864

Rudge.

RUDGE, 3½h.p., 1912-13, clutch model, new condition; £25.—1, King St., Acton. [7221

1912 Rudge Multi, free engine, all spares, splendid condition; £35.—Newton, Langham Hotel, Hastings. [7248

RUDGE, 1912 model, 3½h.p., fine order, guaranteed; £23, offers.—Speechley, 45, Church Rd., Acton. [X9904

RUDGE Multi, 3½h.p., 1913, run 2,720 miles, lamp, speedometer, horn, perfect; £35.—Vinson, Monkton, near Ramsgate. [X9850

1912 F.E. Rudge, everything in good condition, usual accessories, red tank; £24, nearest offer.—Astley, Eaton Rd., Coventry. [X9939

RUDGE Multi, 1914, sidecar, perfect condition, fast, all accessories, new tyre; £45; would separate.—Smith, Park Parade Garage, Palmer's Green. [X9841

3½h.p. Rudge Multi, 1914, wicker sidecar, speedometer, lamps, horn, waterproofs, tyres unpunctured, done 1,600 miles; £50.—Dr. Phillips, 14, Hanover Sq., W. [7272

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GLORIA Spring Wheel Art Cane Sidecar; cost £24, splendid condition; £8/8.—Gilley, Moorlands, Torquay. [7231

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PREMIER 7h.p. Motorette, 3-wheeler, hood, screen, all lamps, complete, scarcely used, condition as new.—Smith, 15-23, Farringdon Rd., E.C. [7161

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0527

4 h.p. Stevens 3-wheeled Runabout, 2 speeds, handle starting, good running order, engine perfect; bargain, £12, near offer.—Benny, Berry, Tower House, Bodmin. [X9912

HALIFAX.—1914 Lagondas, £145-£150; G.W.K., £150; Victor, £115; Calthorpe Minor, £168; all new; exchanges taken.—Collier's Motories, Westgate, Halifax. [0483

G.W.K., 1914 latest De Luxe model, fitted with dickey seat, quite new, but slightly soiled; £138, usual price £163.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6985

CRESCENT Cycle Car, 1913, 6h.p. J.A.P., handsome 2-seat., perfect, hood, screen, done 2,000; bargain 65 gns.; wanted, modern bike.—Fairfield, 5, Belvoir St., Leicester. [X9873

1913 Imp 2-seated Cycle Car, very little used, complete, hood, screen, lamps, etc.; cost £98, what offers?—Beardwood, Portman House, East Sheen, S.W. 'Phone: Richmond 1179. [7301

6½ h.p. De Dion, rebuilt, low racy cycle car, properly done, Laystall, overhaul, mag., electric lights, hood, Stepney, spares; £45, a beauty; want 5-seat. Studis.—61, Denmark Hill, S.E. [X9848

8 h.p. Twin Cyclone Cycle Car, 3-wheeler, chain drive, 2 speeds, handle starting, good throughout, go anywhere, comfortable, reliable, safe; cost £140, sacrifice £35; bought larger car.—Thurlow, 8, Minehead Rd., Streatham Common. [X9952

6 h.p. Sociable, 2-seat., and dickey seat, 4 lamps, front wheel brakes, screen, speedometer, side leathers, tools, bought new October, 1912; cost over £120; in magnificent order; to clear £49/10.—Cordingley, Haslingden. Tel.: 2Y. [7302

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WANDSWORTH.—Sabella cycle car, 1912, 8h.p. J.A.P., Bosch, hood, good order; £38/10; exchanges.

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WANDSWORTH.—Sizaire sporting type 2-seater, 8 h.p., mag., newly painted; £28/10; easy payments.

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WANDSWORTH.—Leader taxi landaulet, 10-12h.p., 4 cyls., mag., runs well; £28/10; exchanges.

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SINGER Light Car, 10h.p., 1914, for immediate delivery; trade supplied.—Rey, 378, Euston Rd. [6612

1913 Ford Runabout, mileage 5,000, T.T. Douglas and cash, value £70.—3, Holmdene Av., Herne Hill. [7236

HUMBER 6h.p. Cycle Car, water-cooled, 6 tyres, Stepney, new bevel drive, wants body repaired; £9.—Jennings, Cricketers, Orpington, Kent. [X9882

PERRY, 1914, brand new, extra long chassis, and dickey seat; list £152, slightly shop-soiled; £130.—P. J. Evans, John Bright St., Birmingham. [7344

CALCOTT Light Car, 10.5h.p., quite new, but slightly shop-soiled; £162, usual price £185.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [6987

BABY 7h.p. Water-cooled 2-seat. Car, hood, screen, lamps, in beautiful order; bargain, £55, or £25 down and 6 instalments.—Lamb's, 151, High St., Walthamstow. [7336

6 h.p. Rover Car, 2-seat., in good reliable running order; any severe trial given; bargain at £25; suitable either for trade use or private; seen at Wauchope's Garage.—Apply 9, Shoe Lane, Fleet St., London. [X9834

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ABSOLUTELY New 5-6h.p. Blumfield Engine Set (less magneto); £11/11.—Farrar's Motories, Halifax. [X8389

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BASTONE'S.—New Rex, 1913, 6h.p. twin engine, with Bosch mag., £16/15; new Blumfield 3½h.p. single, less mag., £8/15.—228, Pentonville Rd., King's Cross, London, N. [6407

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1913	3½	**TRIUMPH,** clutch model	£37
1914	4	**TRIUMPH,** T.T. model	£38
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WE can offer you guaranteed rubber studded covers which have been proved to do 4,000 miles carrying passenger, 26in.×2in. 16/6 each, 2¼in. 18/6 each, postage 6d. extra.

15 Brand New Heavy Red Tubes, original price 8/6 each; 26in.×2in. and 2¼in., 5/11 each; postage 3d. extra.

HEAVY 3-ply Rubber Non-skid Covers, 26in.×2in. 19/6 each, 2¼in. 21/- each; postage 6d. extra.

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BASTONES.—Peter-Union make covers, 26×2 12/-, 26×2¼ 15/-, 26×2½ 17/6, 28×2 15/-.

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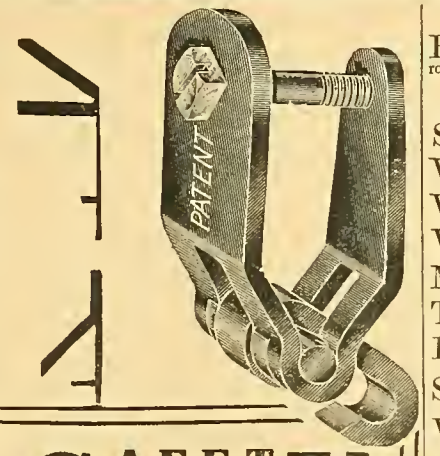

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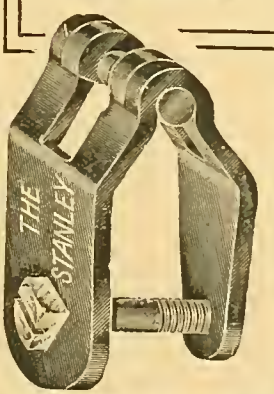

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WANTED, sidecar, semi-T.T. bars, cut out, for Rudge.—Marks, Cranleigh, Bromley, Kent. [7260

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WANTED, in exchange for 8h.p. twin light 2-seater, clutch model, Rudge or Triumph.—Particulars, 24, Macdonald Rd., Forest Gate, E. [6981

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SERVICE Reliable Repairs and Overhauls.—We will do your work at specially reduced prices during the war. Up-to-date and well equipped workshops, skilled mechanics.—1 and 2, Harpur Mews, Theobalds Rd., W.C. Offices 292, High Holborn. 'Phone: 260 Central. [7185

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

SIX HUNDRED AND FIRST CONSECUTIVE ISSUE.

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An index to advertisements will be found on the page facing the back cover.

War Office Motor Cycles.

THERE is still a good deal of misconception in some people's minds as to the War Office requirements in respect to the type of motor cycle—more especially engine—which is demanded for despatch work. The fact that the authorities have openly announced that single-cylinder machines of approximately 3½ h.p. are preferred, but that a certain number of horizontal twins will be accepted, seems to be negatived by the appearance in photographs published in our columns of V type twin-cylinder machines of varying horse-power, and, occasionally, sidecar outfits propelled by V twin engines; but we should explain, for the benefit of the uninitiated, that at the outbreak of hostilities those motor cyclists who volunteered as despatch riders with machines of their own were accepted, provided they were physically fit and their machines in good running order, no matter what their design. The same remarks apply generally to all cases of motor cyclists attached to the different regiments throughout the country. Where the Government preference for 3½ h.p. single-cylinder machines and horizontal twins comes in is when the War Office places an order direct with a manufacturer for a batch of motor cycles, such as has been done on several occasions this year. It should be added that in recruiting the Government has shown a wise preference for volunteers who possessed their own machines, for, after all, there is everything to be gained by having riders acquainted with the running of their own mounts and thus able to get the best out of them.

On the question of the War Office ruling concerning V type engines, we must confess that we see no reason why this type of twin-cylinder engine should be barred from Government work. There seems to be a deep-rooted idea that the V type engine has faults not common to other types of motor cycles, but if big-end troubles and lubrication difficulties did exist four or five years ago, it certainly cannot be said that these are outstanding objections nowadays. The V type twin would not be so popular as it is at the present time if it were possessed of any inherent defect, and on the score of reliability there is very little to choose between a single and a V twin, though naturally the balance weighs in favour of the mono-cylinder on account of the reduced number of working parts. Weight certainly is rather against the twin, but this cannot be the War Office objection, as there would be but a few pounds difference in weight of a twin and a single-cylinder of 3½ h.p., and no special preference has hitherto been shown for light machines.

A Good Rider the Main Thing.

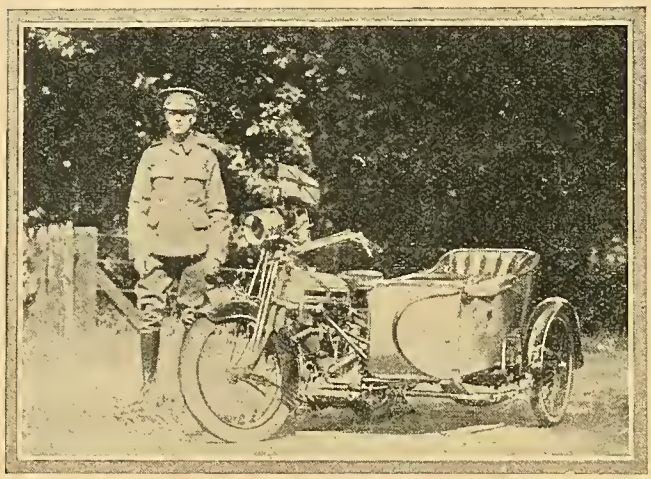
ONE feels a natural hesitation in criticising Government methods during the crisis, but a letter in the current issue, in which a well-known rider details how he has been called upon to assist three different despatch riders, seems to show that the selection of motor cyclists for such important work is not above criticism. It is one thing to select a good machine, but it is equally important to see that the rider mounted upon it is able to manage it skilfully, and, at any rate, effect ordinary running repairs. To us, the matter of careful selection of riders is far and away more important than barring twin-cylinder V type machines from the British Army. Indeed, we have not heard of a more inconsistent case than accepting a despatch rider and his V type engined motor cycle, just because he is the owner—and frequently not an expert owner at that—and yet refusing to recognise a similar type of machine when orders are being placed. Racing provides the severest test for engines, and in this department V twins have covered themselves with glory. As a matter of fact, we believe that the frame and wheels are more severely tested in military use than the engine itself. It will be seen that the Government's objection to V type engines is somewhat obscure.

SPORT AND THE CRISIS.

By ROAD RIDER.

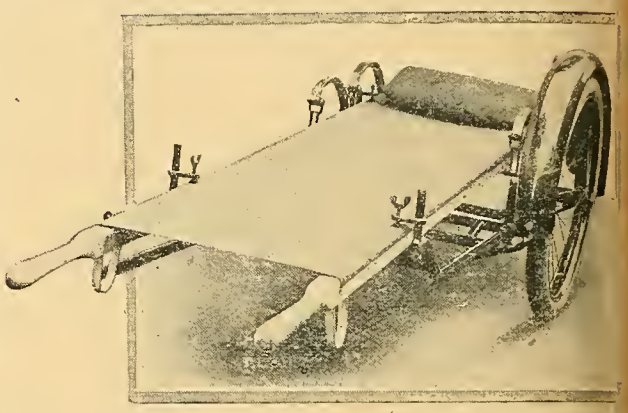
A TREMENDOUS lot of nonsense has been spoken, written, and printed anent the justification of playing games during the war. Surely it is perfectly obvious that a great many men, for a variety of reasons, cannot enlist; and that such men cannot serve their country in their peaceable professions unless they keep physically fit. To name but two professions, there are plenty of doctors and journalists who are more needed at home than abroad; the war has burdened many of them with double work, and they cannot do their work efficiently without exercise. They are therefore justified in playing golf, cricket, tennis, football—and in using their motor cycles and cycle cars for "pleasure." *It would be a national calamity if all sport were suspended.* This is my first point.

Secondly, the *outsider* cannot judge whether any chance-met individual should or should not offer himself for military training. Here is an example or two. One of my chief friends is young, sturdily-built,



Lance Corporal P. H. Blore (8 h.p. Rex sidette), one of the despatch riders attached to the East Anglian Divisional Royal Engineers who are expected to go abroad in the near future. The sidecar is also frequently used for transporting officers from one point to another.

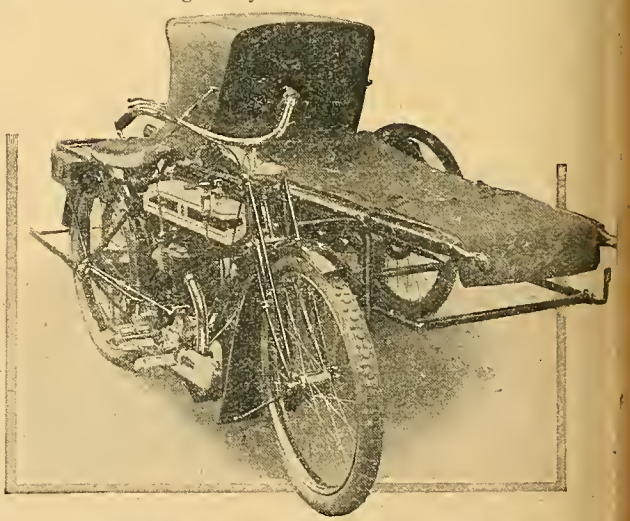
unmarried, and apparently robust. Only his intimates know that in a South American exploration he contracted an obscure intestinal trouble which absolutely disqualifies him for any violent exertion. He has had several humiliating and wholly undeserved encounters with rash and ignorant patriots; and their gibes are doubly pathetic when one knows that he is pining to be at the front, but has been told no doctor would dream of passing him. Or again; another friend of mine is an extremely hefty youth of magnificent physique, a good shot, a good horseman, and so forth. His father died last winter, leaving several helpless women totally dependent on the youngster, with a dwindling business as their sole means of support. The business is a one-man affair, and my friend has worked like a Trojan to restore it from the confusion it fell into during the father's illness. If he went to the front, the women would be penniless, the bottom would fall out of the business, and, if he ever returned,



Purcell's sidecar ambulance. It has been designed for attachment to a 7 h.p. four-cylinder F.N.

his *clientèle* would be gone—perhaps for ever, for is a middleman in a trade where the competition always furious, and more than ever furious just no

I am sure the "White Feather" brigades promenade *noisettes* and their trousered supporters doing quite as much harm as good. Moral suasi of the cowardly and indolent and selfish must left to the press and pulpit and Parliament, so as sweeping general condemnations are concerned; a faithful dealing with individuals should be left personal friends with an intimate knowledge circumstances. The present notion that every ab bodied man should enlist as a matter of course wou only be justifiable if the Allies were in grave stra and England were threatened with a most formidal invasion. Hysterical armchair panic-mongers are to forget that even under the most extreme systems conscriptions, many able-bodied youths are excus in the national interests; and that not everybody w looks able-bodied to a casual observer is necessar robust enough to join the colours.



The 1914 model Triumph motor cycle and Gloria ambulance sid stretcher—a feature of which is the spring wheel—presented by th Mayor of Coventry (Councillor S. Bettmann) to the city.

Those Valve Springs!

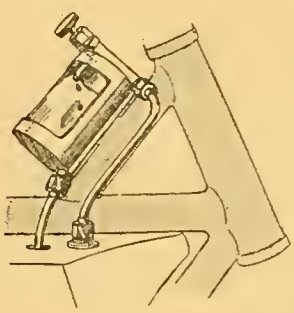
knew I was a bit of a veteran, but I can assure r Kennedy that I modestly disclaim the authorship e tip for tying up valve springs with string. It s old as the hills, and was probably the e of a very early maker. However, it otched at last, though Mr. Kennedy jokes h he pretends the string cannot be removed is woven through the coils. It may not be suffi- ly continuous to serve as braces in an emergency, you *can* get it out! Nobody but a noodle ever hed a piston ring with bits of tin, sensibly used, gh wire is better; personally, I always use three rs. Ixion's hairpins, for the inverted U prevents from tumbling out when the ring springs clear of roove. The use of a garden fork for removing he pulleys is a real novelty. I find that a pulley either swirl off when the engine is run with the nut removed, or else much strenuous work with ewclaw remover is inevitable. By the way, isn't d that garage mechanics usually refuse to employ spring removing tools, even when the manage- provide them gratis? I was in a repair shop tly, and saw five mechanics dismantling us engines. All of them used iron ingots as a, and long bars of ½in. square steel as levers, ng a pal to knock the valve down in its guide and the cotter out!

Drip-feed Lubrication.

am more sorry than surprised to hear that the e of even lubrication has received a few set- s, and that several factories are returning to the pump, and its inefficient methods of "lubricat- n spasms." The responsible designers admit the drip is superior to the pump, but assert that ideals are defeated by the crass stupidity of a entage of their customers, and that in their own ests they must adopt a system which makes the mum demand on the intelligence of riders. I there are crowds of fools about, but I am not g to lie down under this slur on the brainpans of nation and my fellow sportsmen. The dis- inting results of two years' experiments with feed lubrication are not wholly due to the public, ven to the over-numerous fools among the public. y are in no small measure ascribable to the poor n of the average drip-feed oiler, which is only a ine "sight-feed" in very rare instances. Too drip-feeds can only be deemed satisfactory they are operated by a very methodical rider, employs a milometer. You simply *cannot see* the at which the oil is flowing; and you are com- d to work on a system of letting the drip empty ump in every five, eight, or ten miles, according he capacity of the barrel. I have ridden many, y miles this season with a machine equipped with ss dome drip, and this is seldom a true "sight- " except when I am riding into the evening sun, and the low sunbeams shine towards me from behind the tumbling drops of oil. As a consequence, I have usually treated this alleged "sight-feed" as if its dome were opaque, and have simply emptied the pump every ten miles.

A Better Way.

I am coming to the conclusion that the gravity feed is grossly inferior to the crank case suction feed. A small speck of grit can choke a gravity feed, whereas the suction drip usually clears itself. The gravity feed continues when the machine is put away for the night, if there is still oil in the pump; the suction feed stops when the engine stops. The gravity feed supplies the same quantity of oil under all conditions, unless the rider corrects matters. The suction feed automatically adjusts its supply to all conditions except when a machine is slowly slogging uphill on full throttle; this latter condition seldom arises with a variable gear, and when it does arise, is easily corrected by the rider, to whose intelligence something must be entrusted. When a machine is left in garage, stupid loafers work the pump of the gravity feed, and force oil out through all the joints; no loafer can injure a suction feed. The sole defect of the suction feed is that it oils the engine when the machine is coasting long hills with the valve lifted, but there are no succession of steep hills in England long enough to make this a real nuisance, and men who ride in Scotland are usually fairly shrewd. A suction feed, with a cut-off tap, therefore strikes me as the best design.



True Visibility—a Suggestion.

Above all, the drip should be *a genuine sight-feed*. We have tried short vertical glass barrels, short horizontal glass barrels, stumpy little domes of small diameter, and the like. The size and angle of many of these glass containers render sight feeding impossible; in other cases, the glass insertion is so tiny that either vibration or capillary action soon smears the whole area of glass with a green film; and when the green film forms, the glass might just as well be stove-enamelled metal tubing for all the transparency it affords. My sketch offers a novel suggestion. Many modern frames include a short stiffening tube joining the horizontal top tube of the frame to the (practically) vertical steering head tube. This short tube comes at just the right distance from the rider's head, and its angle of forty-five degrees or thereabouts tilts it correctly for the best vision.

Occasional Comments.—

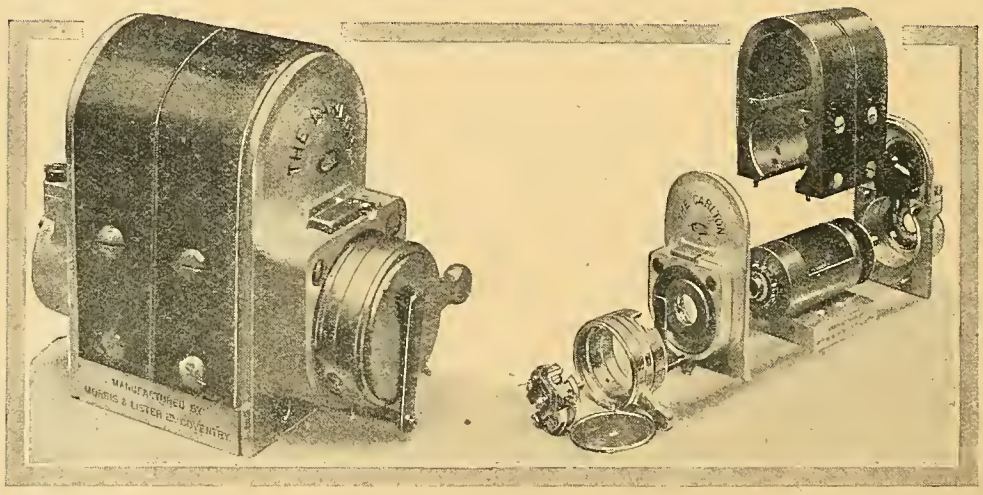
The glass drip tube should be mounted on this stiffening tube. If it is backed with glazed white material, and is made of such dimensions that neither vibration nor capillary action can stain its front arc, it should be easily and permanently transparent. The engine suction will vary the rate of speed to suit most riding circumstances, and the drip regulator will seldom need touching. There is no reason why the valve should be capable of shutting off the oil altogether; it can be so designed that at the minimum setting it will feed sufficient oil for legal limit riding; and a tap beneath it would enable the rider to stop the flow when coasting down a succession of steep hills.

The Lightweight in Traffic.

The future of the lightweight burns itself into the brain of any user who is faced with a lot of heavy traffic riding. Many years of speed work have inspired me with a natural distaste for small engines on the open road. I plead guilty to thorough enjoyment of 45 m.p.h. or more on a deserted and straight road where the surrounding scenery is dull or over-familiar; and in such circumstances I completely detest the sensation of a wee engine burbling over at 3,000 r.p.m. and the violent jars and dithers which an ordinary British highroad conveys to a physique which is becoming less sensitive with advancing years. I all open road work give me the heavy high-powe twin; I prefer 7 h.p. to 4½ h.p. and 250 lb. to 180 under such conditions. But put me in traffic and case is entirely altered. I admit that a skilled dri can thread Cheapside as surely, safely, and quic on a 7 h.p. as he can on a baby two-stroke scal 90 lb. or so. But the labour is much greater in case of the big machine; the wrists and balanc faculties are under a constant strain—so are the l when one's path ahead is blocked for a minute or t and the bulky machine must be propped; moreo the lever settings require much more care; the slig error in adjusting the throttle means that the sp will become excessive for the conditions, and the le exaggeration of an attempt to get quiet or slow runn may stop the engine, which is not designed 150 r.p.m. No, the lightweight is ineffably pleasa in such circumstances; it needs less curbing, it is ea balanced and propped, and a push from one foot st it after a stoppage. My stable usually houses sam of every type, and I have often noticed that I a matically select the baby of the family when I faced with the crossing of three or four big cities a long day's run, though the monster is unleas when it's a case of hey! for the West or North!

A NEW BRITISH MAGNETO.

The Carlton, the Second Instrument to be Produced in Coventry.



THE NEW CARLT ALL-BRITISH MAGN SHOWN COMPLET AND DISSECTED IT IS DESIGNED STANDARD LINE

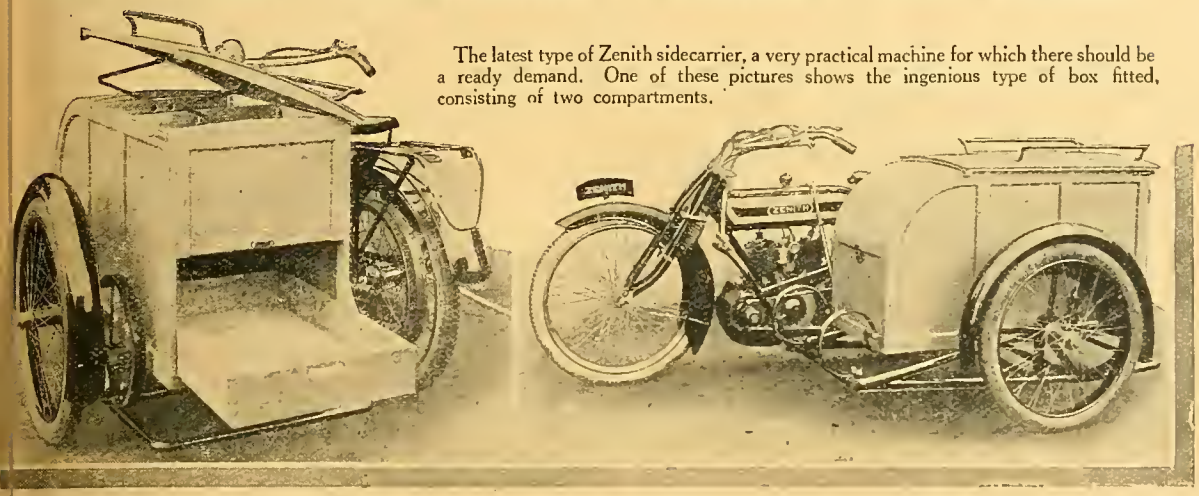
ENGLISH manufacturers have not been slow to realise the possibilities of a considerable trade in magnetos as an immediate result of the present war. Messrs. Morris and Lister, the well-known electrical engineers of Lockhurst Lane, Coventry, have completed the first of a large batch of magnetos suitable for single-cylinder engines. The instrument, which is to be known as the Carlton, is manufactured throughout by the firm and is designed on standard lines with two horseshoe magnets to the base of which the pole pieces are attached. The armature is laminated and of the H type, the winding being a fine piece of work. Both ends are mounted on ball bearings, and watertight aluminium end plates render the working parts immune from water and grit. The high-tension terminal also is waterti and the contact-breaker is of the usual bell cr type. Throughout the workmanship is excellent, the external appearance is neat and businesslike, as easily be perceived from the above illustration.

It is hoped that delivery in considerable quant will be made within six weeks, as the jigs machine tools are all in readiness and the works h been largely devoted to the rapid turning out of t machines.

Apparently the German magnetos, which h hitherto held such an all-conquering sway in British market, will soon be supplanted by so machines of home construction, as several British fi are tackling the problem.

PROGRESS OF THE SIDECARRIER.

Latest Specimens of Business Sidecars for Tradesmen's Delivery Purposes.



The latest type of Zenith sidecarrier, a very practical machine for which there should be a ready demand. One of these pictures shows the ingenious type of box fitted, consisting of two compartments.

THE WATSONIAN.

OLDING sidecars have hitherto been the main features of the products of Messrs. the Watsonian Folding Sidecar Co., Ltd., Conybeare Street, ringham, but now that firm is marketing an exceedingly neat and businesslike commercial sidecarrier. The body is of three-ply material, and opens both at the rear and the top, and is both light and roomy. Care has been taken efficiently to guard the sidecar wheel, and careful provision has been made to guard against side roll when under load.

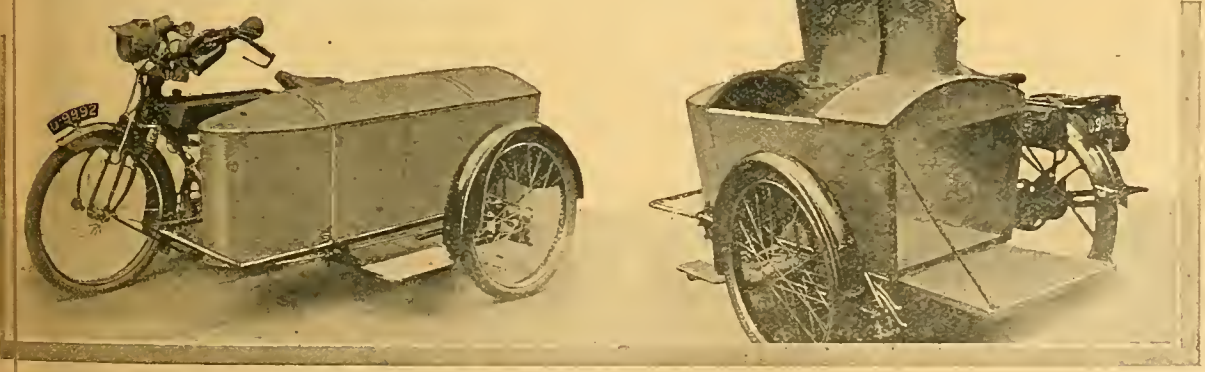
he Watsonian sidecarrier chassis showing method of springing.

THE SERVICE SIDECARRIER UNIT.

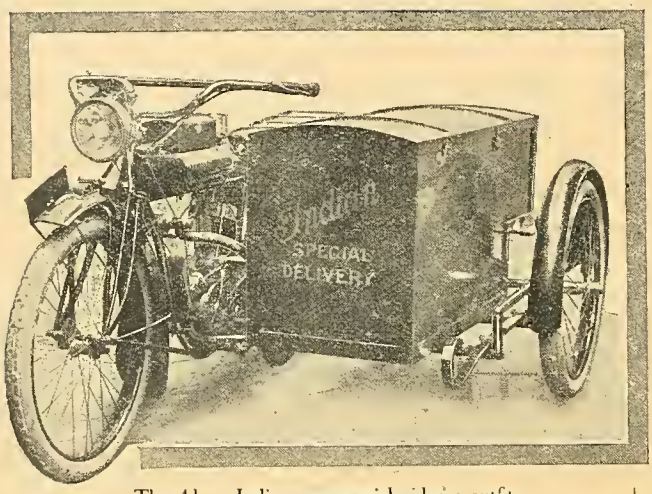
The Service Co., Ltd., 292, High Holborn, W.C., have, like many other firms, turned their attention to the production of a sidecarrier, but have specialised in a slightly unconventional form of attachment, which is moderate in price and light in weight. It will be seen from the accompanying picture that the box is of wicker and is unsprung. The chassis is the ordinary passenger type attached to the motor cycle at four points; while the basket may

The Service wicker sidecarrier attachment.

sidecarrier introduced by the Watsonian Folding Sidecar Co. to meet the demand created by the shortage of horses.



Progress of the Sidecarrier.—



The 4 h.p. Indian commercial sidecar outfit.

be removed and a body fitted in a few minutes. The sidecarrier is designed to appeal specially to the small tradesman, who can fix it to a good single-cylinder, second-hand two or three-speed machine, which may be purchased for about £30.

THE INDIAN.

It has persistently been advocated in this journal that manufacturers should devote their attention to the tradesman's sidecarrier, and it is not, therefore, surprising that so up-to-date a firm as the Hendee Mfg. Co. have seriously gone in for this type of attachment, for which there is likely to be a very brisk demand. The carrier is a very practical one, being divided into two portions, the front portion, which is dropped, being of large dimensions, while the back portion comprises a small locker with a separate door at the rear. The whole job is very well carried out. It possesses the advantage that it is absolutely interchangeable with the sidecar body, and therefore it should especially appeal to the tradesman who cares to use the machine occasionally for his own pleasure. The cost of the outfit with box body and standard sidecar chassis, and attached to a 4 h.p. two-speed Indian, is £75.

MOTOR CYCLE RACING IN ITALY.

WE learn that there are still some few competitions being held in Italy despite the unsettled state of that country owing to the possibility of intervention in the war. It is interesting to hear, too, that on all sides sympathy is expressed towards the Allies. On Sept. 13th the Sports Club of Milan held its annual motor cycle championship race over 100 kilometres, and it resulted in a triumph for English machines, five out of the first seven finishers being mounted on our products. The result was as follows: 1, Cavedini (Triumph), in 1h 27m. 20s. (equal to 43.7 m.p.h.); 2, Bracchi (Sunbeam); 3, Gambini (N.S U); 4, Scotti (N.U.T.); 5, Costa (Douglas); 6, Cavazzoni (Frera); and 7, Head (Forward).

On October 4th the Italian Track Championships will be held at Milan by the Moto Club d'Italia.

THE AUTO-SIDECAR.

THE Auto-Sidecar is designed to be attached to an ordinary gentleman's or lady's pedal cycle. The motive power is a small two-stroke engine mounted on the chassis of the sidecar in a triangular frame, the petrol tank being carried in the apex of the triangle. The drive is by chain to the counter-shaft situated behind the motor; on the end of this shaft a pulley is fixed, the final drive being by belt. The whole of the control is from the handle-bars. The carburetter is of the automatic one-lever type, and the lever and that working the release valve are the only two to be manipulated by the driver. The makers suggest that in the event of a breakdown the pedal cycle may be detached and ridden to the nearest garage. In the particulars given there is no mention of a change speed gear, but if such a fitment were incorporated in the design there is no doubt that a remarkably handy little mount would have been evolved. As it is the machine is suitable for a runabout in level country. The makers are the Auto-Sidecar Company, Perseverance House, Cut Town, London, E.

The Auto Sidecar, which consists of a motor-propelled sidecar attached to a pedal cycle.

Hints for Beginners.

FOURTH INSTALMENT.

ADJUSTMENTS.

Chains.

WHEN adjusting chains it is most important to turn the wheels round and test the adjustment at various points, as it is very seldom t the chain tension remains constant at all points. ving found the position in which the chain is i test, adjust till all slackness is removed, but the in is not really taut. A tight chain is certain to ak its rollers, and an unduly loose chain likely to the same thing, also a tight chain puts a great in upon frame and engine bearing.

Wheels and Head.

he wheels will not often require adjustment, but y should be tested fairly frequently and promptly usted when necessary, as a loose wheel wears its rings rapidly. When a wheel is correctly adjusted hould not be possible to feel any side play, but the ght of the valve should be sufficient to revolve the el when suspended. The adjustment should be ed after the lock nuts have been fixed, as these etimes have a tendency to tighten the bearings. e head should also be carefully adjusted in the e way.

Tappets.

f your machine has adjustable tappets, these uld be examined frequently as they are very liable hift unless screwed very firmly home, and incorrect ustment will affect the running of the engine very ersely and cause undue valve clatter, especially in case of overhead valves. Some allowance must made for the lengthening of the valve stems by t or the valves will not close properly when the ine has been running for a few minutes, and consequently the compression will be lost; "about the kness of a visiting card" is the usually prescribed wance. A smaller gap is required when the valves overhead, as the valve stems are shorter and the tappets are not seriously affected by heat. In case a just perceptible movement is sufficient. er any tappet adjustments it is advisable to test compression when the engine is hot; many engines very stiff when cold, and this may give a false idea good compression.

Testing the Compression.

his may be done by putting in the top gear and hing the machine slowly along the road, or by ing it on the stand and moving the back wheel hand; if the resistance of the compression is ht and quickly overcome by a steady pressure e is a leak somewhere, but before jumping to the clusion that it is due to valve leakage (unless it tested and found satisfactory before the adjustnts were made) it is as well to test all the cylinder ts, valve caps, sparking plugs, etc., by putting a e oil round the edges, when, if there is a leak at any of these points when turning the engine over against compression, it will soon be detected by means of the bubbles which will appear at the defective point. This is a very old tip, but it may not be generally known amongst novices, and, as a man often begins with a second-hand machine which may be much improved by a little tuning up, it is well worth knowing.

Removing Carbon.

A very effective wire brush for cleaning the head of the cylinder can be made from a piece of file card costing 1d. or 2d. This should be glued or tacked to a round piece of wood about 1in. in thickness and slightly smaller in diameter than the cylinder. A square iron rod or a screwdriver bit is driven into the back and it then can be used in a brace, but it is advisable to chip off the worst of the carbon first with a screwdriver or similar tool. This will quickly remove the small particles of carbon and impart as much polish as the roughness of the cylinder head will allow.

HOW MOTOR CYCLE DESPATCH RIDERS ARE ARMED.

Motor cycle despatch riders are armed with revolvers, and the illustration shows two of these riders loading up before setting forth on a hurried journey.

Vigilance on the East Coast. How Spies are Guarded Against.

OUR correspondent on the East Coast during mobilisation sends us the following interesting notes:

I was just preparing to take a rest after an arduous tour through Devonshire when the war broke out, and before I had time to look round I received a wire from *The Motor Cycle* instructing me to proceed to the East Coast and hunt up copy and photographs describing the war-like preparations for the defence of our shores. The war fever was in the air. Troops had been mobilised, the "Terriers" had been called up, motor cyclist messengers were rushing to and fro, military camps were springing up like mushrooms on vacant lands and commons, and it was known that on the East Coast in particular unceasing vigilance was being displayed to thwart any attempt at a hostile invasion. A journey along the seaboard of the South-Eastern Counties promised a full measure of exciting experiences. Let me say that having some inkling of what might be in store for me, I took the editor's letter of instructions with me as my credentials, and before leaving Doncaster I carried it to the chief constable and persuaded him to endorse it on the back. How the letter and the endorsement fared will be seen as the story progresses.

I selected Harwich as a starting point. Between Doncaster and Bury St. Edmunds nothing occurred out of the common. It was the afternoon of a beautiful day in the height of the harvest season. The countryside was flooded with golden sunshine, the noise of the reaper came to me from both sides of the road, and many a time I had to dodge heavy-footed horses as they slowly pulled the corn-laden wains from field to stackyard. The only signs of war were a few groups of Yeomanry here and there as I entered Huntingdon.

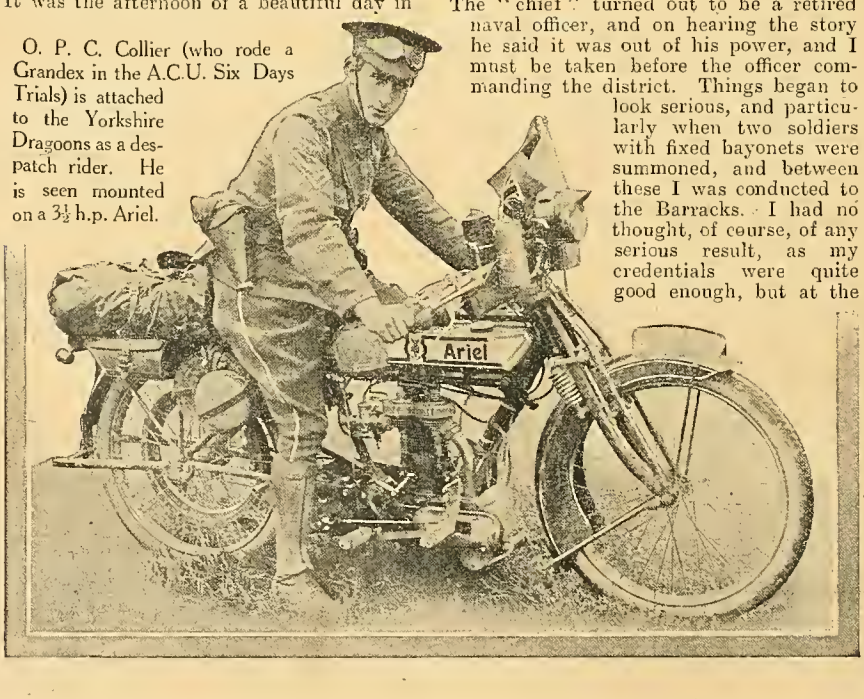
I Get Arrested.

The first real incident occurred at Ipswich. Just before reaching the town I passed numerous motor cyclist despatch riders, and I made a few enquiries from them as to what was happening. A little further on, as I was nearing Ipswich Barracks, I came across a Daimler motor lorry taking in supplies of butcher's meat. Here was likely material for a photograph, illustrating as it did the use of the motor in warfare; so I stopped and made a picture. I was putting away my camera when a man came up on a bicycle and accosted me. He proved to be an officer in *mufti*. He asked me whether I had permission to do this sort of thing and who I was doing it for. I showed him my papers, but he appeared unsatisfied, and in the end he asked me to accompany him to the Town Hall to see his chief. I asked him what I should do with my sidecar, and he answered, "Leave it there and I will send a man to look after it." The "chief" turned out to be a retired naval officer, and on hearing the story he said it was out of his power, and I must be taken before the officer commanding the district. Things began to look serious, and particularly when two soldiers with fixed bayonets were summoned, and between these I was conducted to the Barracks. I had no thought, of course, of any serious result, as my credentials were quite good enough, but at the same time I could hardly help feeling grateful that my captors were British officers and not Germans. To make a long story short, I was led into the presence of the officer commanding, my guards beside me, and my camera and plates under my arms. The officer asked me for my papers, and I produced them. He told me this was not the time to take photographs. To this I replied that my instructions were to take photographs showing the utility of the motor in time of war, and not to hamper or give away the disposition of troops in the least. He gave orders that my plates should be developed, and I was to be kept in custody until further instructions. So the procession was reformed and we returned to the Town Hall, where I had to turn out my pockets, to be searched for arms, and even to open a sealed envelope containing a supply of the new £1 notes I had taken for the expenses of my journey. The officers admitted these were the first samples of the new currency they had seen, and their examination was not minute. While I was in custody other officers came in and cross-examined me, and during this time somebody was telephoning to Doncaster enquiring into my *bona fides*.

By and by an officer came and said a reply had been received from the police at Doncaster, fully bearing out my statement, and I was to be allowed to go about my business. They were quite apologetic and very nice about it. They told me there were a great number of foreigners about, and naturally they had their orders to be on the alert. They had only exercised reasonable precaution, and I could hardly grumble. So on this I was set at liberty. I found afterwards that the telephone message to the Doncaster police, and the fact that the Ipswich officer was good enough to put a verification on the back of the edited original letter of instructions to me, stood me in good stead on subsequent stages of my journey.

Adventures at Lowestoft.

Naturally, I was not sorry to leave Ipswich. It had cost me a number of plates and two hours' unpleasant detention, and the open road seemed very attractive by comparison with the close in barrack and the armed guard. I struck out towards Yarmouth. Between Ipswich and Yarmouth I took a number of photographs which have already appeared in this journal. On this section officers in charge gave me all possible facilities. Later, I came upon the London Cyclists, a corps of motor cyclists, and after a pleasant time with them I arranged to join them next day at Lowestoft, where I was to spend the



O. P. C. Collier (who rode a Grandex in the A.C.U. Six Days Trials) is attached to the Yorkshire Dragoons as a despatch rider. He is seen mounted on a 3½ h.p. Ariel.

Military Motor Cycling Notes.—

night. It was at Lowestoft that I was again "held up."

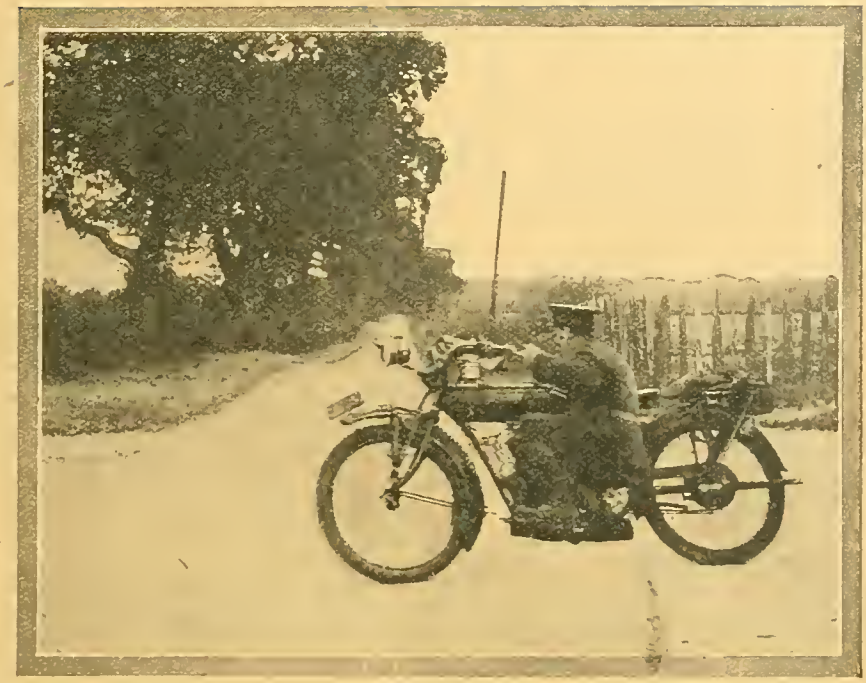
Early in the morning I heard a tremendous lot of cheering. I went out to investigate, and found that a number of trawlers were just leaving the harbour to go out and sweep the seas for German mines. Thinking there might be something in this worth taking I went on the pier, leaving my machine at the entrance. Nothing of interest transpired, and I came away a quarter of an hour after. Just as I was leaving the pier a plain clothes man and a police sergeant came up and asked me who I was, and, fortunately, I was able to satisfy them with a sight of my papers. All the same, they were leaving nothing to chance. When I reached the pier gate I found two policemen on guard over my machine. The sergeant informed them that all was right, and they left me in peace to depart. As a precaution I went back to the police office and got them to sign my pass—making another signature to the number. After that I had no more trouble of any sort, though I was frequently stopped and my papers examined. At one place I met Captain Trappman, of the London Cyclist Battalion; he knew me personally, and added his signature to the others.

A Souvenir of the Trip.

Subsequently I covered 300 miles up and down the East Coast and took a great number of photographs. Finally, I left Yarmouth one evening at five o'clock and made a night run to Doncaster. One thing I shall never part with—the editor's letter of instruction, now worn and crumpled, but valuable on account of the ten signatures and stamps behind it of the military and police with whom I came in contact.

THE EARLIEST ARMOURED MOTOR CYCLE.

In our leading article on motor cycle machine guns, which appeared in our issue of September 18th, reference was made to the vehicle used by Mr. F. R. Simms at the Richmond Automobile Show, held by the then Automobile Club of Great Britain and Ireland. By the courtesy of Mr. F. R. Simms, who was one of the founder members of the above-named body, now the Royal Automobile Club, and its first vice-chairman, we are enabled to reproduce a picture of the Beeston quadricycle upon which the Maxim gun was mounted. It was built by the Beeston Motor Cycle Co., of Coventry, to the specification of Mr. Simms, who was certainly the pioneer of the armoured motor vehicle, as in 1902 he constructed for Messrs. Vickers, Son and Maxim an armour-plated war car for coast and road defence and street fighting, and also an armour-plated motor railway inspection car for the same firm.



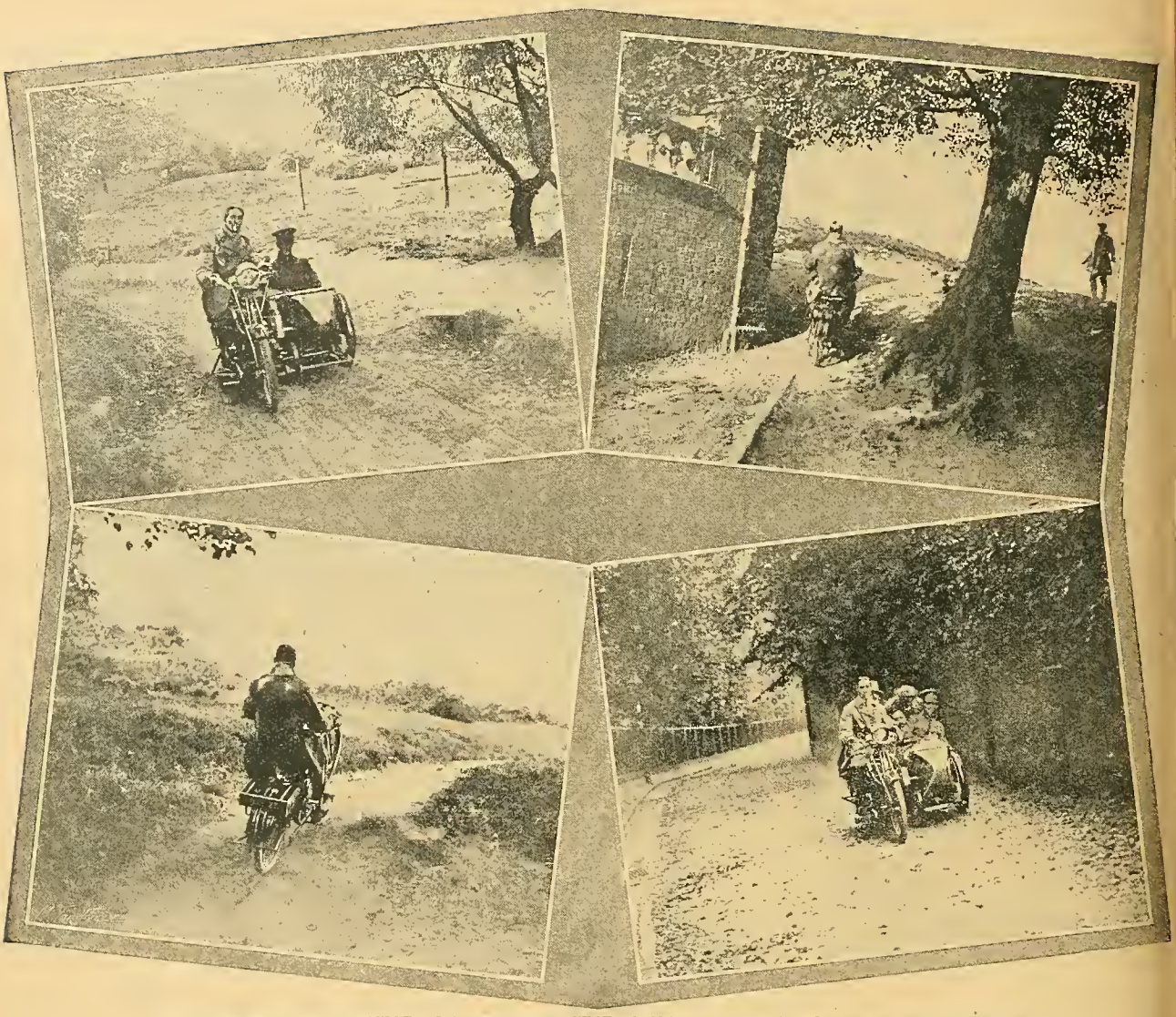
Corporal Taylor, who is attached to the West Riding Royal Engineers, crossing a right-angled road. If Corporal Taylor should by chance meet the enemy's patrols, his skill as a trick riding motor cyclist should stand him in good stead.

HUMBER WORKS BUSY ON MOTOR CYCLES.

The Humber Company's works are at full pressure executing a large order for standard pattern 3½ h.p. Humber motor cycles for the Russian Government. The tests which led to the order are described on another page of this issue, and quick delivery is a condition of the order.

The Humber machines have three-speed Sturmey-Archer hub gears, Dunlop tyres and belt, B. and B. carburetter, and Lycett saddle. All the Russian machines will be finished a khaki colour with the exception of a small batch which will be taken from stock.

The first motor cycle Maxim gun attached to a Beeston quadricycle, and demonstrated by Mr. F. R. Simms at the Richmond show in 1899.



TESTING BRITISH MOTOR CYCLES FOR THE RUSSIAN ARMY. (See article on opposite page.)

(1) The sandy-surfaced lane on Hampstead Heath.

(2) The portion of the course shown has a gradient of 1 in 2 for a yard or so. The machine depicted is a 3½ h.p. Premier.

(3) A test of crank-case clearance. In this case the Sunbeam excelled.

(4) Five up on Swain's Lane on a 7-9 h.p. twin Premier sidecar driven by J. Oliphant.

CLYNOS FOR THE WAR OFFICE.

We hear that the War Office Authorities have favoured the Clyno Engineering Co., Ltd., with a large order for sidecar outfits The excellent detachable and interchangeable wheels on the Clyno should render it particularly suitable for army use.

SENDING GOODS TO THE ARMY.

Messrs. Neale and Wilkinson, Ltd., shipping agents, of 32, St. Mary Axe, London, E.C., and 60, Hanover Street, Liverpool, undertake to forward, free of charge, and under certain conditions, parcels for the troops serving at the front. Particulars can be obtained from the firm.

COMPONENTS TO THE FRONT.

We are informed that 200 of the employees of Messrs. Components, Ltd., of Bournbrook, Birmingham, have joined the Colours, and provision is being made by the company for the wives and families of those who have gone to the front.

PREMIERS FOR RUSSIA.

The Premier Cycle Co., Ltd., Coventry, has received an order for several hundred Premier motor cycles from the Russian Government as the result of the tests illustrated above. The model chosen was the three-speed counter-shaft type, which has been so successful in the Trials this year. A smaller number of the big Premier twins has also been ordered.

DESPATCH RIDERS INVALUABLE.

A motor cycle despatch rider, writing to his father, a Hereford alderman, reports that he has had a very interesting but a very hard time. About three weeks ago he was chased for four miles by German Lancers. They were, of course, on horses, and he was on his machine, but the road was so bad that they nearly captured him. However, he got away.

An officer writing from the Front says that the motor cycle despatch riders have done splendid work. They are constantly under fire, and have had to run the gauntlet many a time.

In fact, from all sources, we continue to hear the most excellent reports of the services of these plucky riders.

TESTING BRITISH MOTOR CYCLES for the Russian Army

THE Russian Government has lately been occupied in buying a number of motor vehicles for the use of its army. Early last week one of the Russian military motor experts, Captain Mgebroff, asked for a number of machines of well-known makes to be presented at the Hotel Cecil for his inspection. Their drivers little thought they would have to do anything more than bring their machines round to be examined, and when they found that they had to hurry on to Hampstead to undergo a test they were not a little surprised. The trials lasted several days as the makes included Sunbeam, Humber, Triumph, P. and M., Douglas, James, Indian, Matchless, Premier, Enfield, Chater-Lea, Rudge, and Bradbury.

On arriving at Hampstead the machines were sent up the famous test hills of the Metropolis, first West Hill, Highgate, and then Swain's Lane. These have gradients of one in nine and one in six respectively. The Premier and Humber sidecars had to take five up the latter slope, which they succeeded in doing with ease. The Russian Government representative proved himself to be an excellent sportsman and tried several of the solo machines by riding on the carrier and making them take him up the more severe gradients.

Real Colonial Tracks.

The two hills just mentioned were much too easy for the Russian Captain; they were steep enough it is true, but their surfaces little represented the conditions which are encountered in the march of the army of the Tsar. We thought we knew the London test hills pretty well, but it was only on Saturday that we learned that within a few yards of the Spaniards, on Hampstead Heath, there are two hills of respectable gradient with surfaces which have a very close resemblance to Colonial roads. The first of these has a surface of fairly deep sand, which, when wet, is particularly clinging, and here the motor cycles had to stop and restart. Not a few failed in this test, and when the riders were asked to take the bank, which was extremely rough and had a gradient of about one in three, several refused. Finally, when Captain Mgebroff, while riding on the carrier of one of the machines attempting this test, found himself on the ground, even he was forced to admit that the trial was a trifle severe, and kept on his feet for the rest of the morning.

The 3½ Humber sidecar also took five up Swain's Lane. This was no mean performance, and another machine to qualify in this respect was the Matchless. Further tests included starting in the middle of Swain's Lane with a passenger on the carrier, and the most successful solo machines were the 2¾ and 3½ h.p. Sunbeams and the Premier. A further trial was the speed test in Bishop's Avenue. Probably the most severe of the performances was the re-starting test on the hill with the sandy surface, which caused several failures. The final stage of the test was the negotiation of a neighbouring hill on which the surface was crossed transversely by the roots of trees, at times standing three inches above the ground. Altogether the manufacturers of five makes of motor cycles—the James, Premier, Sunbeam, Chater-Lea, and Humber—were successful in obtaining valuable orders, and these have to be executed in three weeks or less, so that they may arrive at Archangel before that port is closed by ice for the winter months; once at that port the machines can be distributed by rail.

1915 MODELS AND "THE MOTOR CYCLE."

ANNUAL BUYERS' GUIDE IN NOVEMBER.

New models are now occupying the attention of manufacturers, and the pages of "The Motor Cycle" during the next month or two will be particularly interesting to motor cyclists and prospective riders. The earliest descriptions of new model motor cycles regularly appear in these columns; the accounts are penned by technical writers in interesting yet non-technical language, whilst sketches of mechanical details and photographs are a feature.

In November, a special Buyers' Guide issue of "The Motor Cycle" will be published, giving the specifications of all the leading 1915 models. This annual feature will prove more valuable this year than ever before in view of the manufacturers' decision not to hold a Show.

Sidecar Records at Brooklands.

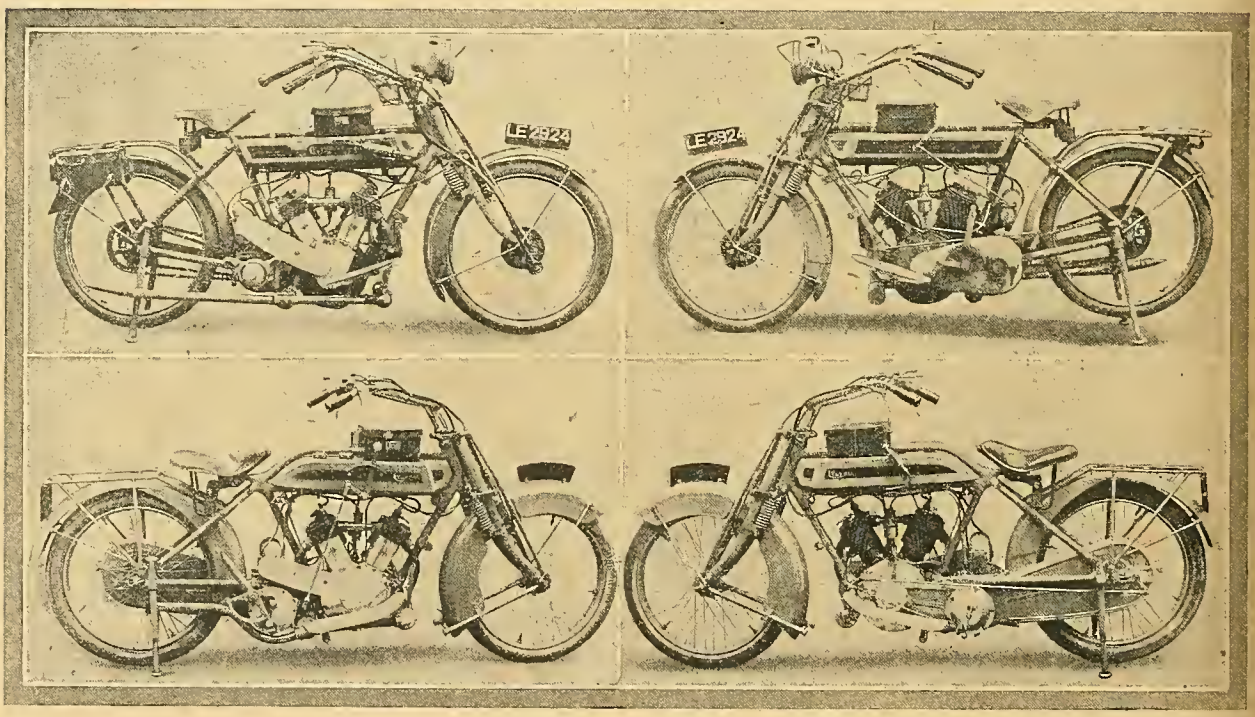
ON Tuesday, September 22nd, S. L. Bailey broke the following 350 c.c. Class F sidecar records, driving a 2¾ h.p. Douglas twin-cylinder machine, 60.9 mm. × 59.7 mm. bore and stroke, 349 c.c., wiping out the figures made by T. B. Haddock and H. A. Rhodes on a 2¾ h.p. A.J.S.

	New Records.	*Previous Best.*
	m. s. m.p.h.	m. s. m.p.h.
Flying kilometre ...	42.2 = 53.0 ...	42.8 = 52.27
Flying mile	1 8.2 = 52.79 ...	1 11 = 50.70
Flying five miles ...	5 46 = 52.02 ...	6 26.2 = 46.60
Standing ten miles ...	12 5.2 = 49.64 ...	14 6.2 = 42.55
One hour	43 miles	41 miles
	1730 yds. = 43.98 ...	757 yds. = 41.43

Bailey's Douglas was fitted with Hutchinson tyres, Lyso belt, Fischer magneto, and he used Mex spirit, Price's oil through a B. and L. drip lubricator, and a Rally sidecar.

The fastest lap in the hour attempt was covered at a speed of 50.64 m.p.h., and the slowest from a standing start 48.10 m.p.h. It is probable that Bailey would have completed fifty miles or nearly in the sixty minutes but for bad luck at the end, for he had to stop for a broken rocker in the last eight minutes. This may be called a wonderful performance for a 350 c.c. machine pulling a sidecar and passenger. The unusual cylinder dimensions should be noted.

New Lamps for Old: A Modern Version.



A 1912 CLYNO BROUGHT UP-TO-DATE.

(1) The 1912 two-speed Clyno, valve side. (2) Transmission side (1912 model).
(3) Valve side of the converted Clyno with three-speed gear. (4) Transmission side when brought up to date.

THE four interesting photographs show the latest scheme evolved by the Clyno Engineering Co., Ltd., Wolverhampton, of converting a 1912 model to an up-to-date machine. In order properly to appreciate the conversion it is necessary to study first of all the two photographs of the 1912 model. Beginning with the latter, it will be seen on looking at the picture of the transmission side that the frame has a straight top tube, the spark lever is controlled from the tank, the mudguards are on the small side and the forks narrow, while the footboards are of meagre dimensions. The photograph showing the valve side of the engine indicates that a two-speed gear of the clutch type is fitted, controlled by pedals, and that there are two chains from gear box to rear axle, both of which are exposed. Turning then to the converted model, it will be seen that there are only two chains, which are completely enclosed, and a good plate clutch is fitted to the countershaft of the three-speed gear box, while the spark lever is controlled by Bowden mechanism. The improvement in the mudguarding is also clearly evident.

The machine is practically as good as the newest and latest 1914 models. The cost of the conversion, which means removing the engine from the old frame, overhauling it, fitting it in a new one with a modern tank, gear box, magneto control, gate change, improved footboards and exhaust disposition, detachable wheels, etc., is twenty-eight guineas, while for an extra £3 10s. the latest type of mudguards, front stand, and wider and stronger spring forks with 1914 front brakes are supplied.

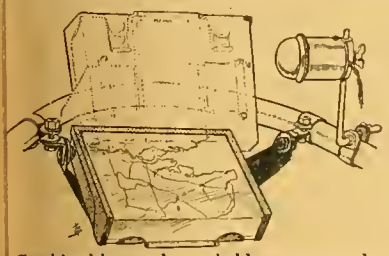
AMONG THE ACCESSORIES.

The Vevo Union.

A neat little device of ts kind is the Vevo nion, made by Arthur . Price, Vevo Works, ark Lane, Aston, Bir- ingham, for working wo lamps from a single enerator. It is finished n polished brass, and an be attached quite easily.

Highly Useful for Despatch Riders.

Many military motor cyclists will oubtless have found some difficulty in arrying maps and memo. pads when iding their machines. There is, however, device made under Waigh's patents, nd sold by the Service Co., Ltd., which e illustrate herewith. The holder itself made in the form of a box, the upper alf of which is provided with a celluloid asing in which the map is positioned. he supports are held on swivels so that

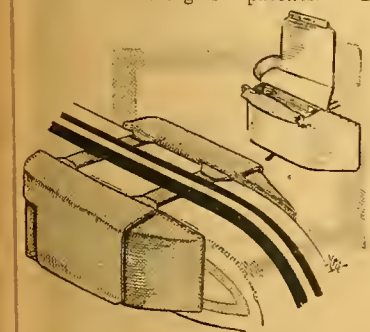


Combined box and map holder constructed under Waigh's patent.

e whole box can be turned round, and the under side is a small memo pad nd pencil. The interior is fairly large, nd there would be quite room enough for couple of Browning pistols and any espatches or papers that it is necessary carry. In connection with this the mpany also sell a useful little handle- r electric light. This has universal ovement, and can be used for illumi- ting the map and for reading signposts night.

A Useful Fitment.

A useful pair of combined knee grips d tool bags is being marketed by A. . Gamage, Ltd., Holborn, E.C., and ade under Waigh's patents. The



Gamage's combined knee-grip and tool bag.

nnier bags are quite large and capable holding such things as puncture ont- s and the smaller tools such as anners.

Transfer Flags.

The transfer flags issued by our publishers are proving very popular among motor cyclists, a large batch of orders following the first announcement. It may be mentioned that the Japanese flag has been added, making a range of five flags of the Allies. They are issued in correct colours, of a size 3½in. × 3¾in., and are obtainable from Iliffe and Sons Ltd., Coventry, and 20, Tudor Street, London, E.C., at 7d. post free for one flag, 1s. 1d. for two flags. etc.

Adjustable Point Plug.

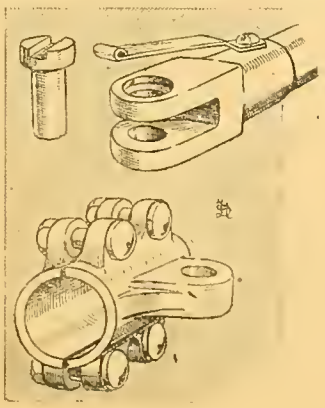
Few people realise how much difference can be made in the running of an engine by suitably adjusting the sparking plug gap. In the early days of magneto ignition motor cyclists were advised to set the plug points a distance of .4 of a millimetre, which was sometimes roughly translated as being as close as possible without touching. As, however, magnetos came into general use and more came to be learned about them, this exceedingly small gap was found to be inefficient. It appears that under certain conditions a small gap and low compression gives easy starting. In these days of high compression a large gap is better. In its effort to leap across the distance the spark is intensified, and is much hotter than when the path is too easy for it. Again, when the gap is altered according to the speed of the engine, better results may be obtained with the points further apart at very high speeds, while misfiring occurs at low speeds if the points are too close together. To overcome these difficulties, Messrs. J. H. Runbaken, 7, Peter Street, Manchester, have introduced a particularly well-made plug with an adjustable gap. The body of the plug is steel, and the insulated portion steatite, the point being of the best possible material. To the end of the electrode is fastened a large milled nut, and lower down a pointer running over a graduated scale, showing the amount of gap given. The illustration renders the plug self-explanatory. This is not an experiment, as quite a few years ago Mr. S. H. Arnott made himself a plug of this type for his 5-6 h.p. V.S. ("Humming Bird"), on which he did some wonderful times at the earlier B.M.C.R.C. meetings.

New Dynamo Lighting Set.

A new sidecar and cycle car dynamo lighting set is being introduced by Thompson and Co., Endyne Works, Greenwich. The dynamo is driven either by belt or friction pulley, and two G.W.K.'s have just been fitted with the installation. The firm undertakes the fitting to any sidecar or cycle car at the cost price only of the work during the war.

A Neat Sidecar Clip.

Among the many quick detachable sidecar lugs now on the market, one of the neatest and simplest we have seen is that patented by Mr. A. Wain of the Atlas Engineering Co., Hill Street, Coventry. Simplicity and strength are its salient

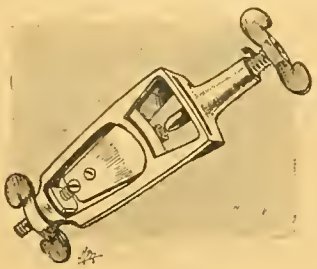


The Atlas quick detachable sidecar clip.

features, and probably no type is easier of attachment The usual jaw lugs are used, and through the bolt hole passes a plain round headed pin. The head drops into a slight recess formed in the top part of the jaw, and a leaf spring pivoted on the shank of the lug drops into a broad slot machined in the pin head. The spring, though quite strong enough to prevent any movement of the pin, is easily moved by the finger, and should never set up rattle.

Combined Belt Cutter and Punch.

Although punching holes in a belt is a comparatively simple matter, it is not always so simple to cut off the old end



Piggott's guillotine belt cutter and punch.

of the belt unless one is possessed of an exceptionally good knife. To obviate this difficulty, Messrs. Piggott, Cheapside, E.C., have produced a combined guillotine belt cutter and punch, which will be found admirable in use, and the action of which is clearly explained in the accompanying sketch.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose.

TIMES TO LIGHT LAMPS.

Oct.	1st	...	...	6.38
,,	3rd	...	...	6.34
,,	5th	...	...	6.30
,,	7th	...	...	6.27

Polhill. A Warning.

Motor cyclists are cautioned against trespassing anywhere near the high wooded banks at the top of Polhill on Sevenoaks Road, or to the right of Westerham Hill. Cameras should not be used at either of these places.

Petrol at 1s. a Gallon.

Our leaderette on this subject is exciting considerable interest. The writer of a letter, which we publish in this issue, announces the advent of a satisfactory spirit at 10½d. a gallon, and another correspondent offers to form a private syndicate for the supply of benzole at 1s. in ten gallon drums.

Government Orders for Motors and Cycles

The cycle and motor trade generally is coming in for a large share of Government contracts, for many thousands of pounds worth of motor lorries are in course of construction. Cycles, too, have been ordered in hundreds, the Centaur Company's order representing the largest ever placed in the Coventry district for pedal cycles.

A Novel Sidecar Load.

On arriving at the receiving stores at Woolwich with a load of blankets on her P. and M. sidecar, Mrs. Hardee was informed, that her parcel was the first to arrive on a motor cycle. She told a friend that her contribution looked very insignificant amongst the huge piles from all parts, which were being despatched to the front. Mrs. Hardee is also engaged in Red Cross work, and at the week-end had a wounded soldier as passenger.

Motor Cycle Thieves at Work.

It seems that at the present time a gang of thieves is at work around London stealing motor cycles. A reader was recently demonstrating a Douglas machine to a probable buyer, who had professed to be somewhat ignorant of motor cycle matters. However, managing to get astride the machine he pushed off, started the engine, disappeared round the corner, and since then no trace of him has been found. The machine is a 1914 T.T. Douglas Model V., registration number AN 1499, engine number 14391, gear box number 10746, cycle number 13975. Any information concerning this machine should be sent to G. A. C. Greenop, The New Hermitage, Upper Norwood, S.E.

Scholarships for Coach Building.

The London County Council offers three scholarships of two years' duration, value £15 a year, to boys more than sixteen and not less than fourteen years of age on March 31st, 1915, who pass the requisite examination in motor body building. Instruction is given at the Regent Street Polytechnic, W. Candidates will be required to take an examination on or about December 8th, 1914. Particulars can be obtained from Mr. R. Blair, Education Officer, L.C.C. Education Offices, Victoria Embankment, W.C.

Motor Cyclists and the Wounded.

Over a score of sidecar combinations, owned by members and friends of the Woolwich club, have been placed at the disposal of wounded and convalescent soldiers at the Military Hospital at Woolwich. The organiser, Mr. W. Whittaker, has been informed by the medical officer that the invitation will be accepted, although at present there were more than sufficient motor cars at their disposal. It is intended to arrange a series of runs over Kent roads, and the soldier passengers would be given tea at Green Street Green. Mr. Whittaker has notified the hospital that the machines are available at short notice.

SPECIAL FEATURES.

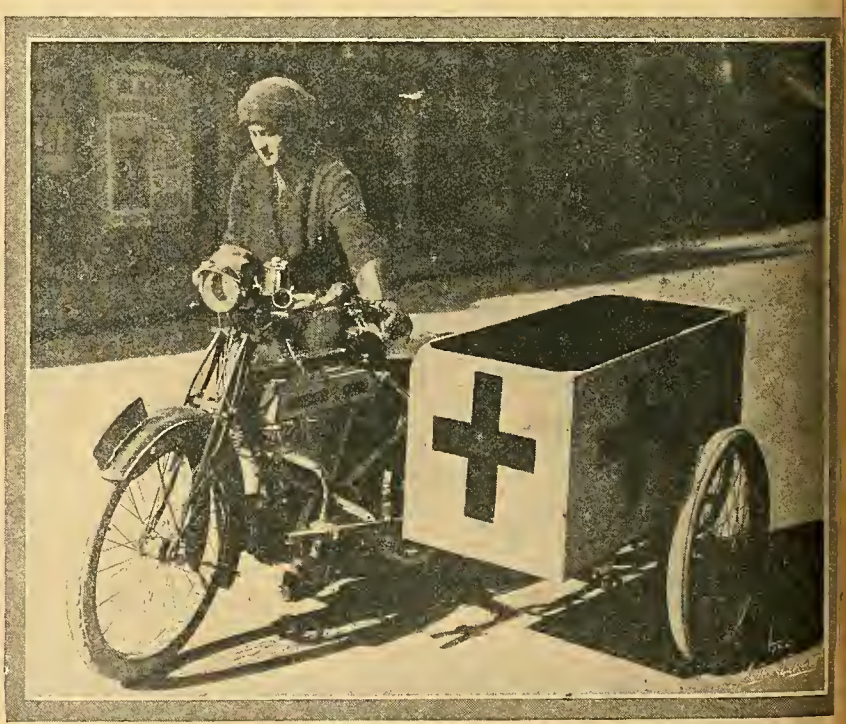
TESTING BRITISH MOTOR CYCLES FOR THE RUSSIAN ARMY.
A NEW SHAFT-DRIVEN MACHINE.
THE WAR OFFICE AND V TWINS.

Indians Retire from Track Racing.

According to an American contemporary the Hendee Manufacturing Co. has definitely decided to withdraw from American track racing, and will only participate in long distance road races such as those held on the Elgin and Savannah circuits.

Motor Cyclists with the Canadian Contingent.

We learn from the *Montreal Mail* that a number of Montreal men offered to equip a motor cycle corps of one hundred and twenty-five men to go with the Canadian contingent to the front, and Col. the Hon. Sam Hughes accepted the offer.



Miss Norman of Fleet (Hants) who has volunteered as a member of the Ambulance section. Several members of her family are already serving their country. The machine is a 3½ h.p. Blackburne.

"The Motor Cycle" Buyers' Guide.

The annual Buyers' Guide issue of *The Motor Cycle*, to be published next month, will prove more than usually interesting this year in view of the decision not to hold a Show.

Trapping as Usual.

"Business as usual" is apparently the motto of the Greenwich police engaged in motor trapping. A short distance trap was in operation at Lewisham High Road last week, and at least one O.H.M.S. machine was stopped.

To Aid the Belgians.

We are informed that all entrance fees for the next sporting trial of the Mersey (Liverpool) M.C., which is to be held next week over a course of fifty miles, will be handed over to the Belgian Refugee Relief Fund. What we owe to the wonderful courage of this nation can hardly be expressed in words. We trust, therefore, that a substantial amount will be raised.

Sidecars for Simla Mails.

We hear that the Director General of Posts and Telegraphs at Simla, India, has ordered twenty motor cycle and sidecar carriers for distribution of the local mails. This is meant to be a trial, and if, as is confidently expected, the experiment prove a success, further Government orders are expected. According to *The Bombay Times* the Director General said "the motor cycle has arrived at such a state of perfection that we think we are justified in generally adopting it. In any case it is considerably cheaper to run than the horse-drawn vehicle, and enables a much quicker service to be provided."

A Winter Programme.

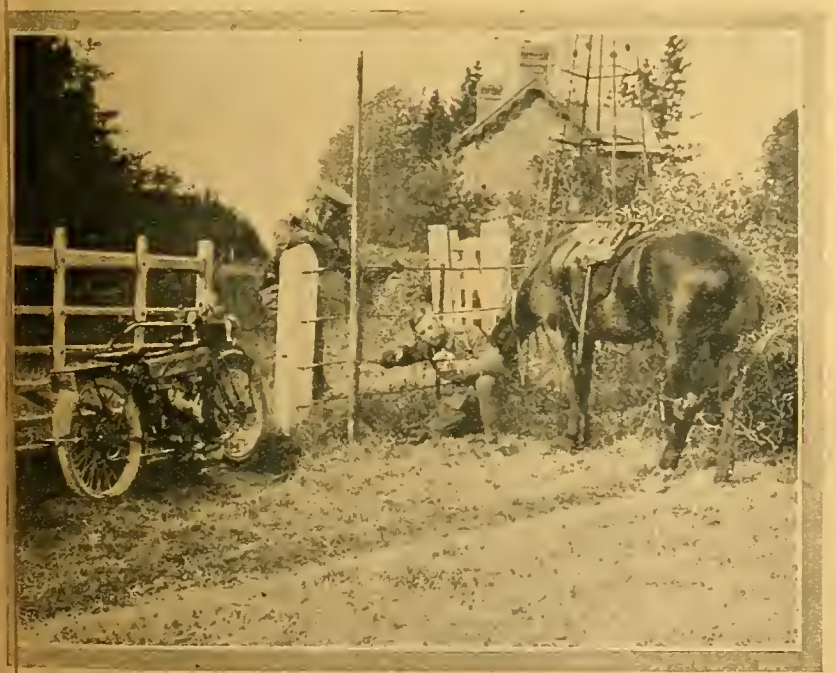
The Finsbury Park C. and M.C.C. has decided to hold social evenings at headquarters on the first Wednesday in each month during the winter. Whist, followed by music, is suggested as the entertainment.

Another Despatch Rider Wounded.

Another motor cyclist despatch rider has been invalided home from the front in Howard Riddell, of Birmingham, who was formerly employed by Messrs. F. E. Baker, Ltd., makers of the Precision engine. Riddell was wounded internally, but we are glad to say is progressing favourably, and hopes to be out of hospital in a month's time. He was one of the first motor cyclists to be sent abroad with the British Expeditionary Force, and was attached to the Royal Engineers.

The A.C.U. Handbook.

As it has been felt that many clubs need more guidance in the matter of holding competitions than is contained in the open competition rules of the A.C.U., it has been proposed to include in the handbook for 1915 a series of articles on the subject of open and closed competitions with model entry forms and explanatory notes. Judging from the number of requests that reach us, especially from secretaries of new clubs, for help in the matter of holding all kinds of competitions, we should say that such a handbook would prove to be most useful. The lists of appointed hotels and repairers and other matters of interest to tourists will be in a separate publication, known as the A.C.U. Touring Guide.



THE USES OF MOTOR CYCLISTS IN WAR.

Motor cyclists are proving themselves extremely useful in detecting faults in the field telephones. The rider of the P. and M. shown, having discovered a defect, brings along a patrol of the Telegraph Section who rectifies the fault, which was caused by a farm cart breaking the wire when passing underneath

Main Contents of this Issue.

We continue our first descriptions and illustrations of new models this week with the Rex-Humphris three-speed gear and shaft drive, and also illustrations of the latest specimens of sidecarriers. An exclusive feature of special interest to motor cyclists and manufacturers alike is the account of the tests of British motor cycles for the Russian Army. Large orders have followed these Government tests, which will keep thousands of workmen busy for some weeks.

A Brooklands Notice.

Owing to the exigencies of military requirements the general public will not be admitted, until further notice, to the Brooklands Motor Course and Flying Ground after Wednesday, 30th September, 1914.

Members of the Brooklands Automobile Racing Club, Brooklands Lawn Tennis Club, and British Motor Cycle Racing Club, as well as holders of permanent passes, will continue to be admitted subject to the conditions heretofore in force.

Applications for tests and speed trials should be addressed to the Secretary of the B.A.R.C. at Carlton House, Regent Street, London, S.W., who will make arrangements if military requirements permit.

The Last Straw—

The stages through which the average owner of a sidecar passes are interesting. He begins, as a rule, with wondering if his 3½ h.p. solo machine is capable of drawing a sidecar, but after a rather nervous start decides perhaps it is. His next thought is whether it can possibly draw three persons, and forthwith a friend is installed on the carrier. Then a couple of youngsters are ensconced in the sidecar at the feet of their mother and a few unconsidered trifles such as tea baskets, luggage, a petrol tin, etc., stowed away in odd places. And still the uncomplaining 3½ tugs away. One of these days we think we shall have a try to design a sidecar outfit for *really* serious work, such as for accommodating a family of ten, or taking a battalion of troops to camp, or a pack of foxhounds to the meet! Really, some of the examples of overloading we have recently seen on the roads prompt us to wonder what will be the final straw to break the mechanical camel's back!

Cycle and Motor Trades Benevolent Fund.

The usual monthly meeting of the Executive Committee was held on the 24th ult., with Mr. Citroen in the chair. The treasurer's report, showing a balance at the bank and in hand of £821 1s. 3d., was presented.

Among the sixty-two applications for relief dealt with by the committee seventeen were owing to the effect of the war on the trade. In two cases the Fund was able to supplement the amount granted by the National Relief Fund to dependents of subscribers who had joined the Colours. In twenty-three cases relief was granted owing to inability to work on account of illness or old age; in two cases arrangements were made for the nomination of children of deceased subscribers to orphanages, while grants were made to seventeen widows or other dependents of deceased subscribers.

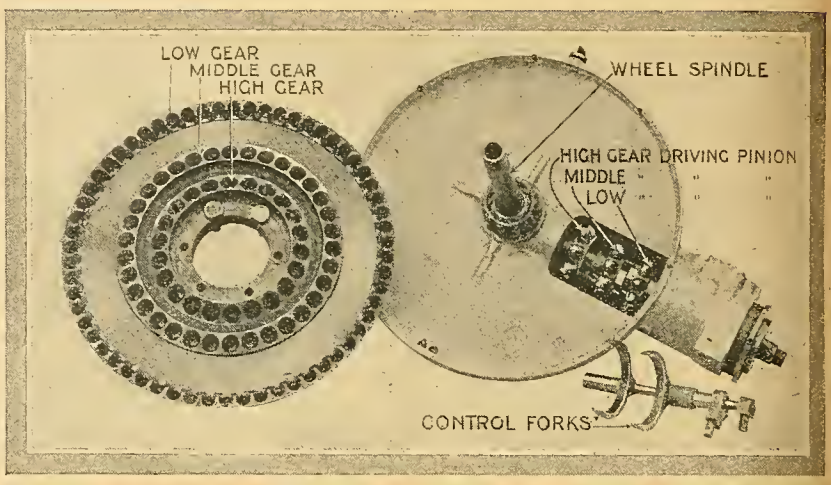
IMPORTANT REX DEVELOPMENT.

Adoption of the Humphris Three-speed Gear, Shaft-drive, and Positive Gate Change.

REX design is usually original, and the latest development is one of the most interesting bits of design we have seen for some years on a motor cycle. It is no less than the adoption of shaft-drive and a special form of the Humphris gear. This gear, which is of a most unusual kind, is no untried novelty, except in its adaptation to motor cycles, for it has been in constant use for long periods on many tramways and railways, including such well-known lines as the Piccadilly Tube and the London, Brighton, and South Coast Electric Railway. Besides this, it has been thoroughly tested on cars.

The Rex Company have had an experimental machine on the road for some time past, and are so satisfied with the results obtained that they have decided to standardise the drive for the twin-cylinder sidecar model in 1915.

We personally were privileged to inspect an experimental model machine over two months ago, and since then many many miles have been covered on it under all conditions. A single-cylinder machine has also been used to test the gear, so that its reliability and efficiency has been proved to the satisfaction of the Rex Co.



The new Rex-Humphris gear. The driven disc has been removed to show its construction, and also the three driving pinions which mesh with corresponding holes in the disc. When assembled, the gear is carried in an oil-tight case.

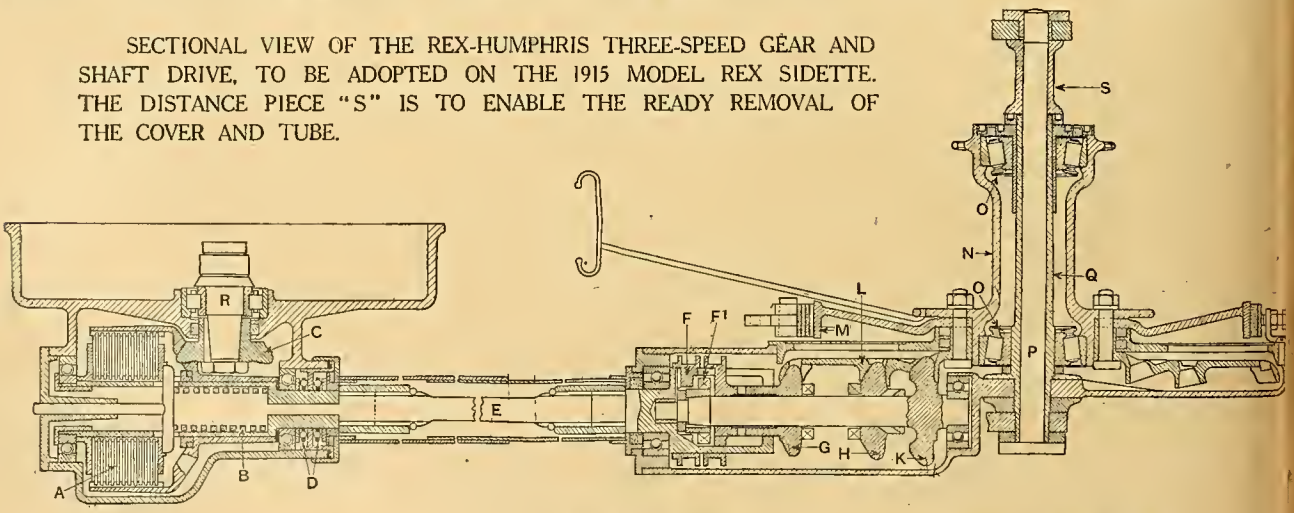
The Lay-out of the Drive.

The engine is placed in the frame in the usual manner, but has an extension on the driving side to take the clutch and front end of the driving-shaft, which lie at right angles to the crank. The drive is transmitted to the clutch shell by a pinion, the teeth of which may best be described as helmet shaped. These teeth, or pegs, engage with holes in the bevelled face of the clutch shell and transmit the drive something after the manner of a bevel. Both the design and manufacture of the gear have been the subject of most exhaustive tests, with the result that the makers claim a very high degree of efficiency and silence and extreme durability. It is one of the interesting features of the gear that no thrust is imposed on the driving pinions, and consequently thrust races are not required for the crankshaft or gear-driving pinions.

How the Gear is Operated.

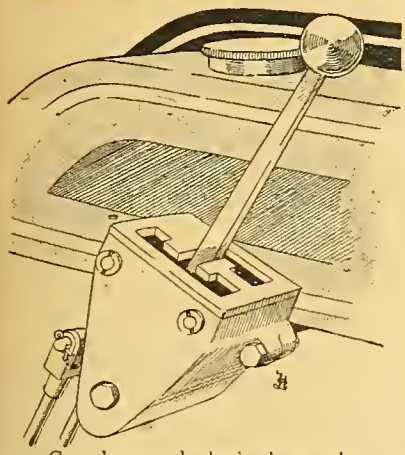
The gear itself is formed with the rear hub and is driven from the clutch by means of an enclosed propeller-shaft, at each end of which is a simple sliding coupling. To provide the three separate ratios, a single driven disc is employed, having formed on it three concentric rings of recesses, into which fit the pegs or teeth of the three driving pinions. The high and middle gear pinions are always in mesh, the high gear being locked to the driving-shaft by a special dog clutch. Middle gear is brought into operation by another pair of dogs formed on the end of the low gear pinion, and to obtain the lowest ratio the low gear driver is slid into mesh with the outer ring of recesses, which are specially shaped to allow this action. The whole gear is enclosed in an

SECTIONAL VIEW OF THE REX-HUMPHRIS THREE-SPEED GEAR AND SHAFT DRIVE, TO BE ADOPTED ON THE 1915 MODEL REX SIDETTE. THE DISTANCE PIECE "S" IS TO ENABLE THE READY REMOVAL OF THE COVER AND TUBE.



A. Clutch.
B. Clutch spring.
C. Driving pinion engaging with clutch shell.
D. Thrust races for clutch when disengaged.
E. Propeller-shaft.
F and F1. High gear dog clutches.
G. Low gear driving pinion.
H. Middle gear driving pinion.
K. High gear driving pinion.
L. Driven wheel.
M. Brake.
N. Hub.
O. Timken roller hub bearings.
P. Central wheel locking pin.
Q. Hollow wheel spindle.
R. Crankshaft.
S. Distance piece.

Important Rex Development.—



Gate change and selecting box on the 1915 model Rex.

oil-tight case, and the driven disc is bolted to the hub, the load and thrust being taken by Timken roller bearings.

The selecting mechanism is neatly enclosed in the compact gate box and is positive in action, so that it is quite impossible to mesh two gears at once. Two control rods pass from the selecting box to the striking forks, which are mounted just in front of the driving pinions, and control them through simple and substantial mechanism.

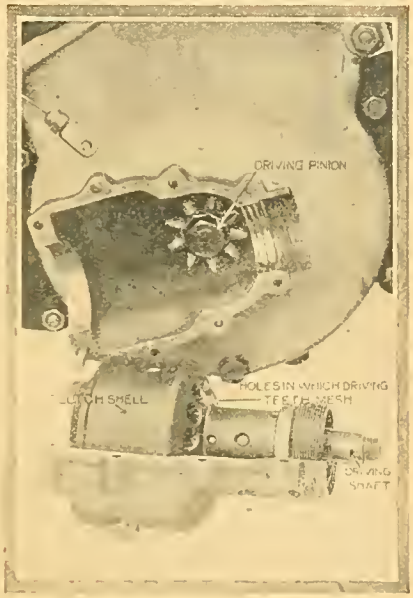
Tyre and Wheel Removal Quite Simple.

To facilitate tyre removal a distance piece is arranged on the side of the wheel opposite to the gear, and this is made wide enough to allow the cover or tube to be removed without disturbing the wheel, especially as the brake is mounted on the same side as the gear. It is, however, a simple job to remove the wheel complete with the gear, which may be detached from the rear end of the driving-shaft.

Much might be written on the shape and methods of generating the teeth, but the subject is a long one, and good results are the best guarantee of both design and workmanship.

It may be mentioned that the set of gears illustrated in this article have undergone several thousand miles severe road testing, and when closely examined prove to be practically unaffected by wear.

There are many who have been clamouring for a machine of this type, and the new Rex should have a big future, especially for sidecar work and for those who require a clean, totally enclosed, and permanently adjusted fool-proof transmission.



The crank case and clutch of the new Rex shaft-driven machine, showing the clutch removed, and the driving pinion in position.

CLUB NEWS.

Wolverhampton M.C.C.

Owing to lack of entries the Twenty-four Hours' Trial was postponed, and, as so many of the members are leaving to join the Army, competitions are cancelled for the present.

Sutton Coldfield and Mid-Warwickshire A.C.

It has been decided that the reliability trials for the Levis Cup and the P. J. Evans Cycle Car Trophy, usually held about this date, should be deferred until the exceptional conditions now prevailing have abated, as the committee feel that no good purpose could be served by holding these trials, but that possible hindrance might be caused to the military and police in the districts through which the competitors would pass.

Acton and District M.C. and C.C.C.

The second meeting of the above club was held at the King's Head Hotel, Acton, on September 17th. The chair was taken by Dr. A. M. Low, president of the club. The business of the evening was devoted to the election of officers and committee, and to the amendment of certain of the club rules. A challenge trophy has been offered and was accepted.

A social run has been arranged by the committee to take place on Saturday, the 3rd inst., starting from the King's Head Hotel, Acton, at 2.30 p.m. All motor cyclists in Acton and the surrounding district are cordially invited to attend. Further particulars from Mr. E. B. Hunt, hon. secretary, 47, Woodfield Crescent, Ealing, W.

It is proposed to form a Wolverhampton non-military motor cycle body, and the riders shown met on Penn Common at the beginning of the week to discuss the matter. A further meeting is to be held on the 11th inst. at 11 a.m.

Noisy Motor Cycles: Suggestions for a Cure.

A Plea for Silence in Engine and Transmission. General Notes on Design.

REFERENCE has recently been made in *The Motor Cycle* to the noisiness of motor cycles and the consequent difficulty of easy conversation between driver and passenger in the case of a sidecar combination. It seems somewhat incongruous that a relatively tiny motor cycle should create so much objectionable noise whilst the big 40 h.p. car can travel quite noiselessly. Why cannot the modern motor cycle be made as silent as the modern car? There is a great charm in the silent running vehicle, and many motor cyclists must wish their machines would run nearly as silently as they do when free-wheeling down a long hill with the engine stopped and the clutch out.

Just as to-day there is no market for a noisy car so may we expect that to-morrow there will be none for a noisy motor cycle. The two principal sources of noise in a motor cycle are the exhaust and the transmission. Engines should be more effectively silenced and means provided for deadening the clatter of the valves. The long exhaust pipe is a step in the right direction as it takes the exhaust to the rear, but larger exhaust boxes would add to the improvement. Valve clatter might be lessened by employing slightly larger valves and a smaller valve lift and also by using fibre-topped tappets and careful adjustment of the latter. A valve cover might help matters. A silent engine calls for silent transmission, and this will probably lead to modification in gears and drives.

Of course the direct belt drive is absolutely silent and by no means objectionable now that modern belts (of good section) are so good and reliable. Untunately chain drive is by no means noiseless, and when the engine is silent chain noise will be more pronounced and, therefore, more objectionable, so it is quite possible our noiseless engine will cause the chain to be discarded in favour of belt or shaft. It may also be expected that a silent engine will show up the defects of the sliding type of gear and cause the epicyclic type to come into general use. This, however, will be to the good, as this type is not only noiseless when in use, but it also changes easily and silently, and has the further advantage in having no idly revolving gear wheels on the direct drive.

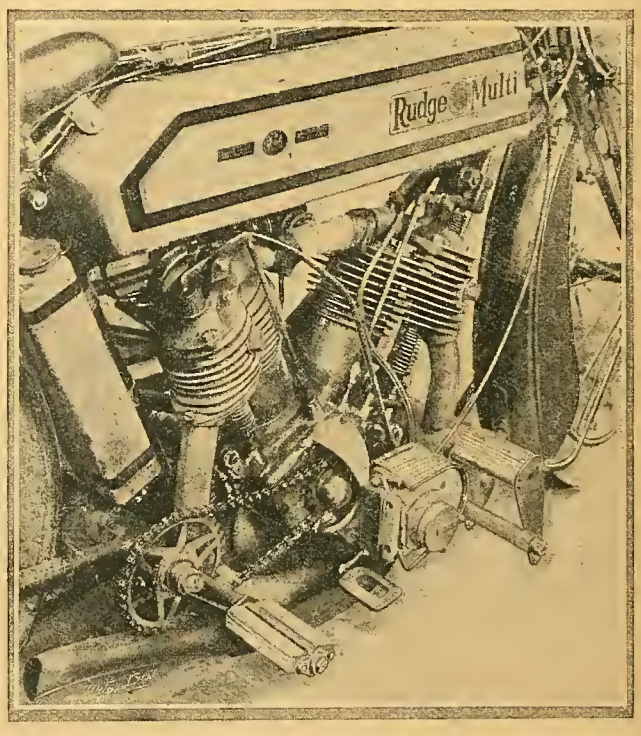
The Disposition of the Gear.

In the writer's opinion, motor cycle manufacturers might with advantage follow the latest Daimler practice with regard to the disposition of the main parts. In this the engine and clutch are in a forward position and the gear incorporated with the back axle. The motor cycle equivalent would have the engine and clutch close together (or as a unit) and the gear (minus the clutch and its parts) in the hub. In the case of shaft drive we could follow F.N. practice up to a certain point, but in place of the sliding type of gear employ a hub gear. Such an arrangement would give an excellent transmission, and by transferring the gear to the hub we get silent gears combined with easier gear-changing. On the other hand, if shaft drive is not desired, it would perhaps be the best practice to drive by silent chain from the engine to a counter-shaft and mount a neat and compact plate clutch on the latter. The secondary part of the drive from the counter-shaft plate clutch could be by belt or chain. As regards the type of gear suggested it should be remembered that one half of a three-speed hub is occupied by the clutch, so that if we remove the clutch and its parts we not only make a considerable reduction in the weight of the hub, but we also get a very simple gear. Such a gear could be packed with a thicker oil than usual and, except for an occasional adjustment, could be forgotten and yet be safely relied upon to do its work quietly and efficiently and with perfectly smooth gear changes.

Advantages of a Counter-shaft Clutch.

A self-contained counter-shaft clutch arranged independently of any gear is quite an attractive proposition. Such a clutch could be made very light and compact, whilst its adjustment or removal could be quite easily effected. There are, in fact, several big advantages in placing the clutch in the counter-shaft position and the gear in the hub, quite apart from the question of silence, although the latter is the primary object of the idea.

In the counter-shaft position the clutch connects the two elements (chain and belt or two chains) of the drive, and if properly adjusted this should prove an advantage, by softening the drive, especially on bad roads. There is also the important consideration that we need only employ a light transmission, as there is no falling off in belt speed when the low gears are working, and the transmission would, therefore, last longer and give less trouble.—ENGINEER.



Ingenious method of using the magneto clip as a foot plate which is being tried on the latest pattern twin-Rudge. The magneto is driven direct from the camshaft, and is fixed to a stout bracket formed on the timing cover.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Standardisation of Controls.

Sir,—Is it too much to ask the makers to standardise the carburetter controls for next year? I am a motor cyclist of a year's experience, and was recently driving a friend's machine and sidecar of another make, and although *perfectly aware* that his throttle and air levers worked in the opposite direction to those on my machine, I accidentally opened the throttle wide instead of closing it, resulting in landing in a three foot deep ditch. Given time to think, one would not make such a mistake, but in an emergency, force of habit is sure to tell.

A. F. EDWARDS.

Petrol Consumption in Trials.

Sir,—One sees trials of motor cycles intended to bring out every point of importance except one, *i.e.*, efficiency with regard to petrol consumption. I am sure there are many like myself to whom the amount of petrol consumed per mile is a serious consideration and ought to have makers' attention. There is probably a difference between single and multi-cylinders and the build of a machine to take more or less propelling force. Some trials to emphasise this point would be very instructive and useful in selecting a machine.

GEORGE POTT.

Continental Patents.

Sir,—Further information has been received in this country as to special temporary provisions which have been made with reference to patents in certain Continental countries. Up to the date of writing no intimation has been received that German or Austrian patents owned by Englishmen will be interfered with, but it is highly probable that special regulations will be made with regard to these. The provisions, which are too lengthy to deal with in full, specify that extensions of time for any steps can be had from three to six months in the case of countries that are at war. Certain temporary alterations have been made in the procedure in Holland and Switzerland, so that it is advisable that those owning patents, or having applications pending, in the countries mentioned should ascertain the details of the new arrangements.

ERIC W. WALFORD.

Lightweight T.T. and Two-stroke Matters.

Sir,—Having read your recent articles on the proposals for having a T.T. race for lightweights, might I be permitted to say how welcome an event of this sort would be to those who wish to enter for this race, but who have not the courage to face having to compete with men who can corner at speeds which we would be nervous of attaining on straight roads. Apart from this it would do an infinite amount of good in developing this branch of the pastime, which is at present in its infancy. It would also go far in showing which is the best type of engine to adopt, the two or the four-stroke. Personally, I have owned both types, and I will never go back to the poppet valve type. I have owned a Scott for the last six months, and have had it to bits once, more for curiosity than anything else. The machine had covered 1,500 miles, but I never touched the pistons, as there was no carbon to chip off. In a country where one cannot always get spares it is an infinite relief to know that the parts of an engine which give most trouble, valves and tappets, are non-existent. Then again, when one has to be out sometimes in the day, when the temperature is anything between 140° and 160°, one begins to realise the benefits of water cooling. I did a run of twenty miles the other day in a temperature which raised blisters on the soles of my feet, and there was not a drop out of the radiator cap to indicate boiling. I was warned against trouble which I was piling up in getting a two-stroke in the first place, and water-cooled at that, but as long as there is a machine with brains behind it like the Scott, I will never touch anything else. There is a fortune for the firm which first makes a horizontally opposed water-cooled two-stroke. I have adopted mixing my oil with the petrol, though not recommended, and find it answers admirably. I put in four wine-glassfuls to the two gallons, and use the drip feed as an auxiliary if necessary. I would like to express my regret at the Scotts losing the T.T., and also the hard luck which attended the Collier brothers. I should have liked the latter to win, if only once and for all to ram the *anno domini* question down the throat of the tactful. If the Scott people make a lightweight I am in for the proposed T.T., if I can get leave to get home.

THE MOONSHI.

Punjab, India, August 19th, 1914.

Dissolved Acetylene.

Sir,—We notice under the heading "Dissolved Acetylene," in your issue of September 17th, an article which mentions our system of lighting, the sole defect, according to the writer, being the difficulty in storing the D.A. cylinder on a motor cycle.

We should be much obliged to receive the suggestions of "Ixion" as to the position which he would consider ideal, and which might be taken as the standard position for our lighting cylinder. As far as we are concerned, we find that nearly every make of machine and every rider requires the cylinder placed in a different position. We are always open to receive suggestions, and should be very glad if the writer of the article would communicate his views on the matter to us.

Further, a letter appears in your issue of September 17th over the name of "Nocarbide," giving the reader's reasons for using the D.A. system. Your correspondent states, however, that he does not consistently obtain twenty-four hours light from his six cubic feet of gas, the utmost he has obtained being eighteen hours.

May we draw attention to the following points? (1.) The manufacturers cannot guarantee a period of lighting, but they do guarantee every cylinder to contain six cubic feet of gas. (2.) If the burner used is true, and consumes, as it should do, seven litres per hour, and all connections are gas tight, then a six cubic feet D.A. cylinder will undoubtedly supply twenty-four hours light. (3.) If any customer receive against his payment of the usual price, a cylinder containing less than six cubic feet, the manufacturers guarantee to exchange it for a full cylinder free of any charge.

If these points be carefully considered, we feel sure that your correspondent will see that the proper use of the D.A. system is not only a luxury, but an actual economy.

THE ACETYLENE ILLUMINATING CO., LTD.

Indicator Diagrams.

Sir,—I see in *The Motor Cycle* for September 17th a very interesting letter over the signature of "Indicator." I also well recollect your articles in 1904 on the subject of "Indicator Diagrams and Petrol Engines." The whole point really is that with small high-speed engines most indicator diagrams so suffered from vibration and inertia effects on

both the gaseous and mechanical sides that it is difficult to get really reliable information. By means of what one may most conveniently call an oscillagraphic manograph it is possible to study with great accuracy the pressure variations in the working cylinder, and this, in conjunction with movable platinum thermometers and cross windows, forms a most valuable addition to the accurate study of high-speed engines. I might add that for many years I have written on the subject and advocated the use of indicators, even to the extent of showing different diagrams to readers.

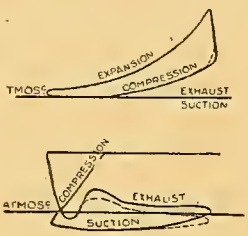
I frequently use a machine in my own work which could be applied with ease to an ordinary motor cycle engine in many cases without removing it from the frame, although, needless to say, very great care is necessary in manipulating this as with most other physical apparatus.

A. M. LOW, A.C.G.I., D.Sc., etc.

Sir,—Lest any ambitious "tuner up" should go to the expense and trouble of procuring an indicator and tackle, may I say a few words?

The indicator is not of much use unless the engine is running at somewhere near the full load. One can only imagine the harm that would be done to a motor cycle engine by running it at full load on the stand. The high speed also more or less puts the ordinary indicator out of the question, since these instruments do not give satisfactory results at over 400 r.p.m.

"Indicator" was correct in the main essentials of his diagrams, though, of course, the faults he illustrated were very much exaggerated. I enclose copies of two normal diagrams, the first being a full load card with a heavy spring and the second a light spring card showing the action of the suction and exhaust.



In the first card a normal pre-ignition, such as would be known as a "knock" in a motor cycle, is shown dotted. In the second diagram the exhaust is choked slightly, and with better silencing arrangements the dotted form would be obtained. The second diagram is, of course, a reproduction of the bottom part of the first to a much larger scale.

The only real use that the indicator would be on a motor cycle would be to show how the cylinder was filling and clearing itself, and also how the spark was timed. Even then it would probably be found that better results could be obtained by adjusting the spark by the ear and the feel of the engine.

M/C.

Some Despatch Riders.

Sir,—On the outbreak of the war I offered myself and machine for service either at home or abroad. I spent a lot of time in applying through various channels, but all in vain. Various reasons were given, among others, only 3½ h.p. machines were accepted for service, also the requisite number of motor cyclists had been obtained.

I have a pretty good working knowledge of the internal combustion engine, and I have a fast and reliable machine. Also I speak French fairly well. However, I am still one of the unemployed.

Now here comes the point. On no fewer than three occasions lately, and since Monday, 21st ult., I have had to assist Government and military motor cyclists. The first was a rider of a Triumph—a soldier. When I discovered him he was occupied in a futile endeavour to separate his valve cap from the sparking plug with an undersized King Dick. On enquiry, I elicited the fact that that constituted his entire tool kit! *Mirabile dictu!* Add to this the fact that I had his engine running in under three minutes without doing anything more than flooding the carburetter and pedalling in low gear and you will get an idea of the rider's fitness for his job.

No. 2 happened on September 22nd—a yeoman this time, in trouble with his throttle wire. No. 3 called upon me the following afternoon, having come four miles on a push bicycle to borrow a valve for his B.S.A. or a lift to his destination on Salisbury Plain. He was a despatch rider employed by the War Office, and did not think it necessary to carry a spare exhaust valve.

Now, sir, I think the facts speak for themselves. It would appear as though the War Department accepted anybody who applied during the first day or so of the war regardless of their abilities or qualifications for the job. Would it not have been better if they had taken the advice of the A.C.U. as to the best machines and riders? I understand that some sort of offer was made the War Office by the A.C.U., but for some reason or other was not accepted.

FRANK MAY.

Cheap Petrol.

Sir,—Your leader *re* cheap petrol is very apposite at the present crisis of the motor trade, but there is another aspect of the matter which affects our whole industrial prosperity, namely, petrol as a motive power for stationary motors where no other power is available or practical. I am of the opinion that 90% benzole could be made and sold at 1s. per gallon, provided not less than ten gallon drums are ordered, and I need not tell you that 90% benzole is in every way equal to petrol. I would be prepared to form a small syndicate of owners on mutual lines, but I desire to prevent the speculative and mercenary element getting a hold of such a syndicate; then benzole at 1s. per gallon in ten gallon free drums would be a practical certainty, and our motor manufacturers would, no doubt, co-operate with us to keep things in the hands of honorary directors, managers, etc., for common good.

VIRIBUS UNITIS.

Sir,—I have read with great interest your article on cheap fuels, and there is no doubt that what you say is perfectly correct, and you will learn with gratification that the happy state of things to which you refer has just come into existence, and a really first-class spirit is now available at 10½d. per gallon—1½d. less than the price you outlined. If motorists go about it the right way there is no need for them to use any other, as the results obtained from this new spirit are in every way equal to those obtained from the finest petrol. In my opinion, this new spirit is altogether superior to benzole, as it is perfectly clean, and makes no smoke.

One slight disadvantage with it is that the motor will not start on it when stone cold, and it is necessary to inject a little petrol into the induction pipe, and immediately the engine has fired a few times it will run right away on the new spirit. A better way, no doubt, is to have a very small torpedo tank holding one gill of petrol fixed on the top tube with a three-way tap attached, and all you have to do is to turn the petrol in the small tank into the carburetter, and immediately the engine has started turn the tap the other way so as to communicate with the main tank. My experts tell me that it is impossible to tell whether you are running on the best petrol or the new spirit. It is as well to have it understood at once that this spirit is not connected in any way with paraffin, and I am told there are millions of gallons available. Of course, the war will seriously interfere with the supply of this spirit, but there are very considerable stocks of it in this country which are available for immediate use. The way to go about it is to order a forty-gallon barrel from your agent, and keep this in your garden or yard and draw it off as required. I am also informed that, owing to its specific gravity, it does not come under the same regulations as petrol with regard to storage.

When the engine has once been started it can be stopped and will start again without using petrol within a quarter of an hour or even more.

The carburetters for using this spirit should be arranged so that there is a very violent suction past a pilot jet at low speeds, and with a carburetter of this sort the engine will tick over dead slow. The cost of a small torpedo tank with a three-way tap and pipe will be something about 10s., and can be fitted on the machine by anyone in ten minutes, and then you can run your machine at about half the cost of running on petrol. The chief trouble that I anticipate will be experienced with the makers of the machines, many of whom simply will not adopt anything new until it is forced on them by the public, as they claim that anything in the nature of an innovation upsets the routine of output. But there is little doubt that an invention which reduces the running cost 50% ought to need no talking about—the public will see to that—and that I am sure in a very short time a machine that is not arranged for using cheap fuels will be unsaleable, as no motor cyclist who is in his senses will run on a fuel at 1s. 6d. when he can run as well for 10d. or 11d.

CHAS. BINKS.

QUESTIONS AND REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Designing a Two-stroke Engine.

I am designing a multiple cylinder two-stroke engine, and before taking out a patent I wish to become conversant with the latest designs of this type, to prevent me infringing any other patents. I also wish for some information regarding proportions of ports and working parts, as I have had no experience in the work. Will you please recommend any books, which will cover the subjects?—P.L.C.

Owing to the extraordinarily rapid development of two-stroke engines, we are afraid that we cannot recommend you a book which covers anything like all the ground. Many designs have been described in detail in this journal during the last year or so. We should advise you to get a patent agent to make a proper search amongst the records of the Patent Office; he will then be able to tell you whether your ideas have been anticipated or not.

Petrol Jet Choked.

My machine is a 6 h.p. 1913 twin-cylinder. I have run the machine since last November without any trouble, but lately it has begun to go wrong. The engine suddenly pulls up with a jerk and then starts again, as if the jet had become stopped up and then suddenly freed itself. This continues until it finally stops. If I close the air lever, I can get the engine to run all right for a time, but the longer I run the less air it takes, until it will not run at all. I then take down the carburetter, and find it all right, the jet being quite clear and the petrol flowing freely into the float chamber. On putting it back without altering it, the engine will run perfectly for ten, twenty, thirty, or sometimes fifty miles, but sometimes it will not run for above a few minutes. I have tried the plugs, and find they will spark all right. I have also tried different levels of petrol in the float chamber.—J.C.B.

The trouble is undoubtedly due to a stoppage in the air vent or in the petrol pipe, or possibly to the presence of water. The symptoms referred to in your letter do not admit of any other explanation. Possibly there is an obstruction floating in the tank, which occasionally stops the petrol pipe orifice, or possibly the needle valve sticks and cuts off the petrol supply.

Consumption on Two-stroke.

I have a 2 h.p. two-stroke, and am troubled with mysterious back firing when the throttle opening is reduced, and would be very much indebted to you if you can enlighten me with your experience. It is not the ordinary crank case blow back, *viâ* the transfer port and inlet, but a decided metallic knock back which rings right through to the flywheel. I have cleaned out cylinder, ports, and exhaust pipe perfectly, and the only thing I am at present inclined to condemn is the magneto, on the grounds of double sparking. It is timed dead on top when retarded. You may be interested to hear that with the most careful driving I can only get about fifty-four miles to the gallon, and that with the smallest jet on which it is possible to run the engine.—E.A.H.

Your trouble sounds as though it were caused through weak mixture, due to too small a jet or choked passages, but if you are absolutely certain that it is not a blow back we should be inclined to suspect the plug. As you have probably discovered, the plug on a two-stroke gets extremely hot, and we should advise a single-point plug with a heavy electrode. Your remarks *re* petrol consumption at the end of your note are interesting, for with a very similar type of motor cycle we have personally succeeded in getting approximately seventy miles to the gallon—to be exact sixty-eight and a half—and this with a medium jet and the machine being driven with no idea of consumption. Examine the tank and petrol pipes for leakage, and test freeness of hub bearings.

A Dog Owner's Liability.

When riding a motor cycle along a country lane a month ago a dog rushed out of a cottage gate, and ran under the front wheel of the machine, causing a skid. I fell under the machine, sustaining a fractured foot. I am told this dog has a habit of rushing out at cyclists and others when passing. The accident occurred half an hour after sunset. Is the owner of the dog in any way liable for damage?—G.W.C.

If you can prove that the dog is in the habit of attacking riders, and that the owner himself knew of this propensity, you have undoubtedly got a good legal case against him, but, unless you are in a position to prove this, we fear that you have no remedy. It sounds very unfair, but that is the present position of the law, and you have our sincere sympathy in the matter.

ALL ABOARD.

A happy family in an Ariel sidecar on the sands at Dymchurch, Kent.

Legal Formalities Before Riding.

Possibly you will think my questions rather trivial, but doubtless there are other novices like myself just about to become riders, who may also profit by your remarks. I want you to tell me exactly what I must do to comply with the law on taking over my machine.—NEW RIDER.

First of all you must go to the nearest county or borough police station and get the authorities to give you a registration number which costs you 5s. This number you must have placed on the machine in front and at the rear. You must then get a driving licence at the same place. This costs you another 5s., and is valid for twelve months from the date of issue. You must then go to the nearest post office and pay the annual revenue tax of 20s., valid to December 31st of the same year. If you register the machine after October 1st the revenue tax is 10s. for the rest of the year. You are then free to ride your new purchase.

Effect of Benzole on the Jet.

I have this year taken to running my motor cycle on benzole. I find the advantages are that the engine does not knock and that carbon deposit is soft, and thus can easily be removed. But I find one serious drawback, and that is that after a few hundred miles' running the jet becomes completely clogged up. Once or twice I have been able to clean out the jet without damaging it, but on two occasions it has been so clogged that I have spoiled the jet in trying to free it, and have had to get a new one. Can you throw any light on this?—JETTE.

It is difficult to say what can have caused the obstruction you mention. It sounds a case for a chemist to investigate. We ourselves have run thousands of miles on various brands of benzole with different carburetters, but have never experienced a like happening. Benzole rapidly discolours the jet and turns it black, but nothing worse. We advise you to take a sample of the spirit you use to an analytical chemist and show him the jet when clogged, and doubtless he will find a reason for the trouble.

Liverpool to Bristol.

Will you kindly advise me as to the best route from Liverpool to Bristol? As this is my first long ride I would like to keep to the main road as much as possible and avoid bad hills. Perhaps you would also tell me the distance?—V.M.

This is quite one of the nicest day's runs you could plan. Nearly all the way the route lies over excellent roads, and most of it is through charming scenery. Care should be exercised in passing through Shrewsbury. Leave Liverpool by the Birkenhead ferry, and then go through Chester, Whitchurch, Shrewsbury, Craven Arms, Ludlow, Leominster, Hereford, Monmouth, Chepstow, Severn Tunnel Junction, where you take a train to Pilning, and thence on to Bristol. The distance is a little under 150 miles.

Timing a Four-cylinder F.N.

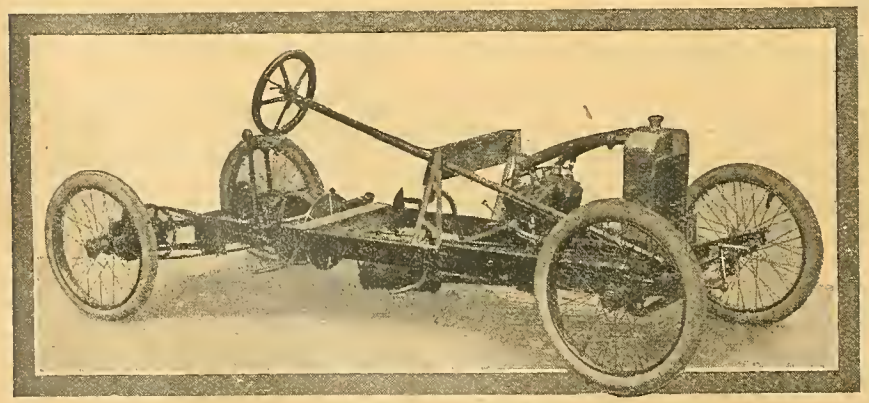
Will you kindly give me a few hints with regard to the timing of the magneto of a four-cylinder F.N.? Mine is a 1909 model, which I recently bought second-hand, and I had to remove the magneto and the distributer for some repairs a short while ago and am at a loss to know how to proceed in the timing. Should the gear or cogwheel on the engine shaft or magneto shaft be detached? In which case it will not be easy to put them back in position, as these gear wheels lie between the magneto and the engine and are not accessible.—J.R.G. (Jamalpur, Bengal).

Turn the crankshaft until the piston of the back cylinder is five to six millimetres from the top of the compression stroke. Unless the slide holder has been altered, the carbon brush of same will point to the position of the bottom right hand terminal of distributer, assuming the latter is in position. Now grasp the contact breaker of magneto and turn it until maximum resistance is felt, and slide the magneto gear wheel into engagement with the corresponding wheel on the crankshaft of the engine. Having bolted the magneto and fitted on distributer, verify the timing. The points of the contact breaker should commence to part when the piston is in the aforementioned position, or any other piston for that matter. The wiring of the distributer in relation to the respective cylinders is bottom right wire to back cylinder. Top right wire to third cylinder from back (or second from front). Bottom left wire second cylinder from back. Top right wire front cylinder. The lengths of the wire will, in themselves, show to which cylinders they go.

Remagnetising a Magneto.

I should be much obliged if you would advise me how to remagnetise the magneto of a 1911 twin machine, the spark being weak. Being an electrician, I should like to do this work myself for the experience.—J.B.

The question you ask us is rather out of our province. Roughly, the magnets are arranged across the pole pieces of the dynamo and intermittent shocks are given. These instructions are, of course, too vague for you to work to, and we should advise you to consult some standard work on the subject if you still desire to carry out the work yourself, but we should be inclined to advise you to return the magneto to the manufacturer or to some first-class magneto company, as it frequently happens that a weak spark is not due to demagnetisation. If the magnets were first-class when new, it is extremely improbable that they will have lost their power unless they have been improperly handled.



CHASSIS OF THE D'ULTRA CYCLE CAR.

This car, which was described on page 346 in our issue of September 17th, has a V type water-cooled engine, and friction gear and final drive by a single chain.

READERS' REPLIES.

A Mysterious Complaint.

It may prove of interest to know that I had exactly the same symptoms, mentioned by your correspondent in the issue of August 27th, with the exception of the "popping" in the carburetter, in my single-cylinder Zenith, and I went through exactly the same procedure as your interrogator. I eventually proved it, without a shadow of doubt, to be due merely to a choked silencer. When this had been cleared the machine ran well.—J. P. BURTON.

More Speed Required.

In re your issue of September 17th on page 358 under the above heading, I should like to make a suggestion. If your correspondent refers to an early three-speed Triumph motor cycle it is highly probable that the clutch mechanism is slighty at fault. I had similar trouble with my early 1913 machine owing to the clutch not being quite "free." This was obviated by filing away a portion of the footrest socket and under side of clutch pedal to allow the pedal to stand further back when the clutch is in. I found this gave the clutch a "freer" movement.—A.P.

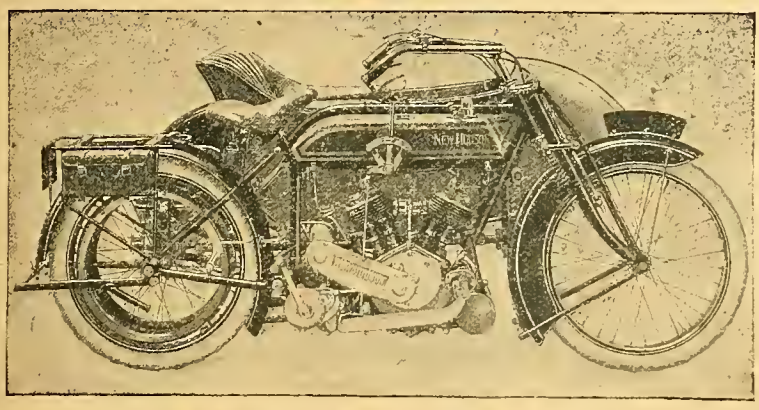
EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"W.P." (Northleach).—Chain-driven Levis. Speed and power on hills.

"H.D." (Tregony). — Humberette (water-cooled). Ease of starting, springing, cooling, and petrol consumption.

"R.J.P." (Belfast).—Reliability, durability, and petrol consumption of 2½ h.p. two-stroke New Ryder or Levis compared with Douglas 2¾ h.p.



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The Big Six Passenger Combination — a machine of super efficiency that ensures Perfect Service and Absolute Satisfaction under the most strenuous conditions of service. Provides all the pleasure, comfort, and convenience of a car.

PRICE, complete with De Luxe Coachbuilt Sidecar, **£88 - 4 - 0** Solo Model, **£75 - 12 - 0**

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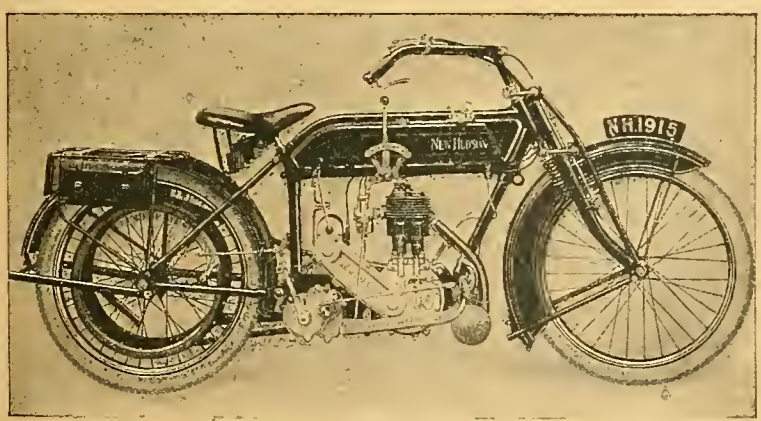
The Military Service Model. Specially built for Serviceability, Efficiency, and Reliability. It is pre-eminently the machine for military requirements.

New-Hudson 3½-4 h.p. Engine with Countershaft Gear of Motor Car Type (3-speeds). High-grade equipment. Service grey finish. PRICE **£57 - 10 - 0** net.

The Service Model.



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THE New-Hudson 2 STROKE 2 Lightweights

in four distinct and popular priced models, covering the widest range of usefulness at a low cost.

Model A. 2¼ h.p. 2-Stroke Engine, Low Built Frame, New-Hudson Druid Forks, Dunlop Tyres, Lycett's Saddle, etc., etc.

Price **£27 - 5 - 0** net.

Model C, with Countershaft 2-speed Gear,

Price **£33 - 0 - 0**

Write for Catalogue.

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GLASGOW - - 44, Sauchiehall Street.
BRIGHTON - - 6, Western Road, Hove.
EDINBURGH - - 32, Shandwick Place.
BELFAST - - - - - 108, Ann Street.
DUBLIN - - - - 29, Bachelor's Walk.
HULL - - - - - 58, Anlaby Road.

AGENTS EVERYWHERE.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. ooo, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Son; Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 1914, 6h.p., and sidecar, shop-soiled only; £75. —Walsall Garage, Walsall. [X0235

A.J.S., 1913, 2¾h.p., 2-speed, speedometer, spare; excellent condition; price £35.—Vinter, Grafton, York. [X0279

A.J.S., 2¾h.p., and Watsonian £10 featherweight sidecar, shop-soiled only; £49/10.—Walsall Garage, Walsall. [X0236

A.J.S., 2¾h.p., late 1913, in perfect condition, with about £7 of fittings; owner joining army; £30.—Cyril Jervis, Wick, Pershore. [X0208

1914 A.J.S., Combination, beautifully equipped with spare detachable wheel, lamps, speedometer, etc.; £85.—North Wales Motor Exchange, Holt St., Wrexham. [7462

A.J.S., 6h.p., 1913, 1914 sidecar, coachbuilt, hood, wind screen, D.A. Lucas lighting, Watford, electric horn, all accessories, just overhauled.—29, Osborne Rd., Forest Gate. [X0342

1914 A.J.S., 750 c.c. engine; cancelled order; £65; with £23 Bramble De Luxe coachbuilt sidecar, hood, screen, and storm apron, £78.—Hilton and Son, Foxhall Sq., Blackpool. [X0324

A.J.S., 2¾h.p., 2-speed, September, 1913, splendid condition, only done 2,000 miles, new lamp, tools, spares; cost £52, best over £30.—Poulton, Clarence House, Greatbridge, Staffs. [7386

BUYERS GET BEST & MOST ADVANTAGES AT

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The Largest Stock from which to choose the best models of highest grade makes at lowest and absolutely unbeatable prices, and every machine sold ready for riding and fully guaranteed.

LET US SEND YOU TO-DAY'S BARGAIN LIST OF MOTOR CYCLES FOR SOLO RIDING OR WITH SIDECARS FOR PLEASURE OR FOR BUSINESS, MILITARY MOTOR CYCLES, AND LIGHT CARS. . . . IT INCLUDES :

8867.	5	h.p. 1912 2-sp. **A.J.S.** and S'car	£39	0
8871.	6	h.p. 1914 **ENFIELD** and Sidecar	£6S	0
8873.	8	h.p. 1914 W.C. **HUMBERETTE**	£9S	0
8874.	3½	h.p. 1912 2-sp. **INDIAN** and Sc.	£33	10
8876	8	h.p. 1913 W.C. **WILLIAMSON** and Sidecar	£S7	10
8878.	2¾	h.p. 1909 **DOUGLAS**	£15	0
8865	3½	h.p. 1913 2-sp. Twin **BROUGH**	£30	0
8863	2¾	h.p. 1912 Standard **DOUGLAS**	£25	0
8861	7	h.p. 1914 **SWIFT** Cycle Car	£115	0
8858	3½	h.p. 1912 Twin **HOBART**	£22	10
8846	2¾	h.p. 1913 Model "O" **DOUGLAS**	£37	10
8843	3½	h.p. **MIDGET** Bicar	£20	0
8842	6	h.p. 1912 **ZENITH-GRADUA**	£37	10
8841	6	h.p. 1912 2-speed **REX** Sidette	£42	10
8840	6	h.p. 1914 **ROYAL ENFIELD** and Sidecar	£67	10
8834	8	h.p. 1914 **HUMBERETTE**	£105	0
8826.	2¾	h.p. 1913 Mod. "R" **DOUGLAS**	£38	0
8795.	2½	h.p. 1914 2-speed 2-stroke **CONNAUGHT**	£28	10
8792.	3½	h.p. 1913 3-sp. **ROVER** and S'car	£48	0
8784.	3½	h.p. 1909 **BRADBURY**	£16	0
8782.	3½	h.p. 1912 **T.T. TRIUMPH**	£25	0
8776.	6	h.p. 1913 2-sp. **ENFIELD** and Sc.	£S2	10
8772.	6	h.p. **ROVER** Car	£25	0
8765.	2¾	h.p. 1914 2-stroke **LEVIS**	£25	0
8762.	6	h.p. 1913 3-speed **BAT**	£45	0
8746.	6	h.p. 1913 **A.C.** Sociable	£55	0
8741.	3½	h.p. 1912 **TRUMP-J.A.P.**	£30	0
8737.	6	h.p. 1912 **ZENITH** and Canoelet	£45	0
8718.	3½	h.p. 2-sp. **FAFNIR** and Sidecar	£22	10
8715.	3½	h.p. 1913 **ZENITH-GRADUA**	£35	0
8708.	2¾	h.p. 1910 **DOUGLAS**	£17	10
8706.	6	h.p. 1913 2-sp. **ENFIELD** and Sc.	£55	0
8705.	3½	h.p. 1912 F.E. **RUDGE**	£25	0
8702.	2	h.p. 1912 **MOTO-REVE**	£12	10
8682.	6	h.p. 1913 2-sp. **V.S.-J.A.P.** and Sidecar	£45	0
8654.	3½	h.p. 1910 Standard **TRIUMPH**	£22	10
8592.	3½	h.p. 1908 **QUADRANT**	£15	0
8568.	3½	h.p. 1910 **BRADBURY**	£18	10
8561.	3½	h.p. **VINDEC** and Sidecar	£17	10
8554.	8	h.p. 1913 2-speed Air-cooled **WILLIAMSON** and Sidecar	£50	0
8551.	2¾	h.p. Twin **FAIRY**	£10	10
8502.	3½	h.p. 1908 **TRIUMPH**	£20	0
8412.	3½	h.p 1908 **TRIUMPH**	£18	10
8367.	8	h.p. 1912 3-sp. **CHATER-LEA** and Sidecar	£65	0
8359.	6	h.p. Twin **BROWN** and Sidecar	£20	0
8338.	3½	h.p. 1910 **BRADBURY**	£20	0
8336.	2¾	h.p. **F.N.**	£10	10
8335.	3½	h.p. 1909 **TRIUMPH**	£20	0
8323.	3½	h.p. 1912 **LINCOLN-ELK**	£20	0
8320.	3½	h.p. 1911 **ARIEL**, variable gear	£20	0
8306.	3½	h.p. 1907 **TRIUMPH**	£17	10
8277.	6	h.p. 2-sp. **N.S.U.** and Sidecar	£25	0
8258.	5-6	h.p. Twin **V.S.**	£16	10
8238.	8	h.p. 1913 2-sp. **BAT** and Sidecar	£48	0
8210.	2¾	h.p. **F.N.**	£10	10
8197	3½	h.p. 1911 **N.S.U.**	£20	0
8175.	6	h.p. 1913 2-speed **N.S.U.**	£45	0
8165.	6	h.p. **BAT** and Sidecar	£22	10
8079.	3½	h.p. 1912 Standard **TRIUMPH**	£28	10
8003.	2¼	h.p. 1910 **ROYAL ENFIELD**	£12	10

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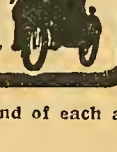

MOTOR CYCLES FOR SALE.

A.J.S

1914 A.J.S., 2¾h.p., 3-speed, semi T.T. handle-bars, Lucas lamp, horn, demonstration model; £46.—Hilton and Son, Foxhall Sq., Blackpool. [X0325

A.J.S., 1912, 5h.p., with 2-seater Bowser sidecar, lamps, horn, speedometer, 3 spare tubes, etc., not run 1,500 miles since thoroughly overhauled by makers; £55.—Brooke, Temple Buildings, Swansea. [X9552

A.J.S., 6h.p., late 1913 model, complete with practically new Bramble £14 sidecar, Lucas lamp, horn, and speedometer; £59/10.—The Great A.J.S. Specialists, Walsall Garage, Wolverhampton St., Walsall. [X0239

Antoine

ANTOINE, 3½h.p., free clutch, sidecar, perfect condition; £13/10.—71, New King's Rd., Fulham. [7358

Ariel

ARIEL, 3½h.p., 1911, free engine, variable pulley, excellent condition, spring seat-pillar; £20, or offer. —Underwood, Brook St., Ipswich. [X0142

ARIEL, 3½h.p., 3-speed, kick starter, late 1913 model, and Canoelet sidecar, condition as new, numerous spares; £42.—15, Waring St., Belfast. [X0145

Arno.

ARNO, 1913, 3½h.p., 3-speed, coachbuilt sidecar, accessories; best cash offer.—Carlton, Spencer Rd., Croydon. [7390

Auto-Wheels.

AUTO-WHEEL, nearly new; £10/10, cost £16/16.—Hilton and Son, Foxhall Sq., Blackpool. [X0326

WALL Auto-Wheel, fit any push cycle; £12/12.—W. W. Smith, Luther Cottage, Odd Down, Bath. [7399

AUTO-WHEEL, 1913, with 3-speed Fleet, 1914; £15.—Heath, 56, Grosvenor Park Rd., Walthamstow. [7368

Bat.

BAT, 8h.p., 2-speed combination.—Particulars, Jones, 11, Hawkshead St., Southport. [X0346

BAT-J.A.P., 1911, 8h.p., cane sidecar, first-class order; offers over £18/10.—140a, Fordel Rd., Catford. [7573

BAT, 1914, 5h.p., 3 speeds brand new, shop-soiled; list £70, accept £58.—P. J. Evans, John Bright St., Birmingham. [7555

BAT-J.A.P. Cambination, bought new 1914, chain, 2 speeds, kick start, faultless condition; £48.—Bleacathra, Highfield Rd., Walton-on-Thames. [X0271

1912 6-8h.p. Twin Bat-Jap, free engine, Binks carburetter, drip lubrication, fitted £14 aluminium sporting sidecar, Lucas and electric lamps, horn, tools, winner of several medals, go anywhere; bargain, £36. —Box 6,713, *The Motor Cycle* Offices, Coventry. [X0285

Bradbury.

1914 Bradbury, Sturmey gears, lamp; £39.—A. Lee, Grocer, Over Lane, Belper. [7366

3½h.p. Bradbury, 2-speed N.S.U., Bosch; bargain, £21. —Peach, Tennyson Av., Chesterfield. [X0303

BRADBURY, 2¾h.p., fine engine, Bosch waterproof mag.; £7/10.—S., 45, Church Rd., Acton. [X0311

1913 Bradbury, 4h.p., 1914 sidecar; £40; exchange 1914 Douglas solo.—Browning, 196, Bedford Hill, S.W. [X0010

BRADBURY, 1911, 4h.p., free engine, sound throughout; £25.—P. J. Evans, John Bright St., Birmingham. [7559

1912 Bradbury, 2-speed, sidecar, Lucas, accessories, spares; £32; exchange lightweight and cash.—28, Abbey Walk, Halifax. [X0321

1914 Bradbury, 8h.p., 3-speed, sidecar combination, brand new; list price £92/10; what offers?—Alexander's, 115, Lothian Rd., Edinburgh. [7372

BRADBURY, 1914, 4h.p., 2-speed, chain and belt; cost £58, sacrifice £45; done 300 miles only, perfect.—Jacksons, Ironmongers, Gainsborough. [X0141

1912 Bradbury and Sidecar, 2-speed gear model, Senspray carburetter, tyres and engine excellent; any trial; £30.—Eastwood, 111, Brewerton Rd., Oldham. [X0243

BRADBURY, 1913¾, 4h.p., 3-speed, Harcourt radiators, tools, accessories; trial; owner for active service; £36.—Sergeant Howes, Lancer Depot, Woolwich. [7511

BRADBURY, 3½h.p., 1913, 2-speed gear, kick starter, coachbuilt sidecar, in fine condition; £35, a bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [7428

BRADBURY, 1912, special model, with Forward coachbuilt sidecar, 2-speed, chain drive, and free engine hub, speedometer, lamp, horn, and spares; £37.—Andrews, Heage Rd., Ripley, Derby. [X0306

Brough.

T.T. Brough, 500 c.c., horizontal twin, 1914, just fitted with latest engine Anguet, absolutely perfect; £38/10.—W. S. Life, The Cliffe, Southport. [0575

MOTOR CYCLES FOR SALE.

Brough.

BROUGHS.—Immediate delivery from stock of the 500 c.c. horizontal twin 2-speed overhead valve models.—The West Lancashire Motor Co., Southport. [0555

Brown.

2¾h.p. Brown, thoroughly overhauled, good tyres, new belt, B. and B.; £9/10.—F. Copsey, 58, Market Place, Romford. [7524

5-6h.p. Brown, mag., free engine, Druid spring forks, P. and H. lamp set, electric rear light, good tyres and tubes, also sidecar attached; £18/10; seen by appointment.—Motor Cycle, 602, King's Rd., Fulham, London, S.W. [7402

B.S.A.

B.S.A., 1913-14, 3½h.p., clutch model; sell, or exchange Douglas and cash.—43, Hartington Rd., Salisbury. [7515

B.S.A., 3½h.p., late 1912 (1913 model), 2 speeds, free engine, as new, all accessories; offers.—Elliott, Hanover Chambers, Hull. [7491

1914 B.S.A., 3-speed, chain drive, new, shop-soiled; list price £63; what offers?—Alexander's, 115, Lothian Rd., Edinburgh. [7378

B.S.A., Millford sidecar, counter-shaft 2-speed, 1913, drip feed, all spares, hardly scratched; £45.—Judge, Edgworth Rd., Sudbury, Suffolk. [7383

B.S.A., 1914, counter-shaft 3-speed, as new, with or without coachbuilt sidecar; cheap; would entertain lightweight and cash.—Saywell, Wheeler Gate, Nottingham. [X0144

B.S.A. Free Engine Clutch, new, 35/-, bargain; new automatic B.B. carburetter, 15/6; ditto ordinary, new, 14/6; Phelon-Moore 2-speed gear, 20/-.—Fearn, Drapery Stores, Alfreton. [7496

Calthorpe.

1914 Calthorpe Junior, new, shop-soiled; first cheque 21 gns. secures.—Alexander's, 115, Lothian Rd., Edinburgh. [7375

Campion.

1911 3½h.p. Campion, free engine, good sidecar machine, thorough working order; £17.—7, Radcliffe Terrace, Redcross St., Leicester. [X0286

CAMPION-J.A.P., 1912, 3½h.p., Armstrong 3-speed, Lucas lamp, and all accessories, in good order; £32.—C. Penny, Burlington St., Ulverston. [X0317

Chater-Lea

CHATER-LEA Combination, 8h.p., 3-speed gear box, overhauled, re-bushed; bargain, £40.—Kinner, Letchworth, Willow St., Romford. [X0011

Clyde.

CLYDE-J.A.P., 1914, 6h.p., 2 speeds, chain drive, and Rex cane sidecar; cost over £90; £62, or exchange single and cash.—Fowkes, Loseby Lane, Leicester. [7360

Clyno.

CLYNO 6h.p. Combination, as new, 3-speed; £63, bargain; offers.—C., 4, Dollis Rd., Church End, Finchley. [7447

CLYNO, 1914, No. 6 sidecar, hood, screen, perfect condition; £75.—11, Arundel Gardens, Winchmore Hill, N. [7405

1913 3-speed Clyno Combination, lamp, horn, tools, etc.; any trial; £57/10, offers.—Wm. Burrows, Cudworth. [X0290

1912 Clyno, 6h.p., coachbuilt sidecar, just overhauled at Clyno works, condition guaranteed.—Farmer, Philadelphia St., Bristol. [X0209

CLYNO and cane sidecar, 1912, speedometer, 2 lamps, excellent condition; 35 gns.—Macdonald, 757, Lea Bridge Rd., Walthamstow. [7065

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1913½ Clyno and Sidecar, splendid condition, spare wheel, speedometer, etc.; cost over £100, bargain, £57.—Greenwood, 36, Hainton Av., Grimsby. [7395

CLYNO, 1912, 5-6h.p., 2-speed, kick starter, thoroughly overhauled and in perfect condition, tyres almost as new, F.R.S. lamp; £33, new, offer considered.—Wooldridge, Lydd, Kent. [X0265

CLYNO Combination, 1913½, 6h.p., 3 speeds, interchangeable wheels, lamps, horn, Jones trip speedometer, watch, Lucas handle-bar mirror, spare wheel, with new Palmer tyre, in excellent condition; £65.—Dowson, 3, Houghton Grove, Beeston Hill, Leeds. [X0005

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CONNAUGHT, 1914, fixed engine, perfect condition; £25.—Lambert, 30, Craighall Cres., Leith. [7359

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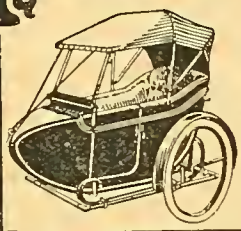

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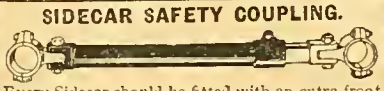

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DOUGLAS; all models supplied, cash or easy terms.—Turpins, 22 and 29, Preston Rd., Brighton. [0509

DOUGLAS, 1912, K model, 2-speed, kick starter, clutch; £30.—14, Turle Rd., Finsbury Park, N. [7506

DOUGLAS, 1910, just fitted with new engine and tyres; £18, a bargain.—Westlake, Swaythling, Hants. [7153

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DOUGLAS, 1914½, model W, good as new; £44; come and try it.—C. H. Kidd, Shotley Bridge, Co. Durham. [X0296

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1914 Model B Douglas Motor Bicycle, 3½h.p., specification as list; £56.—Robinson's, Green St., Cambridge. [6867

DOUGLAS, all models for immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6610

1914 Douglas, 2 speeds, footboards, complete with Lucas lamp, horn, etc.; £48; quite new.—Cross, Agent, Rotherham. [X0293

DOUGLAS 1914, model V, 2-speed, free engine, done 400 miles, accessories; £40.—Auto Mart, 133, Hammersmith Rd., W. [7539

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1914 Douglas, model U, list price £48, never been on the road; must sell; £44.—Shand, 5, Upper Dean Terrace, Edinburgh. [7373

DOUGLAS, 2¾h.p., perfect condition, new belt, splendid tyres, lamp, horn; £16 cash, bargain.—Oakes, 56, Portway, Frome, Somerset. [7465

1913 Douglas, Model R, 2 speeds, clutch, kick starter, footboards, perfect order; £37.—Bond, 245-247, Euston Rd., London. [7547

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1914 Douglas, model W, unpunctured, unscratched, lamp, horn; £42; any examination.—W.B., 81, Prince of Wales Rd., Kentish Town, N.W. [7406

DOUGLAS, 1914 model B, quite new, but slightly shop-soiled; £56, usual price £62.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [7429

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1914 Douglas (August), 2-speed, clutch, lamp, horn, insurance; owner enlisted; cost £58/10, accept £45; £15 motor part payment.—76, Camp Hill, Birmingham. [X0001

1913½ Douglas Model R, clutch, kick start, 2-speed, and all spares, hardly been used, original tyres, everything like new; £37.—Machine, 127, Delce Rd., Rochester. [7458

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1913½ Douglas, 2¾h.p. 2-speed clutch model, kick starter, F.R.S. lamp set, horn, 3 gn. Watford speedometer, perfect condition, very little used, 1,000 miles; £42, cost £58, bargain.—Shields, 40, Newton Drive, Blackpool. [7518

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ELSWICK 1913 Big Single, Precision, 4¼h.p., 3-speed gear, cane sidecar, grid, overall, spares, and accessories; £40, big bargain.—7, Vale Terrace, King's Rd., Chelsea, S.W. [7467

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ENFIELD, 1914, 2¾h.p., 2 speeds, free engine, very little used.—Woods, 14, Hurst Grove, Bedford. [X0232

ENFIELD, 2½h.p. twin, accessories, fine condition; £16.—Auto Mart, 133, Hammersmith Rd., W. [7540

1912 2¾h.p. 2-speed F.E. Enfield, guaranteed in perfect order; £23.—Earl, 5, Heath St., Hampstead. [X0360

ENFIELD. 1914, 2¾h.p., 2-speed, tools, horn, new April, excellent condition; £30 cash.—Edmunds, Soham, Cambs. [X0246

ENFIELD, 6h.p., 1913, 2-speed combination, excellent order; £55.—P. J. Evans, John Bright St., Birmingham. [7557

ENFIELD, 1914, 2¾h.p., 2 speeds, free engine, kick starter, new June; £35, or near offer.—Main, 32, Parade, Leamington. [X0304

ENFIELD, 1913, 6h.p. combination; special bargain, £46/10.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [7430

ENFIELD, 2¾h.p., perfect condition, good tyres, speedometer; £18; seen by appointment.—Ward, 167, London Rd., Kingston. [X0344

ENFIELD 1914 6h.p. Combination and accessories, good condition; accept £70.—Skerrett, 28, Wake Green Rd., Moseley, Birmingham. [X9817

ENFIELD 1914 6h.p. Combination, coachbuilt sidecar, perfect running order; £65, a genuine bargain.—Sawyer, 50, The Avenue, Ealing. [7520

ENFIELD Combination, 6h.p., 1913, condition as new; £63, cash, or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X0215

ENFIELD 1914 Combination, run about 5,000; cost with fittings nearly £100, sell best offer over £50; owner abroad.—S. Marshall, Chalton Park, Belford, Northumberland. [X0255

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4h.p. Excelsior, cut-down frame, vertical engine, 1913 Amac, new torpedo tank, lamp and horn, sound condition; £15; seen after 6 p.m.—Motor Cycle, 36, High St., Woking Village, Surrey. [X0009

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F.N. Lightweight, mag., excellent condition throughout; £9/10, lowest.—Morgan, 60, Kingscourt Rd., Streatham. [7411

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F.N., 2½h.p., 1913 model, 2-speed gear, splendid order; £28, or near offer.—Wharf Engineering Co., Parsons Wharf, Ilford. [7448

2¾h.p. F.N., new U.H. mag., splendid running order, engine like new, 2 spare belts and tyres; accept £8/10.—82, Haselrigge Rd., Clapham, S.W. [7492

3-SPEED Clutch 5h.p. 1912 F.N., new 1913, accessories, everything perfect, many improvements; expert owner; £29.—Harrison, c/o Purcells, 78, Charlotte St, W. [7503

F.N., 4-cyl., 1911, and Wolbrown sidecar, 2-speed, plate clutch, speedometer, lamp, horn, hand starter, not done 3,000 miles, like new; cost £85, sell £35, or exchange with cash for T.M.C.—10, Brantwood Rd., Luton, Beds. [7393

Hazlewood.

1914 5-6h.p. Hazlewood, 3 speeds, new Whit. week, and only ridden 500 miles; cost £68/5; sacrifice for £58.—125, London Rd., Manchester. [0562

Holden.

HOLDEN, 4-cyl., 2¼×4½, horizontal, water-cooled, crank drive.—Ripley, Elk House, Tynemouth. [X0230

Humber.

HUMBER, 2¾h.p., splendid order throughout, accumulator; £5/5.—Speechley, 45, Church Rd., Acton. [X0313

1911 3½h.p. Humber and sidecar, 2-speed, handle starting; £20.—1, Albion Terrace, Childs Hill. [X0334

1913 Humber, 2h.p., splendid condition; £15.—Davies, Aima Cottage, Maesgwyn Rd., Wrexham. [X0305

1913 Humber, twin, 2¾h.p., very lively, done 1,000; £25 or offers.—Pulford, Brinkley, Southpert. [7535

HUMBER, 2¾h.p., late 1912, free engine, excellent condition; £22.—Eaton, 60, Chase Side, Southgate. [7533

1912 3½h.p. 2-speed Humber, completely overhauled, perfect throughout; offers.—Coombs, Lockerbey, Hants. [7403

HUMBER, 1914, 2¾h.p., 3-speed, twin, brand new; accept £37.—P. J. Evans, John Bright St., Birmingham. [7558

HUMBER, 1911, 3½h.p., F.E., 2-speed gear, handle starting, condition equal to new; £25.—Beacher, Seend, Melsham. [7452

HUMBER, 3½h.p., 2 speeds, free, B. and B., Bosch, Dunlops (new), accessories; £18.—Wright, 133, Clonmell Rd., Tottenham. [X0252

NEW 2h.p. Humber Lady's Motor Cycle, 3 speeds and free engine; cost £50, take £40, or near offer.—Taylor, Motor Agent, Kettering. [X0194

HUMBER, 1914 (April), 2¾h.p. twin, Armstrong 3-speed, fast, perfect, accessories; reasonable cash offers.—266, Mose Lane East, Manchester. [7413

HUMBER, 2¾h.p., T.T. twin, in splendid condition throughout, smart, fast, and reliable; great bargain, £25.—Crypto, 14, Mortimer St., W. [X0335

HUMBER, 1912-3, 3½h.p., 2-speed, Perfect, spares, £33; with Cowey, lamp, mirror, watch, £36; enlisted.—5, Appach Rd., Josephine Av., Brixton. [7437

HUMBER, 1912½, 3½h.p., 2 speeds, speedometer, lamps, all accessories, Mills-Fulford 13 gn. sidecar, perfect condition; £30.—Cole, 56, Newington Green, London, N. [7434

Indian.

1913 7h.p. T.T. Indian, £59; clutch model, perfect, £37/10.—11, Jackson St., Blackpool. [X0229

5h.p. Indian, free engine, in splendid condition; £30.—W. W. Smith, Luther Cottage, Odd Down, Bath. [7398

1914 Standard Indian and sidecar, 800 miles, perfect; any trial; £68.—185, Markhouse Rd., Walthamstow. [7416

INDIAN, 7h.p., 1913, spring frame, 2-speed, perfect; £43/10.—Write, Leeds, 55, Shaftesbury Av., W. [7553

1913 7h.p. Indian, 2-speed, Swan sidecar, speedometer, Xl'all, carefully used; £50.—53, Brixton Rd., S.W. [7537

INDIAN, 1914 model, 7h.p., practically unscratched, 680 miles; offers wanted.—Leslie Bucknall, Langley Court, Beckenham. [0580

INDIAN and sidecar, 7-9h.p., 1912¾, 2-speed, kick starter, all like new; trial; £40, bargain.—Wright, Newsagent, Arlesey, Beds. [7543

MOTOR CYCLES FOR SALE.

Rover.

ROVER, 1912, 3-speed, and coachbuilt sidecar, perfect order, new back tyre, accessories, spares; £32/10.—Yorath, 3, Hammersley St., Hanley, Staffs. [0281

ROVER, 1914, 3½h.p., 3 speeds, complete with lamp and horn, only used for demonstration purposes (tank slightly damaged); £42/10.—Walsall Garage, Walsall. [X0241

ROVER (1914, June); best offer over £50 secures 3-speed Rover, with coachbuilt sidecar, special chassis, screen, etc., or would separate.—Harcourt, 125, Jockey Rd., Sutton Coldfield. [7497

LATE 1913 Rover, with 1914 Millford Corvette sidecar, engine is exceptionally powerful, whole combination is in perfect condition; accept £45.—Beechcroft, Park Rd., Sutton Coldfield. [7514

Rudge.

RUDGE, 1912 model, 3½h.p., fine machine; £22.—Speechley, 45, Church Rd., Acton. [X0310

RUDGE Multi, 1912½, 5,000 miles, lamp, horn, spares; £28.—Hitche's Garage, Eltham. [7382

£35.—Rudge Multi, 1912½, Senspray, complete, perfect, X'all; lightweight part.—Shone, Northlands, Chichester St., Chester. [7400

1912½ Rudge, free engine, kick start, in splendid condition, all spares and accessories; £22.—Rose, 49, Milend Rd., London E. [7490

RUDGE Multi, 1914, sidecar, perfect condition, fast, all accessories, new tyre; £45; would separate.—Smith, Park Parade Garage, Palmer's Green. [X9841

RUDGE, 5-6h.p., 3-speed, 1914, exhaust whistle, all tools and spares, good sidecar machine; £40.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

Sarolea.

5h.p. Twin Sarolea and cigar shaped sidecar, Mabon variable gear, B. and B., Bosch; £22.—Parsons, 42, Aytoun Rd., Stockwell. [7542

Scott.

1914 Scott, excellent condition, only done 600 miles.—S. Zenith, Hampton Court. [X0187

SCOTT, 1914 model, not done 500 miles; a great bargain, £43/10.—Walsall Garage, Walsall. [X0237

LATE 1913 Scott and sidecar, all accessories, spares, practically new; any trial; £50.—185, Markhouse Rd., Walthamstow. [7416

SCOTT, 1911¾, folding sidecar, 1913, speedometer, 600 miles, lamp, horn; £38.—35, Alexander Rd., Acock's Green, Birmingham. [X0298

1911 Scott Motor Cycle, in thoroughly good order; £27/10; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0547

SCOTT, 2-stroke, w.c., only done 3,000 miles, good as new; sacrifice owing to war. £45.—Dispatch Motor Co., Ltd., 114-118, Southwark Bridge Rd., S.E. [6983

SCOTT, 1913, 2-stroke, 2-speed, kick start, water cooled, with coachbuilt sidecar, complete, guaranteed order; bargain, £47/10.—Garage, 79, Myddleton Rd., Bowes Park. [7354

SCOTT, 1912, just been thoroughly overhauled, and in perfect condition right throughout, complete with smart coachbuilt sidecar, for deposit of £15 and 12 payments of £2/10.—Colmore Depot, 31, Colmore Row, Birmingham. [X0190

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1911½ 3½h.p. Singer, perfect condition; £15.—49, Cabara Park, Phibsboro, Dublin. [X0366

1913 Singer, 3½h.p., 3-speed, Millford sidecar, all spares, condition as new; £45.—Read, 76, New Hey Rd., Huddersfield. [X0206

SINGER, 1914, special 3½h.p., T.T. competition winner, new Hutchinson, John Bull belt, Lucas lamp, spares; £35.—504, High Rd., Tottenham. [7498

SINGER, 4½h.p., 2-speed, 1914, Mills-Fulford family sidecar, excellent condition; £60, or near offer; only reason sale, higher power machine wanted.—Kelly, 5, Bank Mansions, Sutton, Surrey. [7387

1914 Singer and Coachbuilt Sidecar, 2-speed, 4½h.p., chain drive, travelled 80 miles only, bought this month for £77, accept £68 for combination, or offer for bike alone.—Carnochan, Electricia, Allestree Hall, Derby. [X0378

Sunbeam.

BRAND New Sunbeam, 3½h.p., 3 speeds; £65 to clear.—Cross, Agent, Rotherham. [X0294

3½h.p. Sunbeam, 3-speed gear; cash or easy payments. —West End Garage, Blackburn. [X0256

3½h.p. Tourist Trophy Sunbeam, delivered September 5th; £60, lowest.—Field, Cheriton, Templecombe. [7513

SUNBEAM, 1913, 2¾h.p., kick starter, 2-speed, chain drive, recently overhauled by makers, sound throughout; £35.—Barton's Garage, Shepperton. [7572

SUNBEAM, 2¾h.p., 1914, perfect condition throughout, little used, special 2½ tyres, Lucas lamp, horn, all spares, only wants seeing; bargain at 40 gns.—9, Monument Rd., Wigan. [7464

2¾h.p. 1914 Sunbeam, not ridden 200 miles, practically unsoiled, steel-studded cover on back, absolutely new and faultless machine; bargain, 50 gns.—Edmund Kennard, Frith, Stalbridge, Dorset. [X0283

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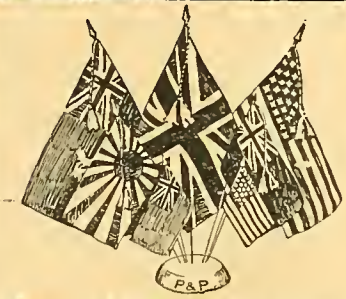

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SWIFT, 3h.p., 2-speed, free engine, 2 spare tyres; £7/10, bargain.—200, St. James's Rd., Bermondsey. [7419

T.D.C.

3½h.p. T.D.C., 1914, perfect condition; £23/10, or offer.—Bowers, 36, Norfolk Rd., Seven Kings. [7494

Triumph.

2¼h.p. Junior Triumph, ridden Sundays, new, bought May; £36.—A. Bennett, 241, Hunslet Rd., Leeds. [7389

TRIUMPH, 1911, free engine, really good condition, complete.—Burrill, 24, Jesse Terrace, Reading. [X0002

TRIUMPHS.—Several cheap for disposal.—Write, Morgan and Maxwell, 80, High Rd., Streatham. [X0350

TRIUMPH, 1912-13, clutch, exactly like new; offers over £24 considered.—164, Broadfield Rd., Catford. [7574

TRIUMPH, late 1909, engine, tyres, belt, good as new; take £21.—58, Church St., West Hartlepool. [7350

1910½ 2-speed Triumph, accessories, thoroughly overhauled; offers wanted.—Water Works, Tewkesbury. [X0337

TRIUMPH, late 1913, F.E., excellent condition; £36/10, with spares.—A.W., 19, High St., Beckenham. [X0212

2¼h.p. Junior Triumph, ridden 600 miles only, condition as new; £36.—Robinson's, Green St., Cambridge. [6866

1914 3-speed Triumph, new, cannot take delivery; sacrifice £50.—No. 6,712, *The Motor Cycle* Offices, Coventry. [X0288

TRIUMPH, 1911, clutch model, variable gear, speedometer, brand new Dunlops; £25.—L., 1, King St., Acton. [7592

TRIUMPH, 1909, and cane sidecar, £20; Indian spring forks, £1.—L. Ellis, 40, Wrottesley Rd., Plumstead. [7459

TRIUMPH, 1914, 4h.p., free engine, slightly soiled; £47.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0594

1909 Triumph, 1914 cylinder and piston, grand condition; £23; exchange lightweight.—61, Albert Rd., Luton, Beds. [7512

TRIUMPH, 1913, free engine, P. and H. lamp, spares and accessories, equal to new throughout; £36.—7, Tunley Rd., Balham. [7435

T.T. Triumph, 1914½, 4h.p., practically new, lamp (Lucas), spares; best offer, quick sale.—Samuel, Richmond Av., Leicester. [7357

1913 Triumph, free engine, splendid condition; must sell, what offers?—Lyon, 42, St. Paul's Rd., Camden Town, N.W. [7521

TRIUMPH, 1912, 3½h.p., free engine, fitted 1914 silencer, equal to new; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0595

TRIUMPH, 1913, 3½h.p., 3 speeds, and clutch, purchased February, 1914, used solo only, condition like new, guaranteed; £39.—Below.

TRIUMPH, 1914, 4h.p., 3 speeds, and clutch, Type C, not done 2,000 miles, perfect; £45.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0551

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TRIUMPH, 1911, 3½h.p., free engine, 1914 pattern spring fork and silencer; £22.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0596

2-STROKE Triumph, new August, ridden twice only, absolutely unsoiled, fully equipped; must sell through war; £37.—94, Gloucester Rd., S.W. [7418

TRIUMPH, bought 1911, clutch model, sidecar, accessories, spares, new condition; trial; £25.—Shorter, Post Office, Anstye, Haywards Heath. [X0274

NEW Triumph, 3-speed, in crate, also Junior Triumph, 2-speed, in crate; second-hand 4h.p., 3-speed; ditto, 1913, like new exchanges, offers.—Ewen, King's Lynn [X9978

TRIUMPH, 1911½, speedometer, largest size Powell and Hanmer, extension exhaust pipe, etc., just overhauled; nearest £30 secures.—L.D., Grove House, Highgate. [7470

TRIUMPH, 4h.p., 1914, bought the week the war broke out; owner now gone to front; what offers?—Can be seen at Whiteleys, Edingborough, Temple Fortune, Hendon. [X0217

TRIUMPH, 3½h.p., free engine, new 1912, perfect condition, Best and Lloyd lubricator, tools, accessories; £28/7; trial appointment.—Holt, Smallshaw, Ashton-under-Lyne. [X0228

TRIUMPH, 1913½, T.T., special engine, clutch, Philipson pulley, speedometer, accessories, spares, splendid tyres and condition; £40.—Geldard, South Western Chambers, Woking. [X0280

1913 Triumph, Sturmey-Archer gear, new this year, with 1914 fittings, lamp, horn, new belt fitted, also No. 10 model Montgomery coachbuilt sidecar, new June, fitted with coverall apron, and side shield to mudguard; would sell either or both cheap for cash; in Coventry.—6,715, *The Motor Cycle* Offices, Coventry. [X0381

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1909 Clutch Triumph, new cylinder and piston 1914, £10 spent on machine, 1913 and 1914, for parts and repairs, all spares; £23.—Clementson, Mossley, near Manchester. [7522

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TRIUMPH, 1913¾, 3½h.p., 3-speed, clutch, lamp, horn, Stewarts speedometer, all spares, with Phœnix wicker sidecar, both new condition; cost £72, take £50; without sidecar £45.—Storer, Jolly Farmer, Sandhurst. [X0143

TRIUMPH, 3½h.p., late 1909, just been overhauled and re-enamelled, tyres in excellent condition, back nearly new, acetylene lamp and generator, usual tools, etc.; will take £20.—Box L5,014, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0553

Vindec.

VINDEC, 5h.p., mag., free engine, overhauled, sidecar; £18.—11, Station Rd., Manor Park. [7445

V.S

V.S. and Sidecar, 7h.p.; £25, or exchange.—120, High Rd., Lee, S.E. [X0332

V.S., 5-6h.p., 1914 B. and B., Bosch, just overhauled £12, new pistons, cylinders, first-class order; bargain, £17.—14, York Rd., Bury St. Edmund's. [7384

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WILLIAMSON 1914 Water-cooled Sidecar Combination, condition almost as new; cost £102, accept £77/10.—Motor Exchange, Westgate, Halifax. [0390

WILLIAMSON, 1913¾, and sidecar, overhauled, kick starter, new tyres, lamps, speedometer, wind screen, spares; £65; solo Scott, Levis. Connaught part exchange considered.—60, Oaklands Rd., Cricklewood. [7365

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Zenith.

ZENITH, 1913, 3½h.p., excellent condition; £30.—Plummery, 273, Balham High Rd. [7394

ZENITH Gradua Motor Cycle, good order; £43.—Lieut. Graham Martin, Brunswick House, Torquay. [X9806

ZENITH-GRADUA, 1911, 3½h.p., new tyre, belt; trial; 19 gns., or exchange.—Bedford, Landguard Fort, Felixstowe. [7412

ZENITH, 6h.p., kick starter, late 1913, with 10 gn. cane sidecar, done 3,500 miles; £60, or nearest.—Bowness, Draper, Carlisle. [X0268

ZENITH, 6h.p., 1911, Gradua gear, and sidecar, with accessories; £28.—P. J. Evans, John Bright St., Birmingham. [7561

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ZENITH, 6h.p., new 1913, enamelled black, gold lined, and 15 gn. undershung coachbuilt sidecar, 2 lamps, perfect condition; sacrifice £40.—504, High Rd., Tottenham. [7499

1913 Zenith, 6h.p., and new coach sidecar, 4-point castor wheel, all in excellent condition; owner on active service; bargain, £38.—Seen and particulars, Cambridge Garage, Frances St., Woolwich, S.E. 'Phone: 108. [7235

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EAGLES.—Alldays Matchless, 3½h.p., late 1912, 2 speeds, free engine, coachbuilt sidecar; £28/10.

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CHATER-ANTOINE, 6h.p., Bosch, Amac, re-bushed, sidecar, perfect; £18.—Bird, 3, Goodwyns Vale, Muswell Hill. [7545

CHATER-J.A.P., 3½h.p., 1912, £18; cane canoe sidecar, Chater, £5; exchange with cash for Douglas.—50, Manor Rd., Brockley. [7466

CHATER-FAFNIR, 3h.p., Bosch, B. and B., Druids, low; £17; offers; exchanges.—Particulars, 115, Admitt Rd., Northampton. [7500

5-6h.p. Chater-Peugeot, 2-speed, Bosch mag., B.B. carburetter, good tyres, belt, torpedo cane sidecar; £20.—Russiter, Henrietta Park, Bath. [X0234

IF You Want Bargains in second-hand motor cycles you can get them at Wanchope's (cash or easy terms), 9, Shoe Lane, Fleet St., London. [X9705

NEARLY New Sidecar Combination, 3¾h.p., Armstrong; £35; part exchange.—Grove, 224, Fore St., Upper Edmonton, London. [7551

GUARANTEED Second-hand Machines from £5 to £50.—Write, call, or 'phone, Longman Bros. and Aitken, 1, King St., Acton. Tel.: Chiswick 1578. [7693

AUTO-WHEEL, guaranteed as new, 1914, perfect, bargain, £10; one Rudge, free engine, 1912, tyres nearly new, excellent condition, £25; one Triumph, 1909, in perfect condition, £16.—Stobbart, Engineer, Aspatria. [7381

TYRES.

BASTONES.—Hutchinson 1913 T.T. rubber studded covers, 26×2½, fit 26×2¼ rims, 24/-.

BASTONES.—Hutchinson 1913 passenger covers, 26×2 20/-, 26×2½ 28/-.

BASTONES.—Hutchinson Brookland rubber non-skid covers, 26×2 12/-; ribbed pattern, 26×1¾ 10/6.

BASTONES.—Clearance Michelin standard covers, 26×2¼ 22/6, 26×2½ 24/-, 28×2½ 24/-.

BASTONES.—Michelin 1914 covers (beaded), 26×1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18/6, 28×2 16/6, 28×2¼ 16/9.

BASTONES.—Michelin 1914 covers (wired), 26×1¾ 11/6, 26×2 13/9, 26×2¼ 15/-, 26×2½ 16/-, 28×2 14/9.

BASTONES.—Michelin clearance cycle covers, wired edge, 28×1½; 5/3.

BASTONES.—Guaranteed red tubes, 26×2 4/9, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.

BASTONES.—We have a huge stock of covers and tubes (various makes). 'Phone or send your requirements.—228, Pentonville Rd., King's Cross, London, N. Tel.: 2481 North. [7581

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria (one minute from Victoria Station), and 260, Coldharbour Lane, Brixton, S.W. All post orders to Victoria Depot. 'Phone: Victoria 6553, and Brixton 2042.—We have the following special clearance lines in motor cycle covers, belts, tubes, etc., and are willing to send goods on 7 days' approval against cash. All orders despatched carriage forward unless postage sent.

ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Send for price list, together with free sample of Elite Sticktight patches

ELITE.—Kempshall clearance covers, heavy non-skid, 26×2¼ 35/-, list price 45/-; 26×2½ 40/-, list price 60/-; 650×65 45/-, list price 67/6; 28×3 69/-, list price 77/6.

ELITE.—Kempshall clearance covers, heavy anti-skid, 26×2¼ 24/6, list price 32/6; 26×2⅜ 26/6, list price 37/6; 28×2½, suitable for Indian, 30/-, list price 42/-; 28×3 35/-, list price 57/6; Kempshall sidecar covers, 28×3 25/-.

ELITE.—Special clearance lines of Wood-Milne covers, 28×3, heavy grip rib pattern, 25/-.

ELITE.—Heuley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 28/6.

ELITE.—Dunlop Pillion covers, 1913 stock, 650×65; 26/-, list price 60/-.

ELITE.—Midland heavy ribbed and studded covers, special clearance line guaranteed for 3,000 miles, 26×2¼ 25/- (list price 37/6), 26×2½ 27/6 (list price 40/-).

ELITE.—Hutchinsoo Brooklands, 1913 stock, 26×2 12/6, T.T. 26×2½ 16/6 (list price 33/6).

ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2½ 28/- (list price 41/3), 26×3 to fit 2½ rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 26×2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

ELITE.—Hutchinson small car covers, 650×75, to suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Michelin clearance covers, beaded edge, 26×2 light 8/9, heavy plain tread 26×2¼ 22/6, 26×2½ 24/6.

ELITE.—Clearance Michelin covers, wired on; Standard 26×2½ 26/-, 26×2¼ 24/6.

ELITE.—Clincher heavy rubber studded covers, 26×2¼ 17/6 (list price 34/-)

ELITE.—Dunlop heavy rubber studded covers, 26×2¼ 17/6 (list price 30/-), old 1913 stock.

ELITE.—Clincher 700×80 covers, plain tread 21/6, heavy grooved 25/-; Clincher tubes, 700×80, 6/6, suit 650×65 rims.

ELITE.—Clincher extra heavy tubes, best quality, 26×2¼ 6/6.

ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26×3 7/6, butted 1/3 extra.

ELITE offer a rebate of 7/6 off new motor cycle covers costing not less than 40/-, providing old covers are returned with order, and 15% off covers listed at less than 40/-. This offer does not apply to clearance lines as mentioned above.

ELITE.—Motor cycle covers re-treaded by special process; treads guaranteed not to come loose; special heavy 15/-, heavy 12/6, medium 10/-; sections on application.

ELITE.—It is impossible for us to advertise all the special lines which we have in stock; therefore, if there is anything you require which is not mentioned in our advertisement, we shall be pleased to quote you upon receipt of a postcard.

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria, and 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phones: Victoria 6553, and Brixton 2042. [9072

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LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchers, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

LEGGATE, Edinburgh.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6; 26×2¼ 32/6, list £2/7/3; 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10. An experienced sidecarist says: "Dreadnought is undoubtedly IT."

LEGGATE, Edinburgh.—1914 Clincher De Luxe heavy 6-ply fabric, rubber studded, beaded covers; 26×2⅜, to fit 2¼ rims, 27/6, list £2/1; 26×2½, 29/6, list £2/2/9. A customer writes: "The De Luxe tyre is truly marvellous value."

LEGGATE, Edinburgh.—1914 Clincher A Won, heavy rubber studded, bearded covers, 26×2 21/-, list 31/6; 26×2¼ 23/-, list 34/-; 26×2½ 23/-, list £2/1/6.

LEGGATE, Edinburgh.—1914 heavy Clincher made, rubber studded, beaded edge covers, 26×2 17/6, 26×2¼ and 26×2½ 20/-; exceptional value.

LEGGATE, Edinburgh.—Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅜ 6/6, 26×2½ 7/-; worth double.

LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against remittance. Should a customer, for any reason, wish to return a tyre we pay carriage both directions, and refund cash in full.

LEGGATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh. [X0282

CLEARANCE Covers, 26×2½ Palmer fabric, heavy studded, perfect, 19/6 each; 26×2 Clincher and Dunlop ribbed covers, perfect, 11/6; partly worn ditto, 7/6; 26×2¼ and 2½ ditto, 9/6; all leading makes of tubes, new, but patched once, 4/6; new and perfect tubes, all makes, all sizes, 5/11 each; approval against cash.—Pitts, Evesham St., Redditch. Tel.: 91. [7356

CLEARANCE Lines in Tyres.—Twenty 26×2½ Palmers, heavy, perfect, 19/6; 26×2½ Dunlop heavy and Palmer cord, slight imperfections, 22/6; 26×2¼ 1913 pattern Dunlops, 15/-; 26×2⅜, to fit 2¼ rim, extra heavy ditto, 17/6; 26×2in. Dunlops, partly worn, but good, 7/6; same, but as new, 9/6; 26×2¼ and 2½ ditto, 9/6; 26×2 Clincher covers, perfect, 12/6; tubes, all makes and all sizes, new and perfect, 5/11; ditto, but patched once, 4/6; goods sent on approval against cash; 26×2 and 2¼ W.E. Dunlops, 7/6 each.—Albert L. Pitts, Redditch. Tel.: 91. [7356

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PALMER'S Garage, Tooting.—Tuition, driving and mechanism, £3/3 until proficient and satisfied.

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FOR Motor Cycle and Cycle Car Insurances apply, Bass, Insurance Broker, Bishop's Stortford. [0004

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EXPERT Reports.—Purcells send experts to examine machines; 10/6 plus fares.—78, Charlotte St., Fitzroy Sq., W. (See advertisement.) [3473

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HEIRS to Money.—Private gent. is prepared to advance money on reversions, life interests, motor cycles, cars, or would purchase.—Jones, 165, Euston Rd., Morecambe. [7427

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Are you looking for Retreads of the best quality?

—Retreads which will last as long as many ordinary covers; then send your covers to

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On receipt of Covers we will quote you cost by next post, and return without delay. If you do not need our services now, send for our Retreading List It contains full particulars of prices for Retreads and Repairs of all kinds, and will be sent post free on application.

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GARAGING for Motor Cycles, combinations, etc.; special low winter terms; every convenience.—24a, Ecclesbourne Rd., Essex Rd., N. [7502

BUSINESSES AND PROPERTY FOR SALE, TO BE LET, OR WANTED.

MOTOR and Cycle Business for Sale; rent, £10 yearly.—Box 6,714, *The Motor Cycle* Offices, Coventry. [X0267

WANTED.

SPARES — Morgan and Maxwell, Streatham. [X7877

FRAME, less tyres, to fit 7-9h.p. Peugeot; cheap.—Wright, King St., Richmond. [7510

£30 waiting for 1913 3-speed Triumph, complete.—Payne, Durham St., Hartlepool. [X0365

WANTED, lightweight motor cycle cheap for cash.—49 Bowood Rd., Sheffield. [X0331

MOTOR Cycle, good condition, Triumph or Douglas preferred.—1, King St., Acton [7591

100 Motor Cycles wanted; spot cash paid.—Bring or send, Palmer's Garage, Tooting. [7483

WANTED, 2¾h.p. m.o.v. cylinder, to fit Minerva.—Wyard, Queen St., Cirencester, Glos. [X0333

FREE Engine Trimmph; will give Motosacoche, Bosch, and cash.—Bendle, Church Hill, Winchmore Hill. [X0364

WANTED, 1913 combination, not less 3½h.p.; cheap.—Liggins, Beech Rd., Stourbridge. [X0339

WANTED, magneto, carburetter, tyres, lamp set; cheap.—Write, Brooks, 23, Park Rd. West Green, N. [X0380

WANTED, F.N. engine, for 1911 machine, or cylinder and crank case.—Chilton, 199, High St., Watford. [7440

WANTED, Douglas, 2 speeds; full particulars; cheap, spot cash.—Wing, 177, New Park Rd., Streatham, London. [7505

WANTED, speedometer, clutch, speed gear, lamp, belt; cheap.—Blencathra, Highfield Rd., Walton-on-Thames. [X0272

WANTED, for cash, 1914 twin motor cycle and sidecar, chain, perfect condition.—Box 6,703, *The Motor Cycle* Offices, Coventry. [X0205

CASH Waiting.—Wanted, magneto motor cycles.—Full particulars and lowest price, Box No. 6,711, *The Motor Cycle* Offices, Coventry [X0309

WANTED, Douglas frame, fittings, less engine and gear box; late preferred.—No. L6,192, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7583

WANTED 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories cheap.—125, London Rd., Manchester. [0560

WANTED, motor cycles, cycle cars, good cash prices—Wandsworth Motor Exchange, Ebner St., Wandsworth Town Station 'Phone: Battersea 327. [X6518

WANTED, speedometers, lamps, tyres, belts, magnetos, engines, motor cycles, sidecars; spot cash.—Grove, 224, Fore St., Upper Edmonton, London. [7552

TRAVELLER requires use of runabout (Humberette preferred) for few months without driver.—Full particulars and terms to The Gables, Maldon, Essex. [7554

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WANTED, 1914 twin motor cycle combination, chain driven, preferably A.J.S. or Matchless; approval essential.—Full particulars to H., Tudor House, Camberley. [7569

CASH Buyers Wanted for 1914 shop-soiled Morgan runabouts and G.W.K., Victor, Lagonda, and Calthorpe light cars.—Motor Exchange, Westgate, Halifax. [0488

REQUIRED at once, for cash, this season's motor cycle, with or without sidecar, must be reliable make, Matchless or Trinmph preferred.—Letters, Thring, 109, Portnall Rd., Harow Rd. [7509

WANTED any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell London Motor Salerooms, 80, High Rd., Streatham London. [X9559

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6h.p. 2-seater Car, 3 speeds, for good lathe.—Lovegrove, Silchester, Reading. [7392

MORGAN and Maxwell, 80, High Rd., Streatham, London, for exchanges. (D) [X0352

EXCHANGE lady's and gent's cycles for speed gear. —84, Dale St., Batley Carr, Batley. [X0308

5h.p. Peugeot and sidecar, free engine; exchange cycle car.—A. Pulleyn, Wigginton, York. [7516

DARRACQ, 2-seat., ready drive away; £15, or exchanges.—46, Mary Rd., West Bromwich. [X0323

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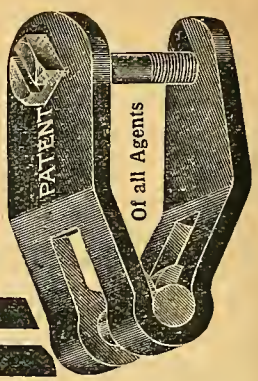

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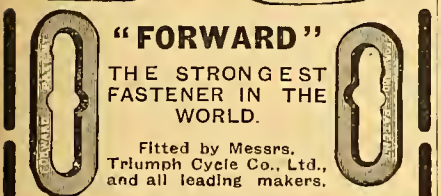

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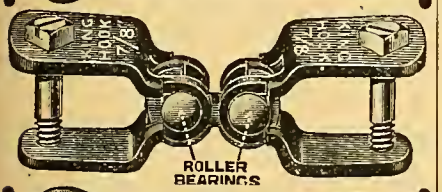

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The original hook fastener with flanged roller bearings. Heavy gauge screws and unbreakable hooks.

1/- detachable.
1/3 adjustable.

"Knut," the strongest fastener ever offered at the price.

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FORWARD MOTOR CO.,
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GODDARD'S MOTOR CYCLE HOUSES

Ft.	Ft.	Ft.	£	s.	d
6	x 4	x 6 high	1	17	6
7	x 5	x 6½ "	2	7	6
8	x 6	x 7 "	2	15	0
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Wide double doors 2/6 extra.
Carriage Paid.

These houses are made in sections to bolt together Easily fixed. Made of well-seasoned ⅝in. T. and G. and V-jointed Matchboards, and complete with floor and window Roof felted with Patent Vulcanite Roofing. New illustrated Catalogue with prices of other houses post free.

Copy of Testimonial.—Audley Range, Blackburn, 11th Sept., 1913. Sirs.—Glad to say received "Gem" Motor House all in order, and it justifies its name. Am well satisfied, it was erected in less than a quarter-of-an-hour. Yours faithfully, J. S. HOLMES.

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1912 N.S.U., 3h.p., 2-speed, and cash, for Triumph or good lightweight.—15, Seaford Rd., Eastbourne. [X0315

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3/4 Gas Engine, 50 volt dynamo; £8; exchange W.C. engine motor cycle.—Brown, Haven, Brough, E. Yorks. [7364

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DARRACQ Car, 10-12h.p., 2 cyls., excellent; exchange twin cycle; sell cheap.—Grainger, Forest Row, Sussex. [7473

CHATER-LEA Tricar, 4½h.p., mag., 2 speeds, for motor cycle; sell £15, or nearest.—Smith, Hare Hill, Ottershaw. [7449

CANOE Front Sidecar Body, B.B. carburetter, for tyres, 26×2¼, or speedometer.—Write, 54, Connop Rd., Enfield Wash. [7353

1912 8h.p. Chater-Lea-Jap, sidecar, clutch, kick starter, Indian or lower power.—363, Shaw Rd., Royton, Lancashire. [X0320

3¼h.p. Quadrant, new tyre, mag., spring forks, B. and B., Dunlop, for organ, auto cycle, £12, or anything.—3, Bolton Rd., Bury. [X0338

EXCHANGES Wanted against shop-soiled 1914 Rex-Jap, Williamson, and Sun-Villiers machines.—Meter Exchange, Westgate, Halifax. [0446

EXCHANGE 3½h.p. 1912 3-speed Singer, excellent condition, coachbuilt sidecar, for higher power, or cycle car.—Norton, Empire, Aberdare. [7409

EXCHANGE 1914 Bradbury, coach sidecar, whole-plate camera, and cash, for recent 6h.p. J.A.P., A.J.S., or Matchless.—Feather, Cowper Av., Clitheroe. [X0146

EXCHANGE 1914 7h.p. Indian motor cycle and coachbuilt sidecar, electric lamps and horn, and wind screen, cost £88 May, for modern light car, Hillman or Singer preferred.—Garr, North Hykeham, Lincoln. [X0188

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MORGAN wanted; exchange 1913 Indian and sidecar, engine overhauled at works, electric lights, back-rest, spare tyre, tube, paint as new, splendid condition, or sell.—Box L6,178, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7388

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ANTOINE Cylinders, pistons, and parts; prompt delivery.

CYLINDERS, crank cases welded; quotations free.

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OLDEST Engines restored to highest vitality.

COMPLETE Overhauls at lowest possible prices. Full stock of Rex, Triumph, and J.A.P. parts.

COUNTER-SHAFT Gears.—We can now quote the trade for our Rex-J.A.P. 3-speed gear at inclusive prices, including fitting to old machines.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0246

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VALVES.—Nickel steel valves, any size, 3/6; per pair 6/-.—C. R. Foster, Kirkstall Rd., Leeds. [0253

BRADBURY Spare and Repairs a speciality.—Agents, Bright and Hayles, Church St., Camberwell. [7528

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BROKEN Flanges, valve seats, pistons, crank cases, water jackets, welded and machined complete.

SEND Your Old Engine or complete machine for overhauling, re-bushing, cylinders re-ground, new pistons, rings, and gudgeon pins fitted.—Weldings, Ltd., Dept. M.C., Manchester. [6234

CYLINDERS, Crank Cases welded; quotations free; send your enquiries.—Premier Motor Co., Aston Rd., Birmingham. [0248

2/6 genuine nickel steel valves; guaranteed unbreakable valves, 3/6.—Whitehead, Rugby Rd., New Cubbington. [X0261

OXY-ACETYLENE Welding, first-class work; moderate quotations.—Purcelle, 78, Charlotte St., Tottenham Court Rd., W. [6750

CRACKED Cylinders, castings, forgings, etc., successfully repaired by Len's metallurgical process.—Lea, Engineers, Runcorn. [5197

WELDING.—All metals, cylinders, and crank cases. We have the plant, experience, and method for every job. Quick delivery.—Below.

CYLINDERS Re-ground, new pistons fitted, complete with rings, etc.; 22/6.—Oxy-Acetylene Welding, 349, Lillie Rd., Fulham. 'Phone: Hammersmith 1617. [6430

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Could not buy a more satisfactory BRITISH PLUG than the

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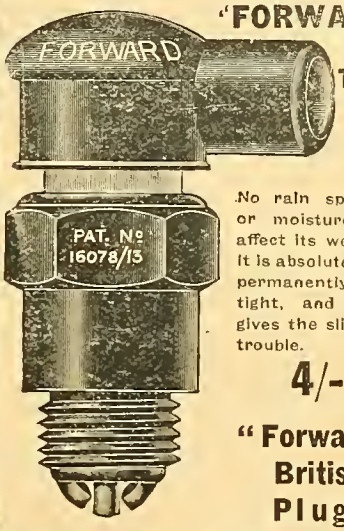

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Are made in a dozen types from **2/-** each. Lists free.

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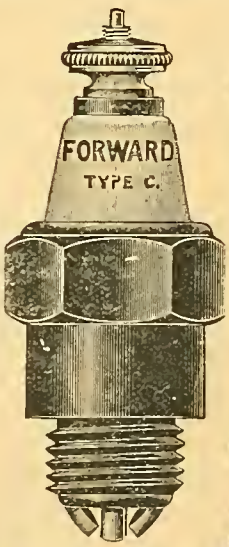
Similar to above but without waterproof terminal. This is one of our most popular types, and is giving satisfaction everywhere. Will you try one?



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7ft. x 5ft. x 7ft. "	2	10	0
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12ft. x 8ft. x 7½ft. "	5	12	6

Double doors 2/6 extra.

Prices are on rail Staines Station.

These houses are tenants' fixtures, and can be bolted together in a few minutes. They are made of sound, well-seasoned matchboard, and complete with floor. Window in any desired position. Roofs of Stoniflex Felt. We treat each house with Brown Sideroleum

Catalogues with particulars of other sizes Free.

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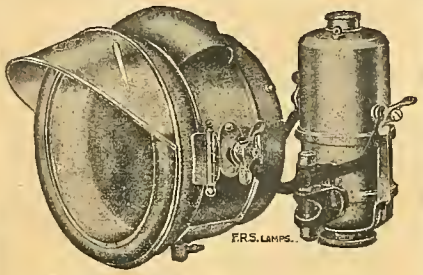
LAMPS AND GENERATORS,
HOLD WORLD'S RECORDS.



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Coupled with the F.R.S. Lamps is now known all over the world. **NO OTHER MAKE** can compare with it. It is dearer no doubt, but isn't it worth it? The best is always cheapest, and you positively **RIDE IN DAYLIGHT** through the night.

Lens.	Beam.	Price.
6 in.	1,200 ft.	72/6 and 78/6
5½ in.	1,000 ft.	62/6 and 68/6
4¾ in.	800 ft.	52/8 and 58/6

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To get the best you must pay well. We have made our name with quality alone, and we claim that our lamp is up to

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over any other make. Our lens is costly, and it is genuine. You will see what a costly mangin lens can do, if you try the light of the F.R.S. against any other.

F.R.S. Lamps, Pershore St., B'ham.

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Manchester Agents: Messrs. Feay and Co., 12, Jackson's Row, Manchester.

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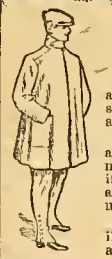

THE MAN WHO RIDES KNOWS WHAT IS WANTED.

I have over 10 years experience as a rider in all weathers, and I have gradually perfected a suit of overalls to meet my own requirements as a travel'er.

The business rider needs to keep smart—dry and comfortable. Whether you ride for business or pleasure, these conditions are essential if you are to enjoy your riding. Don't throw away your money on things that are absolutely useless for your purpose.

I have explained all about this subject in an illustrated booklet. You'll be interested—send a post card for it to-day to J. SMITH.

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WELDING, broken cylinders, flanges, pistons, crank cases, repaired and machined. Scored cylinders filled in, and re-ground to existing pistons.

CYLINDERS Re-ground, new pistons fitted complete, overhauling, re-bushing.—West London Welding Co., Essex Place, Chiswick. Tel.: 536. [7103

MINERVA Spares, cylinders ground, pistons fitted, rebushing, parts duplicated.—Ellenborough Motor Works, Ellenborough Rd., Wood Green, N. [8394

UNBREAKABLE Chrome-nickel Valves, guaranteed one year, 3/6 each, 6/- pair; any make, free per return.—Capacity Tool Co., Broseley, Shropshire. [X9915

CCCCCCCC Cylinders Re-bored, new pistons fitted, bear 13 stone on compression.—Gradior Machine Co., Compression Specialists, Stafford. Est. 21 years. [7314

PISTON, fitted with top and bottom, step-cut rings, hardened steel gudgeon pin, and your cylinder re-bored and ground, 24/-.—C. R. Foster, Kirkstall Rd., Leeds. [0310

H.S.M. Manufacturing Co., Besson St., New Cross, S.E.—Motor repairs of every description; cars overhauled; acetylene welding a speciality. Try us before going elsewhere. [7371

H.S.M. Manufacturing, Besson St., New Cross, S.E.—All kinds of repairs for the trade. Acetylene welding of all descriptions; steel tube welding a speciality; cars overhauled. [7370

CYLINDERS Re-ground, fitted with new piston, hardened gudgeon, and step-cut rings, 85 mm. 21/-; overhauls, re-bushing; estimates free.—The Motor Repair Co., Stretford, Manchester. [X0307

TONGE Welding Works, 174, Oldham Rd., Middleton, Manchester.—Experts in broken cylinders, crank cases, etc. Welding aluminium a speciality. Nothing too difficult. Sound work at moderate charges. [1389

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ENGINE Efficiency.—Cylinders re-ground, new pistons fitted; highest efficiency and skilled workmanship guaranteed; phosphor bronze bushes from 2/6; valves and seatings ground true, 5/- pair; estimates submitted.—Patricroft Motor Co., Patricroft, Manchester. [6792

COMPRESSION.—Cylinders re-bored and ground, new pistons, rings, and gudgeons, complete, 16/-; overhauling, re-bushing, efficiency guaranteed.—Reliance Motor Engineering Co., Spon Lane, Smethwick, Birmingham. [7282

LOWEST Prices Quoted for any repairs or complete overhauls to motor cycles, cycle cars, or cars, or work done on the premises and fully guaranteed; cylinders cleaned by oxygen process, 2/6 single, 4/6 twin.—Maudes, 136, Gt. Portland St., W. [7348

F.N. Owners Note.—W. Earl, late foreman at the Highbury repair works, is at your disposal for all repairs. Our special engineering plant and the personal attention of a recognised F.N. expert will ensure best results at minimum expense.—Below.

F.N. Spares, special announcement.—We have a large stock of new, also sound second-hand parts. If unable to obtain certain replacements please consult us.—Below.

3-SPEED Gears for any model 4-cyl. F.N., converts your F.N. into a first-class passenger machine. We are the sole manufacturers of this gear and also the new type Horstmann 2-speed gears. Note special low prices during war period; particulars gladly on application.—Earl's Engineering Works, 5, Heath St., Hampstead. [X0361

SERVICE Reliable Repairs and Overhauls.—We will do your work at specially reduced prices during the war. Up-to-date and well equipped workshops, skilled mechanics.—1 and 2, Harpur Mews, Theobalds Rd., W.C. Offices 292, High Holborn. 'Phone: 260 Central. [7185

OVERHAULS, Repairs, and Replacements, cylinder grinding, gear cutting, carbonising, hardening and grinding on first-class manufacturing plant; machine work for all branches of the trade. Immediate attention and prompt delivery.—Advance Motor Manufacturing Co., Ltd., Northampton. [X0231

MORMAN and Bliss, London Rd., Hounslow.—Reduced prices during war. C.I. pistons, rings, and gudgeons, from 9/6; bushes, 2/-; valves, 3/-. Simplex steel pistons, hollow connecting rods, supplied to order. Special silencers, aluminium ends, steel barrel, and extension pipe, smart, efficient; twins 18/6, singles 14/6. Illustrated list free. [7541

WAR.—To keep our factory going full time we will do your repairs at practically cost. Our well-known high standard of excellence will be maintained. Every job will bear our full guarantee. The sole difference will be the prices, which hold only during the crisis; our ordinary rates will be charged as soon as normal times return. Cylinders re-bored, ground, fitted new pistons, rings, and gudgeon, 15/6; re-bushing, overhauling, welding, frame alterations, etc., all at cost. Send jobs along at once. You will be thoroughly well satisfied in every way.—Tennant Engineering Co., Pershore St., Birmingham. Official repairers to A.C.U. [X0262

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Great Reduction in Prices. (Approx. 25%).
NO DECREASE IN QUALITY.
Insist on having only P. and P. Brand.
FAST COLOURS. All Flags mounted on Rustless Staffs, with Solid Brass Ornament.
TRUE FLAGS. NO HAT PINS USED AS STAFFS.

As illustrated with Polished Aluminium Number Plate Clip.
Approx. Size of Flag 4x2 in.
No. 108B. Price complete twin, **1/9**
No. 108C. Price complete Triple, **2/3**
Any combination of Allies Flags may be had. Postage, 1d.

FLAG MASCOTS A SPECIALITY.

Approx. Sizes.	With ordinary Staff.	With Short Staff.	With screwed Staff & Nuts.	With Handle bar or Number Plate Clip. Short Staffs
4″×2″	4d.	5d.	7d.	9d.
3″×6″	6d.	9d.	1/-	1/3
6″×4″	6½d.	9d.	1/1	1/4
9″×4½″	Jacks only.	1/3	1/6	1/9

FRENCH, RUSSIAN, JAPANESE, BELGIAN, UNION JACKS, SERVIAN. Postage 1d. extra.

SPECIAL THIS WEEK.
COMBINATION FLAGS OF THE ALLIES, mounted together on one Bar.

No. of Flags on one Clip.	Size of Flags. 4″×2″	6″×3″
Two.	1/-	1/6
Three.	1/6	2/6
Four.	2/3	3/-
Five.	2/9	4/-

Can be supplied with Handle-bar Clips, Number Plate Clips, or for fitting to Mudguard or Radiator Cap, all one price. Post. 1d.

BIG STOCKS — PROMPT DELIVERIES.

P. & P. ENGINEERING CO., LTD.,
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by our modern process, also TYRE and TUBE Repairs. We are handling the Tyre Problem in a scientific way. We possess the most remarkable vulcanizing plant in the United Kingdom.

Our manufacture of TYRES and INNER TUBES has met with such gratifying success that we are now producing

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of the best quality.

EVERY ONE GUARANTEED.

Endless or Butt-ended.

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An index to advertisements will be found on the page facing the back cover.

Standardisation of Controls.

WE have consistently urged the desirability of standardising the controls of motor cycles, and have devoted a considerable amount of space in the hope of interesting manufacturers in the subject. A leaderette on the need for standardised controls appeared in these columns on April 2nd, and at that time we took the opportunity of drawing the attention of the Motor Cycle Manufacturers' Union and the Auto Cycle Union to this important matter, soliciting their support in our campaign. Though we have reason to believe that a goodly section agreed with our reasoning and the advisability of making the controls of all the different makes of motor cycles as far as possible the same in order to avoid the possibility of accident, we feel that the subject was not considered so seriously as it should have been, and with certain members showing only a lukewarm interest in the matter we are afraid that very little progress has been made.

A correspondent last week in our "Letters" columns emerged from an accident more luckily than a great many others have done in like circumstances. We have already recorded one or two fatal accidents due to motor cyclists changing from one make of machine to another, and being accustomed to the working of the levers, discovered only too late that the new machine on which they were mounted accelerated speed when they intended a directly opposite result. A good many may reason that a man should become acquainted with the controls of any machine before attempting to ride it. Quite true, but a rider may be perfectly well aware of the fact that the strange machine on which he is mounted is controlled differently from his own mount, and yet in an emergency do the wrong thing. With swift moving machines one has very little time to think what to do in a tight corner, and one is led to control a car or motor cycle automatically.

We are led to make this further appeal now that new models are in the air, and we would recall to manufacturers that, after persistent pegging away, rims are nowadays standardised. This was done for motor cycles purely for convenience; standardising the working of control levers would not only be conducive to convenience, but to safety as well.

Progress in Gear Design.

IN surveying the possibilities of the future, particularly with regard to change-speed gears, it is becoming increasingly evident that a multiplication of ratios will be the rule in 1915. This fact can be almost wholly credited to the Tourist Trophy Races and Six Days Trials, and it might be well at this juncture to quote a reference to the subject of gears made in these columns when reviewing the results of the Junior and Senior T.T. Races held last May. The prophecy we then made was that in view of a practically infinitely variable gear having won the Senior race and a four-speed mount having won the Junior event, a general increase in gear ratios would be the future order. Already we hear of three different makes of four-speed gears which will be marketed next year, and, moreover, quite a number of firms who have hitherto pinned their faith to the two-speed gear will shortly change over to a box with three speeds.

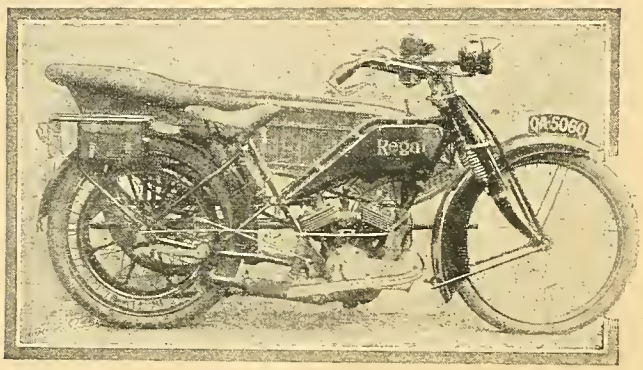
The Motor Cycle has never lost an opportunity of urging the desirability of at least three speeds on a motor cycle. It is obvious to even inexperienced riders that with a machine possessed of only two gears there must be frequent occasions when the low gear is too low for any particular hill, and yet the top gear too high for that same gradient. But, in providing the intermediate ratio, this is not all the good which accrues, for with three speeds one may distribute the ratios with advantage over a wider range; that is, the top gear may be made higher and low gear lower, thus easing the work required of an engine.

With Motor Cycles on Mendip.

AN ACCOUNT OF AN INTERESTING DAY'S JAUNT OVER HISTORIC GROUND.

IT was a fine breezy morning when, mounted on 2¾ h.p. two-speed A.J.S. motor cycles, we left Bristol and shook its grime from our wheels over the bumpy road through Knowle. We were glad to see the green fields and sparkling river as we ran down the charming valley of the Chew, past Stanton Drew with its Druidical circles, and into Chew Magna, and then to get a glimpse of half the Mendips as we sped onwards towards the Harptrees.

Soon we were climbing, and the sharp ascent and the bad bend on Harptree Hill brought us both to low gear, but before gaining the top we had got into high gear again. Here, at the Castle of Comfort Inn, a



The twin-cylinder Regal-Precision machine for ladies' use. The engine is a 4 h.p. with side-by-side mechanically operated valves, and a three-speed hub gear is fitted.

lonely house midst moorlike country, we made the first halt, and leaving the cycles walked back along the road, and, mounting a gate, searched successfully and found the object of the stop. This was the peculiar swallet hole, fringed with fir trees, and known on Mendip as the Devil's Punchbowl. But we saw nothing of his majesty, and returning to the inn remounted and hummed along the open road a thousand feet above the sea. It was good to be alive on such a morning, and our thoughts were many and varied as we slipped past the ruins of Roman lead mines, which were here worked in days of long ago.

"Mendip's Sunless Caves."

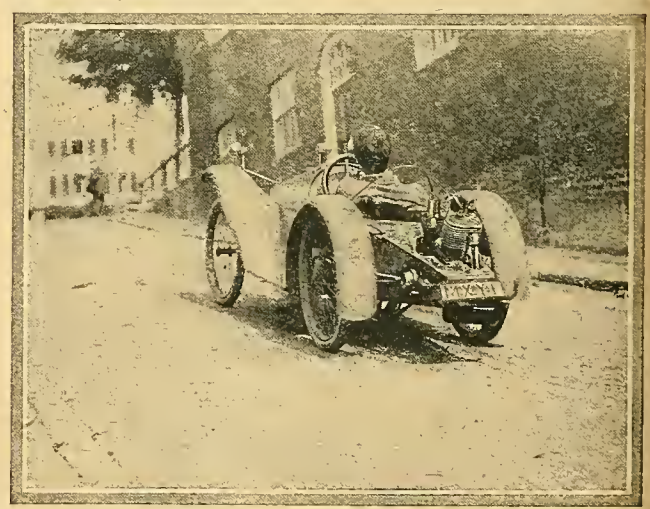
On we rode past Charterhouse, with its neighbouring amphitheatre, and rough, wild surroundings, all calling to mind the adventures of John Winterhead in "Two Men o' Mendip." Now we left the breezy upland and were soon descending the famous Gorge into Cheddar; we halted at the "Cliff," and after visiting the caves and admiring their wonders, we partook of excellent fare in the secluded grounds and watched the sunlit waterfall tumbling from the lake above, which, fed by the underground rivers of Mendip, is always clear and fresh. We could hardly tear ourselves away from such a scene, but the road was not to be denied, and onwards we sped towards Wells, but before reaching that cathedral city we bore sharp left and slowly ran into Wookey. Here we explored Wookey Hole, a series of huge caverns running back into Mendip, and famous for an underground stream, the source of the River Axe. Leaving the cave we walked on to Ebbor Rocks, another of Mendip's remarkable chasms, and after rambling through the Gorge and clambering over the huge boulders we returned to the cycles and jogged into Wells, and thence continued the journey to Glastonbury, an old-time town famous for its abbey and Saxon memories. The ancient hostelry and Pilgrims' Inn, now called "The George," claimed us a while, but we were restless and proceeded on foot to the top of the Tor, and had all King's Sedgmoor spread before us, its flats stretching for miles across to the Severn sea, which shimmered in the hazy distance. We could even see the North Hill at Minehead, and the Welsh coast beyond, but after a while we regained the hotel, and once more mounting rode across the flats towards Somerton, and into Langport.

King Alfred and the Cakes.

Here we were on historic ground, for, close by, in days of yore Alfred burnt the cakes, and later, and not far removed from our road, the last battle on English soil was fought. The ride was highly interesting, for the road now ran through sheltered hamlets, up narrow and tortuous lanes, and then down on to the flats again.

The road had nearly taken us into Bridgwater, but not wishing to enter this town we kept to the right, and presently got into Wedmore, famed for its associations with Alfred's victory over the Danes. Cheddar was now in sight, but we left it on our right, and, mounting rapidly, soon ran into Shipham, a scattered village once connected with a revival of the old mines, and renowned for its rough miners.

Crossing the Roman road which at one time ran from the top of Mendip to the sea, and speeding down through Churchill rocks, surmounted by Dolebury's ancient camp, we went quickly through Langford and up the sharp rise of Redhill, and running down over Barrow with its gleaming reservoirs of Bristol's water supply, regained Bristol after a ride of some eighty miles. A.S.R.



The Carden monocar surmounting a severe gradient leading up to The Terrace, Richmond. (See opposite page.)

THE CARDEN MONOCAR.

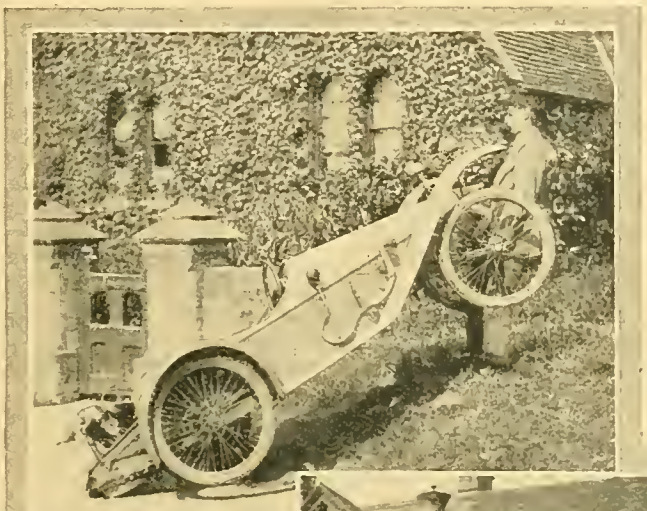
An Unconventional Machine which Possesses many Attractive Features.

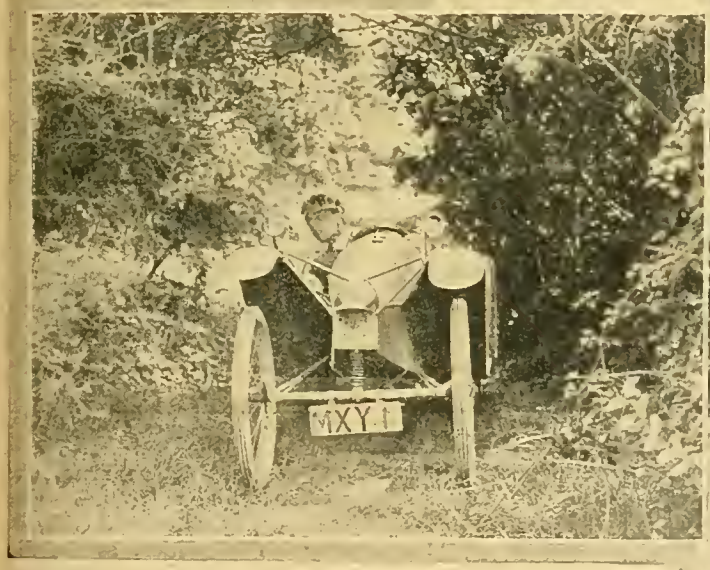
WE have recently had placed at our disposal a neat little single-seated cycle car known as the Carden and manufactured by the Carden Engineering Co., Ltd., Somerset Road, Teddington. The power unit is a V-twin J.A.P. and is rated at 5 h.p. We have covered a considerable number of miles and have found no difficulty whatever in surmounting comparatively severe gradients; although this model is only fitted with a single gear, but provided with an excellent clutch.

Possibilities for Military Use.

Owing to the present crisis one naturally thinks of the adaptability of various motor vehicles for field purposes, and we cannot help thinking that this particular runabout would be most suitable for such work. To begin with, it is extremely light and can be driven into all sorts of places and thus easily hidden out of sight, or it can be transported with ease on the rear of a transport waggon, and is, of course, light on the tyres and economical with petrol.

The Carden monocar can be lifted with ease, and dragged over comparatively large boulders.





An illustration of the utility of the Carden monocar on wooded land.

Its low position would help to keep it out of sight if the hedges of the lane are somewhat low—in fact, it is better in this respect than a motor cycle.

Although the roads were greasy, we did not notice any tendency to skid. This is an especially good feature, as riding at night on very bad roads is extremely difficult if an unsuitable vehicle is utilised.

The vehicle would, of course, be more flexible if fitted with a variable gear, and this is done on other models.

The footboards are capable of holding a fair amount of baggage, which can be strapped firmly in position. At the same time no extra wind resistance is caused, as the mudguards prevent this from being the case.

A series of tests were carried out in the neighbourhood of Richmond and Teddington, and the little vehicle was driven into some woods and through what was practically undergrowth with great success. For ordinary solo touring work it is very enjoyable. Altogether the

At Twickenham. This illustration gives some idea of its dimensions.

5 h.p. Carden impressed the writer as a reliable sporting machine, and, if it were fitted with a change-speed device, as a most handy little vehicle for those who require economy, comfort, and speed.

High Speeds in Australia.

An Unfortunate Accident Mars a Twenty-five Miles Victoria M.C.C. Road Race.

ON August 15th the Victoria M.C.C. held a twenty-five mile road race in the form of an "Out and Home" race between Cragieburn and Wallace on the outskirts of Melbourne, when record speeds for Australian motor cycle racing were established by Eric Tyler, who finished first on a 7 h.p. Indian in 23m. 55⅕s., the average speed being sixty-three miles per hour. The race was run as a handicap and twenty started, the limit man being C. Kelynack (2¾ h.p. Sunbeam), who was allowed 4½m. start. R. E. Dowel (8 h.p. J.A.P.), E. Tyler (7 h.p. Indian), J. Booth (7 h.p. Indian), and H. Jenkins (7 h.p. Indian) were the scratch men. Probably the fastest machine in the race was Dowel's J.A.P., but unfortunately this rider was involved in a most serious smash. This occurred through the risky method of running the race; owing to the "out and home" nature of the contest, the competitors occasionally met each other at high speed.

A Serious Accident.

Dowel and Booth had arrived at the turn at about the same time, and rapidly gaining on some riders in front were soon in their dust, and when travelling at a speed of about sixty-five miles an hour met a rider named Thornton travelling in the opposite direction. Their handle-bars locked, with the result that the riders were thrown with terrific force, both of them being flung ten or twelve yards away by the force of the collision. The two machines remained locked for an instant, and Booth, who was following, was in great danger of becoming sandwiched between them, but luckily in the nick of time the machines opened out and he got through. However, expecting a severe smash he tried to jump off his machine, with the result that he turned a complete somersault, pitching on his head. Luckily he was wearing a padded safety helmet, which saved his life, though, of course, he suffered from severe shock, and he and Dowel and Thornton had to be removed to hospital.

Tyler (7 h.p. Indian), the ultimate winner, rode splendidly throughout, and won by about a mile and a quarter from Jenkins, while close behind was Parsons (3½ h.p. Precision), who finished third with 2m 30s. start. His Precision was easily the fastest of the single-cylinder machines, and as this was his first race his performance was remarkably good. The final results were:

		m.	s.
1.	E. Tyler (7 h.p. Indian), scratch	23	55⅕
2.	H. Jenkins (7 h.p. Indian), scratch	25	3⅖
3.	H. Parsons (3½ h.p. Precision), 2m. 30s. start	28	0

Eric Tyler (7 h.p. Indian), winner of the Victoria M.C.C. twenty-five mile road race from Cragieburn to Wallace and back.

PRESSED STEEL SIDECAR CHASSIS.

WHEN one considers the wonderful advance during recent years in pressed steel work it seems extraordinary that so few attempts have been made to construct sidecar chassis of this material. In the early days of motoring, nearly every car was constructed with some form of tubular frame, but tubes gave place to armoured wood and pressed steel, till nowadays it is hard to find a tubular frame.

The advantages of the pressed steel sidecar chassis are obvious, it can be made light and cheap, and there is no need for brazing.

Lightness and strength may be combined, as the various members may be so shaped as to give strength where strength is needed, whereas in the tubular construction the strain often comes on some almost unsupported spot with the result that a fracture occurs after strenuous road work. Cheapness can only be obtained by manufacturing in quantities, as the dies would be expensive, but the big sidecar manufacturers would find a distinct saving.

The advantages of having no brazed joints are chiefly that there is no fear of burnt tubes or poor brazing. Provision for petrol cans, luggage, and tyres would be easily provided, and the side members would form an excellent base for the spring fixings.

The lugs for the connections could be riveted firmly to the frame, and there would be no fear of their twisting out of line and becoming difficult to attach.

OCCASIONAL COMMENTS

BY "IXION"

Dissolved Acetylene.

"Nocarbide" may be right in implying that very few D.A. cylinders contain the six cubic feet of gas with which their makers credit them, but he should verify the capacity of his burner before rushing into print. Burner sizes are determined by the quantity of gas they pass in an hour, and the average motor cycle head light is equipped with a "¼ft." burner, *i.e.*, a burner which passes a quarter of one cubic foot of gas in sixty minutes. I have only verified the contents of one cylinder in actual use during this year; I exhausted this on my cycle car, feeding its contents to a pair of ¼ft. burner head lamps, and it lasted well over eleven hours, as against the twelve hours for which six cubic feet should suffice two burners of this size. But I have tested all my other cylinders against a good gauge, and they have all registered six cubic feet when delivered, and their charges have been approximately correct, so far as rough estimates go. Some users turn on too much pressure, so that the burners flare and roar, when they will pass probably half a cubic foot per hour instead of a quarter of a foot. "Nocarbide" will find that a quarter foot burner will give all the light he requires for a motor bicycle, and if he gauges his cylinders on delivery, refusing any which do not show six cubic feet, he should obtain from twenty to twenty-four hours' light from each cylinder when using a single lamp.

The Accuracy of Speedometers.

The agents for the Jones speedometer take exception to my implied condemnation of certain speedometers which I did not name in a recent comment. They say that in a very lengthy and varied experience they have found that few complaints of inaccuracy have any foundation so far as the speedometer itself is concerned. Practically without exception they trace their few complaints to one of four causes, viz.:

(1.) Owner's misjudgment of speed.
(2.) Incorrect gear combinations.
(3.) Tyre changes.
(4.) Tyres being of less or greater actual diameter than the makers' nominal measurements.

These factors must obviously be taken into consideration. As a matter of fact, I can add a fifth factor. I was very dissatisfied with one of my Watford speedometers this summer. It possessed three moods: sometimes it would register in the steadiest "deadbeat" fashion—sometimes, without swinging over an appreciable arc of the dial, the needle would dither so violently that it became a vague blur instead of a black silhouette; sometimes it would swing over an arc of 30°. The whole cause was too sharp a bend in the driving shaft. I almost scrapped a six guinea A.T. instrument because its needle oscillated between 5 and 45 m.p.h., finally discovering that a gentler curving of the shaft produced the "deadbeat" which the makers claim. It is more than possible that speedometer makers are more sinned against than sinning.

"Petroil" Lubrication.

I wish some skilled scientific investigator would focus his faculties on the respective merits of "petroil" and drip feed lubrication, as applied to small two-stroke engines. I have used both methods for a fair distance during 1914, and so far as superficial road experience can detect, the following is a fair statement of their respective merits and defects. The "petroil" system (*i.e.*, oil is mingled with the petrol, and fed through the carburetter to the crank case) is fool-proof, and genuinely automatic. Under all riding conditions an approximately correct amount of oil is fed to the parts requiring lubrication, whether the driver be an expert or a dunce. These are high merits in any case; doubly so, when we reflect that most users of these machines are comparatively inexperienced. On the other hand, designers who aim at a clean crank case, urge that if the oil is fed direct to the bearings, without fouling the explosive mixture, more efficiency is obtained from the engine, and the process of carbonisation is lengthened. These, again, are real merits, and my experience bears out the claims. The smaller one's engine, the more desirable it is that full efficiency should be obtained. The less one loves tinkering, the longer should the job of cleaning out the engine be deferable. But I notice that the wee two-stroke engine is very sensitive to its lubrication. To get the best results, the drip feed needs constant resetting; if one coasts down a long grade, the normal oil feed is excessive, and the engine cannot consume the oil which drips into it. At the foot of such a coast, the engine will either smoke freely, so cancelling the theoretic advantage of slow carbonisation, or it may even "four-stroke" for a short distance. The ideal is obviously (if my conclusions are correct) an automatically variable drip feed to the bearings; but such a system is difficult to devise, and expensive to construct. On the whole, therefore, at present the "petroil" system seems the best. If it does not make for the highest engine efficiency, a two-speed gear can be employed to rule out the demerit. It demands no attention from the driver. If it hasten the day when the ports and cylinder require scraping, the spasmodic bouts of over-lubrication resulting from failure to reset a drip correctly in traffic and downhill probably render carbonisation at least as rapid as it is with the "petroil" system. Personally, I am able to go further without cleaning the engine on the drip system than I can on the "petroil"; but the happy-go-lucky owner probably soots up his engine equally fast with both systems.

A long line of members of the Napier Motor Cycle Club of New Zealand. Motor cyclists in the Antipodes are now enjoying their summer (and, incidentally, are keeping British factories busy). The photograph was taken on the occasion of the opening run.

Petrol at a Shilling a Gallon.

Some Suggestions for Encouraging a Supply of Home-made Fuel.

THE leader in *The Motor Cycle* of Sept. 24th decided the present writer to tender the results of some years' investigations toward the home production of motor spirit at a reasonable figure. At the outset it is safe to assume that imported petrol is most unlikely ever again to drop to a shilling per gallon, and commercial practices would, of course, tend to keep up the price of home products to near that of imports. However, the following deductions are offered with the object of inducing motorists to take a hand in the proposals made.

There are no mineral deposits in Britain that can be used profitably solely for the production of motor spirit. But there are immense quantities of materials that can be put to profit if all the products, or nearly so, are carefully separated and marketed. The cannel coals of Britain still have a wide distribution, and with the falling away of gasworks uses are out of demand. These coals vary from the bastard varieties with some 35% of volatile contents up to the true cannel with as high as 69% of volatile matter. and with the ash contents ranging from 2% to 40%. All these coals can be mined and treated on a paying basis. In Derbyshire, Notts., Yorks., Lancs., Wales, and Scotland rich beds of these coals are lying idle. Plants could be put down at the big towns of Manchester, Liverpool, Nottingham, Leicester, Leeds. Bolton, Wigan, Chesterfield, and Chester in England, and Edinburgh and Glasgow in Scotland, where petrol could be distributed at 1s. per gallon with a profit; the results being attained by working the coals for their maximum yields of liquid hydro-carbons, neglecting the residual coke and resulting gas.

Coal costs would vary from 10s. to 20s. per ton, and the crude oil yield from 40 to 100 gallons per ton. Striking a mean through the coal prices and oil fields, it may be taken that for 15s. per ton coal cost there would be a yield of 70 gallons of crude oil. On rectification the result would be: Motor spirit, 9 gallons; paraffin, 14 gallons; tar acid, 3 gallons; heavy fuel oil, 23 gallons; naphtha, 2 gallons; lubricating oil, 6 gallons; plus the residual pitch and wax, and less the waste. At prices for these liquid products of respectively 1s., 6d., 1s., 3d., 9d., and 6d. per gallon, the total is 29s. The capital and working costs of the plant according to its size have relative importance to the results from the paying point of view. A toy-sized plant would be useless, and a very big one, at first unwise; probably a 100 ton a day plant would be the best to begin with. Regarding the operations, the plant for gas take-off, cooling, scrubbing, washing, distilling, and cleaning is standardised, and made under guarantee by many makers. There are a variety of retorting methods in the field, not varying greatly in effects, and makers would tender for result. None of the means or apparatus are "in the air," only their suggested combination is undemonstrated. It is estimated that a 100 ton plant complete would cost £32,000, plus £4,000 working capital. Assuming 10% depreciation on the plant, and a nett inclusive working cost of 10s. per ton of material dealt with, plus coal cost of 15s. per ton, total 25s., against 29s. per ton income, the result is 4s. profit on each 25s. of outlay, or about 15%. With 300 yearly working days, the annual spirit output would be 270,000 gallons, and shares might be issued by the fair division of 75 gallons to each subscriber of £10.

Many may consider that this is not the time to broach this matter, but in the writer's opinion this is *the* time to get to work. W.W.S.

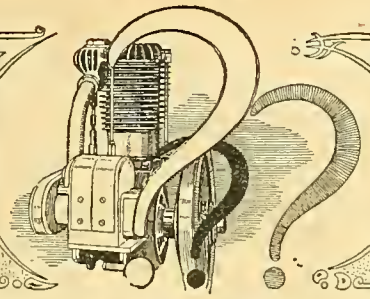
1915 MODELS AND "THE MOTOR CYCLE."

ANNUAL BUYERS' GUIDE IN NOVEMBER.

New models are now occupying the attention of manufacturers, and the pages of "The Motor Cycle" during the next month or two will be particularly interesting to motor cyclists and prospective riders. The earliest descriptions of new model motor cycles regularly appear in these columns; the accounts are penned by technical writers in interesting yet non-technical language, whilst sketches of mechanical details and photographs are a feature.

In November, a special Buyers' Guide issue of "The Motor Cycle" will be published, giving the specifications of all the leading 1915 models. This annual feature will prove more valuable this year than ever before in view of the manufacturers' decision not to hold a Show.

QUESTIONS AND REPLIES



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

More Braking Power Wanted.

I have an old motor cycle with a very small diameter band brake on the rear wheel. This brake is unlined, and is merely a metal strap round a metal drum. It generally slips freely for some little time after it is applied and then suddenly seizes and locks the wheel, which is most disconcerting. Unfortunately, the drum is an integral part of the wheel so it cannot very well be scrapped for a larger one. What course do you advise me to pursue?—M.W.

The only thing to be done is to have the brake drum lined with some patent fabric such as Raybestos or Ferodo. This cannot overheat and so cause locking of the wheel, and at the same time it possesses great gripping powers and long life. If the clearance between the band and the drum is not sufficient to allow the material to be fitted you must reconcile yourself to scrapping the band; but, as a matter of fact, this would not prove expensive, and you would never regret having done so.

How to Make a Running Mount.

I am just taking up motor cycling and would be glad if you would favour me with a detailed description of the "running mount" taken straight from the road. What special precautions should be observed, and what mishaps (if any) are likely to occur in mounting, and how can they be avoided? I am an experienced pedal cyclist, but have never mounted from the pedal, so I wish to mount the motor cycle direct from the road. My machine is a single-geared 3½ h.p., of medium weight, without starting device of any kind.—H.J.S.A.

A running mount is carried out in the following manner. The rider stands on the left-hand side of his machine. The air inlet is closed, the throttle a little way open, and the spark two-thirds advanced. He usually floods the carburetter slightly, and, holding up the exhaust valve lifter with the left hand, pushes the machine along at a brisk pace, and then as he puts one foot on the pedal he drops the exhaust valve and the engine fires. The more expert riders carry out the process in the same manner except that they do not mount by the footboards or pedals, but simply vault straight into the saddle at the first explosion of the engine.

Dissolved Acetylene.

Will you tell me what dissolved acetylene is, who are the manufacturers, and whether I require a special lamp for its use; also is it much dearer to use than carbide?—G.R.

Dissolved acetylene is acetylene gas highly compressed in a steel cylinder filled with a spongy substance and acetone. It can be obtained at most garages, and you can use it with any ordinary acetylene head lamp. Theoretically, it is slightly more expensive in use than acetylene; but, practically, we doubt if it is, because with it there is no waste, and, furthermore, no dirt to be cleaned. It produces a beautifully steady and powerful light. Its only drawback for solo motor cycle use is the slight difficulty of carrying the cylinder, which is rather heavy and cumbersome. Fitted along the top tube is probably the best position.

Too Weak a Mixture.

I am having a little trouble with my 3½ h.p. single-cylinder motor cycle. In running down a hill I find the engine only partly fires on the usual running mixture, explosions coming only about every ten or twelve yards very suddenly and then stopping altogether, whereas on the flat or the next up-hill it will fire evenly on the same mixture. Or in running at a high speed, thirty-five to forty miles per hour, it will only fire evenly for twenty or thirty yards, and then fire at intervals. Can you suggest a remedy?—A.W.

You have probably either got too small a jet in the carburetter or partial stoppage in the petrol pipe. You might make investigations in this quarter, as we feel sure that it is where the trouble lies. The engine fires regularly at ordinary speeds because the flow of petrol through the small jet is sufficient for the speed, but when you open the throttle on the level or run fast downhill the flow is insufficient, and the mixture is consequently too weak.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected matter will only be returned provided a stamped addressed envelope is enclosed for the purpose.

Wear of Driving Chains.

Can you tell me how much a chain can be allowed to stretch before it is scrapped? For instance, I have a driving chain which has stretched three-eighths of an inch in 3,000 miles, but is otherwise quite good. Also, I wish to purchase a tool for retacing valves, manufactured, I believe, by Lake and Elliot. It seems to me, from an illustration I have seen, that the cutting edge is set to a certain angle. Now, are all motor valves made to the same angle, and if not, can the tool be adjusted?—D.J.W.

The best test for the chain is to take it off and hold it straight out with the side plates of the links parallel with the ground. Then if there is very much sag in the chain you should scrap it. It is also very important to see that the chain wheels are not too much worn. The greatest amount of wear generally takes place on the small chain wheel on the engine. Most valves are made to the same angle. The particular tool in question can be adjusted; it is a most excellent little article.

Faulty Running.

I have a 2¼ h.p. Enfield twin-cylinder, with the running of which I am rather puzzled. The front cylinder gets nearly red hot, while the back one keeps at a moderate heat. The engine runs well on the stand, but not on the road. I have had the timing, magneto, carburetter, valves, and exhaust pipe overhauled. Could you give me any advice as to the cause?—F.O.

Your trouble is probably due to one of the two following causes, but it is impossible to say definitely without examination of the machine: (1.) The jet which supplies the front cylinder may be larger than the other, and the front cylinder may in consequence be getting too rich a mixture. The remedy is to stop up the jet groove with solder and cut a smaller groove in the solder with a penknife. (2.) The front cylinder may be getting too little oil, in which case it may be necessary to cut away part or the whole of the baffle-plate between the cylinder and crank case and bore some holes in the skirt of the piston. We presume that you drive with the spark well advanced; a retarded spark will quickly cause overheating, but it generally affects both cylinders.

Overheating Troubles.

I have a 4 h.p. single-cylinder 1913 machine, and when it has run about eight miles I have to stop two or three minutes for cooling, as my engine gets so hot that it will not take an incline. I drive with full air and about half-open throttle. Can you give me any suggestions that would get over this trouble?—P.N.

In all probability the piston is rather too tight a fit; if so it will improve with running. Be liberal with the oil, and use only first quality lubricant. After running three or four hundred miles take off the cylinder and clean off the carbon deposit, and continue rather to over-lubricate for some time further. It is also possible you are using too large a jet in the carburetter. Have you checked the clearance between the tappet and valve stem?

Automatic Valves Sticking.

I have an early horizontally opposed twin with a.o.i.v. Sometimes it starts quite easily and other times I have to run it a long way before it will fire, and then only one cylinder until it gets warm, but once it starts properly it will go almost anywhere. The carbon brushes are worn down rather short. Would that cause it, or do you think the jet is too small?—G.L.

If one of the carbon brushes is not making good contact it would account for the symptoms you describe. But we are more inclined to think that the trouble is due to the automatic inlet valve sticking in its guide in the cylinder which does not fire until the engine gets warm, when both operate properly. There is no reason to suppose that the jet is too small. With automatic inlet valves on a twin great care must be exercised to have both springs the same tension, and to see the valve stems are quite free in their guides.

Imperfect Carburation.

When running my 2¾ h.p. twin on the stand the engine will miss now and then, even when revolving fast with air lever closed, and on opening the air lever no change takes place till about a quarter open, when the "revs." drop off and the missing increases, the firing generally settling on one cylinder, but not always the same. When running on level on top gear fifteen miles per hour is the lowest speed obtainable without missing. If the speed falls below fifteen miles per hour and the air lever is closed somewhat, the pick up is accompanied by a series of misfires until about fifteen miles per hour is reached, and if the speed falls to ten miles per hour on top the engine may not pick up. The most annoying part is when starting up, for sometimes I have to push several yards before the engine will fire, even when hot. On dropping the exhaust valve it will push along as if there were no compression, or there were just explosion enough to overcome it, but there is no exhaust, then all at once it will fire. At ordinary speeds and on hills the machine is as good as usual. I have gone over almost everything such as valve and magneto adjustment, etc., but I have not adjusted the petrol level or removed the jet since I had the machine. The original valves are in use. I am using the new three-point water-proof Lodge plug.—H.S.

We should recommend you to see to the adjustment of the platinum points on the magneto, and also to take great care that there are no air leaks in the induction pipe unions or where the carburetter is attached to the inlet pipe. The carburetter may be badly adjusted for running slowly, but considerable improvement may be obtained by obviating the air leaks referred to. Look well to these points, and if you have no improvement try fitting another carburetter. This may sound very drastic, but in the end will probably be found advisable. The Amac, Binks, Claudel-Hobson, Longuemare, and B. and B. are all carburetters of the semi-automatic type, and any of these should effect an improvement.

Fine Castings and Noise.

Can you tell me if it is true that cylinders having deep and fine radiating fins are more prone to give out a metallic ringing noise when the machine is running than one with coarser cast fins? I am told the possession of such fine castings is the cause of the very distinctive "note" in the running of certain famous machines.—PUZZLED.

It is quite possible that there is something in the matter you mention. We have noticed that the noise of the fall of the valve head on its seating is often most pronounced on engines the cylinders of which are superfine castings. You may be interested to know that this particular ringing is unknown on engines with detachable heads—the copper and asbestos washers probably deadening the noise.

London to Leeds.

I should be glad of an answer to these two questions: The best route to Hunslet (near Leeds) from Marble Arch, W., missing traffic as much as possible, and the approximate distance? I have just purchased a 3½ h.p. motor cycle for solo work. What is the approximate distance I should get on a quart of lubricating oil?—G.W.

Make your way from Marble Arch down Old Quebec Street, take the first turning on the right, then turn left at the first square you come to, go straight ahead into Gloucester Place, continuing due north, leaving Lord's Cricket Ground on the left, go absolutely straight on, and at Barnet take the right-hand fork and follow the Great North Road as far as Doncaster—through Hatfield, Baldock, Biggleswade, Eaton Socon, Stilton, Stamford, Grantham, Newark, Tuxford, and Retford. After leaving Doncaster take the left-hand fork, skirting Pontefract, and keep to the main-road to Leeds, which will bring you to Hunslet. The distance is approximately 190 miles. A quart of lubricating oil should last you about 250 miles, perhaps more after the machine has been in use for some time; but it is almost impossible to give you any accurate idea of the oil consumption, as this varies according to the nature of the country in which you are driving.

Scene at the start of a Danish motor cycle competition. In the foreground is Miss Werner, mounted on a 2¾ h.p. Hobart.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"J.F." (Congleton).—Reliability, petrol and oil consumption of 3½ h.p. Douglas, Model B.

"J.M.H." (Barmouth).—Electric Indian. Reliability, consumption, speed over give and take roads, and wear of tyres.

"J.G." (Elgin).—Most suitable and economical combination for Highland roads. Combined weight of rider and passenger 23 stone.

A Despatch Rider's Adventures.

Corporal Howard Riddell photographed in hospital last Saturday.

WE had an interesting chat with Howard Riddell, the Birmingham motor cyclist who, we mentioned last week, was in the Northern General Hospital, Leicester, having been wounded in France. We were glad to find Riddell happy and fairly comfortable, the piece of shrapnel which pierced his side having been removed, and it is now only a question of time before the clot of blood which has formed may be removed. Riddell's experiences form interesting reading. He was among the first to volunteer his services as a despatch rider, and on Saturday, August 8th, at Chatham, was accepted for service, and in a single day found himself a corporal in the Royal Engineers with a revolver and ammunition in his possession, his 3½ h.p. single-cylinder Zenith-Precision (the same machine with which he still holds the one to six hour sidecar records, but with the substitution of an air-cooled cylinder for the Green) having been duly accepted and the official seal placed on it.

He was ordered to Southampton with five other despatch riders, all strangers to him, and, by a curious coincidence, crossed to Havre on the very same day he had intended crossing the Channel for the postponed Grand Prix Race. But more serious business was in store on this occasion, and Riddell and his friends had to put up with the discomforts of a cross-Channel trip in a collier low down in the water due to its heavy load of horses and cavalry, the crossing taking just twenty-six hours!

A Severe Test for Machines.

The party of despatch riders were first ordered to Amiens to work in conjunction with a signalling company, whose duty it was to keep up communications between the different generals and their divisions. But the trip north was not uneventful, for one or two of the party, possibly unaccustomed to speed work and keeping to the right side of the road, had to be extricated from ditches. Arrived at Amiens the valuable work the motor cyclists were able to perform, not only in despatch riding but in scouting work, drew forth praise from the commanding officers. The continuous speeding, however, tested the motor cycles to the limit. Riddell told us of an occasion when, in company with two colleagues, he was scouting in the district, when suddenly he heard a tremendous crash, and, looking round, saw a riderless motor cycle turning somersaults. The machine was badly damaged and an inspection revealed the fact that the driving chain had jumped the sprockets and locked the wheel (thought to be due to the spring link coming adrift), with the result that the rider was thrown and the back forks twisted round almost to right angles with the rest of the machine. A cart was commandeered on which rider and machine were returned to headquarters.

It was whilst scouting in the neighbourhood of St. Quentin and Landricies that Riddell first encountered German cavalry patrols, but neither side attempted the offensive but were content to report the presence of the enemy. Near Amiens he met and chatted with Georges Boillot, the Peugeot racing car driver, who is in charge of General Joffre's car.

One night at St. Quentin Riddell had to take an officer on the carrier of his Zenith to convey an order. It was known that next day the Allied Army had to retire, and on returning, the machine was put away, and Riddell snatched an hour or two's sleep. Next morning, when the general order to retire had been given, he discovered that the back wheel had a huge dent and four spokes broken as the result of striking a *caniveau* (a water gulley across the road frequently encountered in France) at speed with the officer on the carrier. There was nothing for it but to stay behind and remove the wheel, which was exciting work with the enemy in the vicinity. Riddell was lucky in finding a cycle agent, who fitted new spokes taken from a motor cycle he was about to leave behind in the shop.

Showing patent combined knee pads and body rest used by a Singer rider in the Victorian M.C.C. hill-climb at Wheeler's Hill. Separate devices of this kind are regularly used by racing motor cyclists in this country; the Australian patentee has combined the two.

A Lucky Escape.

The tinned beef and biscuit food was not exactly relished by the motor cyclists, but most managed to keep in the best of fettle. Riddell had a narrow escape during the retreat. He had been granted a few hours' leave, and naturally took to his bed. Five hours later the Germans had progressed faster than expected, and Riddell was aroused by a Frenchwoman when a German cavalry regiment was only a quarter of a mile distant. He dashed to his machine, and pushed off just as an outpost gave chase. Luckily, his Zenith fired from cold at once, and in the exciting race which followed the motor cycle easily won. Luckily for Riddell the German rifle shooting was poor, but nevertheless he afterwards extracted one bullet from the kit bag on the carrier.

Corporal Riddell tells us that he saw with his own eyes a number of German atrocities which have been reported, and, generally, he was not impressed with the average German soldier. The enemy's soldiers seemed to be largely an undesirable class. For ten days, that is during the retreat upon Paris and the subsequent chase of the Germans after their advance had been arrested, Riddell had no opportunity of moving his clothes, and a wash he regarded as a luxury.

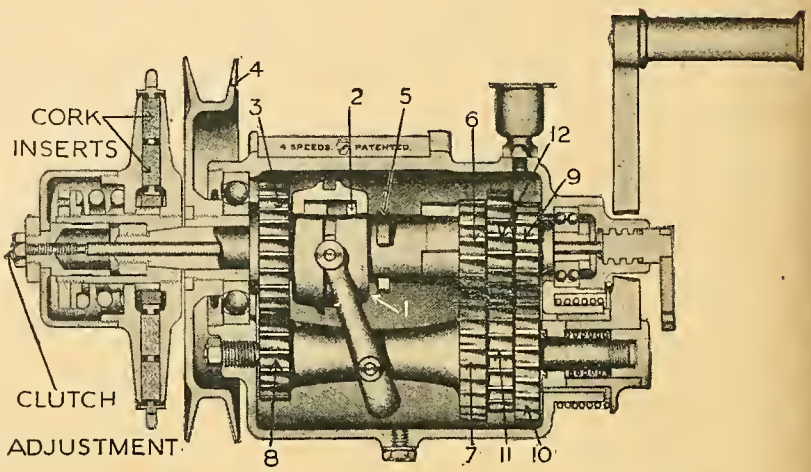
It was at the battle of the Marne that Riddell's first experience of soldiering unfortunately came to an end. He was at the time returning on his machine from the firing line with a despatch when a shell burst a few yards in front of him, totally wrecking the machine, but he luckily landed on a soft bank at the roadside. A piece of metal the size of a horseshoe nail entered his right side, but soon he was picked up by a motor ambulance, and sent by train to St. Nazaire and subsequently to Leicester. Riddell, who is just the dashing experienced kind of rider the Army wants, expects to be out again in about three weeks' time, and is anxious to return to the front if another motor cycle can be found for him. He seemed to be most sorry to lose his "old 'bus" as he termed it.

A Four-speed Countershaft Gear.

Latest Production of the Jardine Factory for 1915.

THERE was never any doubt that the greater the number of ratios a gear possessed, provided that the gear were not complicated and unreliable, the more suited it became to the needs of motor cyclists. Experience has proved that just as the two-speed gear is streets ahead of a single gear, so is the three-speed superior to the two, and now there are indications that the four-speed gear is to receive well-merited attention at the hands of manufacturers. The first of these ready for inspection is the Jardine, made by John Jardine at the huge factory in Nottingham, where a portion of the works and special plant have been set aside for the manufacture of the 1915 model gear. The name of Jardine as applied to gears is not new; as a matter of fact, the appearance of the latest gear is an interesting example of how experience favours an increased number of ratios, for the original Jardine "G. H." gear had two speeds, last year three speeds, and the new production four speeds.

The beauty of the latest gear is that the extra ratio has not been obtained at the expense of complication; in fact, the same number of gear wheels are embodied in the construction as in the three-speed gear, and the additional ratio has been provided by utilising the kick-starter gear and wheel carrying the ratchet, as driving gear wheels. Thus, by a smart piece of designing four ratios are obtainable with the complications of three, but that is not all, for in the latest box the whole of the parts, including kick-starter mechanism, are enclosed in an aluminium case formed in one piece, so that escape of oil is impossible, which not only spells economy in oil but also a clean exterior casing.



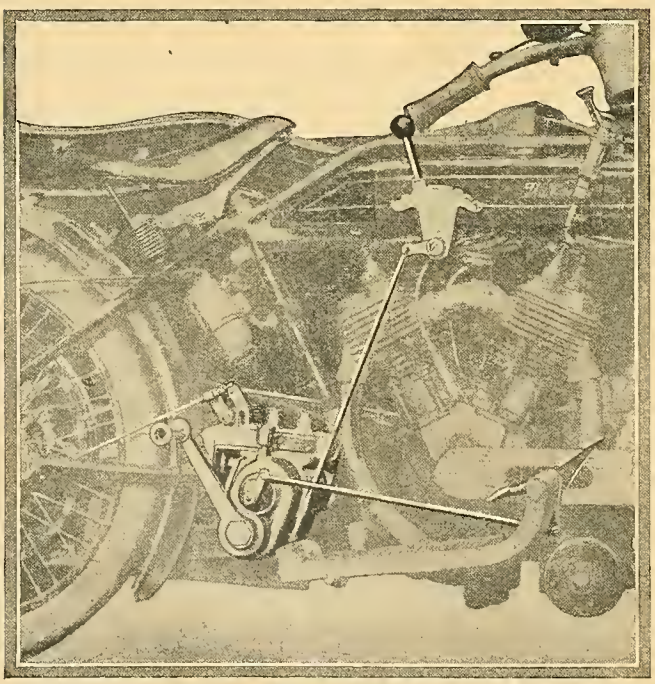
Section of the new Jardine four-speed countershaft gear described on this page.

We publish with this description a drawing showing the interior mechanism of the new box, and before proceeding to describe its working may detail its main features. Firstly, all gear wheels remain always fully in mesh; secondly, the whole of the changes are effected by a single dog clutch; thirdly, the kick-starter mechanism, being part and parcel of the gear, is always lubricated so long as there is oil inside the box; fourthly, two neutral positions are provided, viz., between the first and second, and third and fourth ratios.

The Combined Drive Adopted.

Chain and belt transmission is provided for on the 1915 gear box, which method of drive has attracted many makers of experience; so long as the pulley is of large diameter, as in the case of the Jardine, which is 8in., this form of drive is suitable for even high-powered sidecar outfits. As regards bearings, the main shaft itself revolves on caged ball bearings, whilst in the case of the layshaft and other loose wheels bronze sleeves are used. Nickel steel on bronze is the general order, as this combination is found to be less exacting in the matter of lubrication, though, incidentally, this important question has received especial consideration, holes being drilled at a tangent to the direction of travel to scoop up oil, and the usual splines are also formed on the shaft.

The cork clutch has a single plate with a double row of corks, and has been found to answer all requirements, having been subjected to constant slipping with no ill effects. Certainly, in our tests the clutch took up the drive of an 8 h.p. sidecar outfit with wonderful smoothness.



The new Jardine four-speed countershaft gear and change speed rod.

A Four-speed Countershaft Gear.—

In following the actual working of the gear it should be remembered that:

Pinion 9 is keyed to the main shaft.

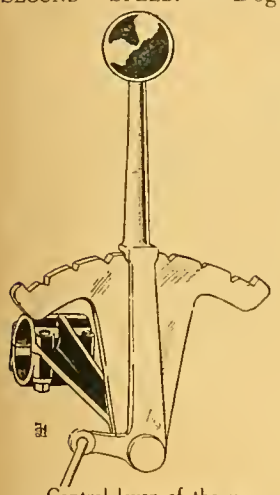
Gear wheels 10 and 11 are in one piece, and free to revolve on the layshaft.

Gear wheel 12 is secured to first reduction dogs 5 by phosphor bronze sleeve.

TOP OR FOURTH SPEED.—On the main shaft driving dogs 2 are formed from the solid bar. A direct drive is obtained by coupling these driving dogs to the dog clutch 1 and the dogs on the main gear wheel 3, to which the belt pulley is secured.

THIRD SPEED.—The first reduction dogs 5 are coupled to the main gear wheel dogs 3 by sliding the dog clutch 1. The drive is then through 9 to 10 and 11 to 12 and 3.

SECOND SPEED. — Dog clutch 1 connects the driving-shaft dogs 2 to small gear wheel 6, which wheel revolves the lay axle gears 7 and 8, thereby rotating the main gear wheel 3 at a double reduction.



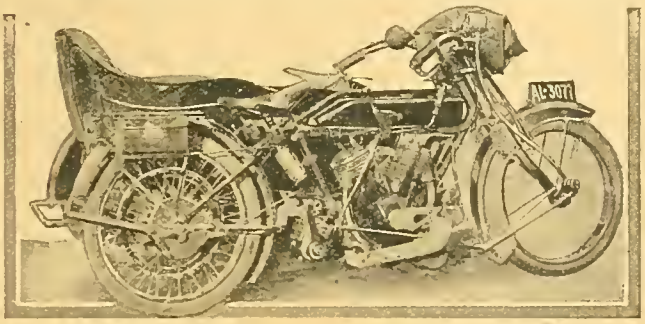
Control lever of the new Jardine gear. Two free engine positions are obtained.

FIRST SPEED OR LOW GEAR. — The dog clutch 1 couples the first reduction dog 5 to the small gear wheel 6, the drive then being through 9 to 10, 11 to 12 and 6, through the lay axle 7 and 8, to the main gear wheel 3, thus giving a triple reduction.

The ratios provided are approximately 4 to 1, 6⅓ to 1, 8⅔ to 1, and 14½ to 1. General details of design are: The use of gear wheels ⅝in. wide, 10 pitch, each part made to jigs so that interchangeability is ensured, weights 28 lb. made up as follows: Gear, kick-starter and pulley, 21 lb.; clutch, 7 lb.

A Trial on the Road.

After examining the construction of the gear we were taken on the road by Mr. George Hunt, who has been testing the new gear on the 8 h.p. Campion side-



The 8 h.p. Campion, fitted with Jardine four-speed gear, on which our tests were made.

car outfit with which he won a gold medal in the Six Days Trials. The ease of starting from a standstill we have already referred to, but it was the manner in which the gears could be changed that impressed us. A touch of the valve lifter and our driver slammed in the gears one by one without difficulty, and then purposely resorted to the extreme test of changing from first to top, and suddenly down again. This sort of hard usage we are assured the gear has withstood for over a thousand miles. In Nottingham traffic our pilot changed up and down as certainly as with a variable pulley gear. In future, gear changing even with a four-speed box, need no longer worry the novice.

TRADE PROSPECTS.

Competition with Germany and Austria-Hungary in Neutral Markets.

RECENT notes issued by the Board of Trade contain some very useful hints respecting goods to be exported to South Africa, and as South Africa is a very large customer of this country in motor cycle goods, we reprint them for the benefit of our readers:

"His Majesty's Trade Commissioner reports (August 25th) that there seems to be no doubt that British trade in South Africa will receive an enormous impetus as a result of the complications in Europe, although it may be acknowledged that the immediate prospects of trade are not of the best. There is considerable anxiety on the part of merchants with regard to stocks now on the water; but the effect of the moratorium in operation in the United Kingdom is that merchants fear that oversea manufacturers in all parts of the world will not be disposed to trade with the South African market so long as it is thought that payments for consignments are liable to be temporarily withheld in transit by the London banks.

"The Trade Commissioner emphasises the importance of attention being paid to the following details of trade organisation by British manufacturers desirous of taking advantage of the extended possibilities of the South African market as a field for their enterprise:

"(1.) The need for local representation.

"(2.) The enormous advantages that, as a rule, follow the visit of a principal to South Africa for the purpose of becoming intimately acquainted with local conditions of trade.

"(3.) The necessity for meeting foreign competition by the supply of articles identical with those being exploited by our foreign competitors (*e.g.*, enamelled ware, cheap musical instruments, cheap toys, etc.)

"(4.) The adoption of an overhead charge in all cases where South African trade custom makes it necessary.

"(5.) The study of packing, in order that handling, both on the part of the wholesaler and retailer, may be reduced to a minimum of labour with a maximum of convenience.

"(6.) Sympathetic and generous treatment towards the local representative, and a strong endeavour to adjust the exporter's point of view to that of the South African merchant."

LATEST DESIGNS.

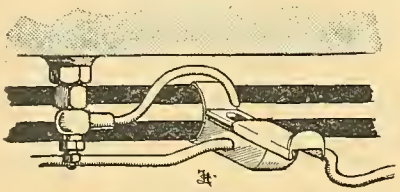
Advance Descriptions and Illustrations of 1915 Model Motor Cycles and Accessories.

TWO NEW KING-DICK MODELS.

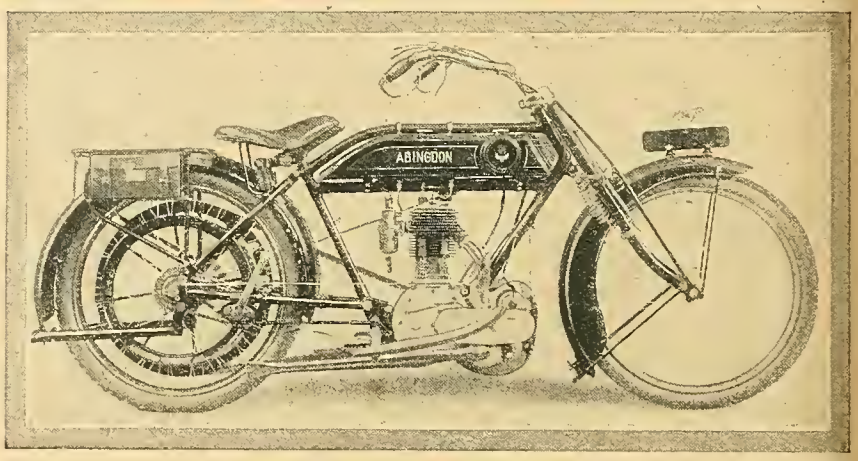
ONE of the sturdiest and most complete motor cycles we have yet seen is the new 5-6 Abingdon King-Dick. The long stroke twin engine remains the same, as it has given such satisfaction in the past that no alterations are considered necessary. The frame, however, has been considerably altered, largely with the object of making it ideal for Overseas work. A very noticeable feature is that there are no angles in the tubing, and the rear stays are bent as little as possible. The top tube is, of course, an exception, as it is dropped to give a low riding position. Very powerful fork ends are used, and both stands are held up to their attachments by spring washers so as to prevent any signs of rattle. Druid forks are now standard fittings, and a very big rake has been given to the steering head with very beneficial results to the steering.

The mudguards are excellent, and not only does the end of the rear guard hinge from the carrier, but the whole guard may be removed without touching a single inside nut. This has been accomplished by mounting the guard on a detachable bridge piece which may be removed from the outside. The carrier has been strengthened, and almost every possible luxury is fitted in the way of footboards, tool-bags, etc. A new type of Benton and Stone drip feed lubricator is used, which allows the oil to be poured through under exceptional circumstances by a touch of a neat lever and without disturbing the normal setting.

Another refinement consists of a distributing box for the priming device, which is so arranged that after opening the compression cocks it is only necessary to turn on one tap to prime both cylinders. The tank has undergone modifications, and will now hold two and a quarter gallons of petrol and three pints of oil, the oil tank being tubular and let into the petrol tank.

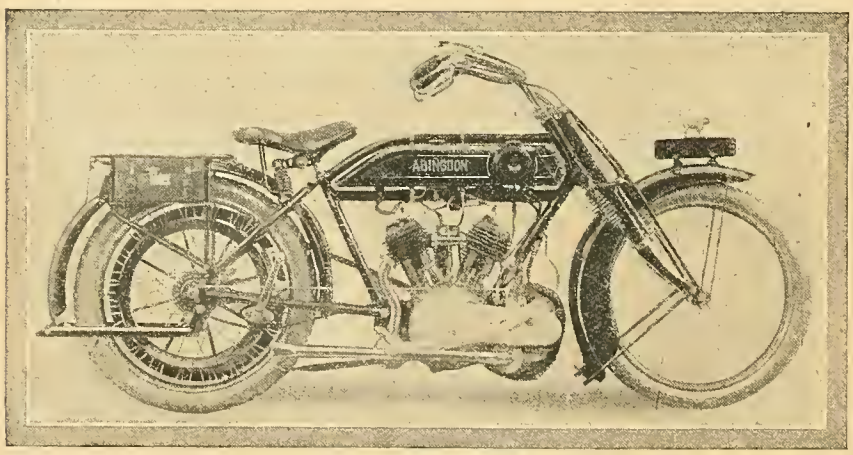


Priming box on Abingdon King-Dick. Petrol is injected to both cylinders after pulling back the slide.

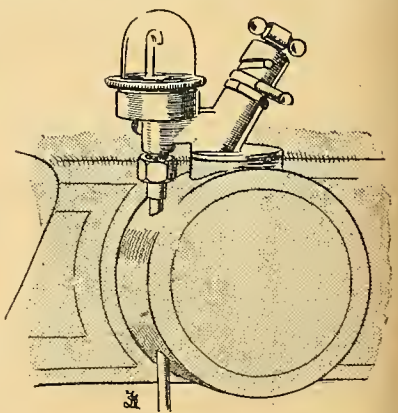


The 3½ h.p. single-cylinder Abingdon.

The footbrake is exceptionally powerful, strongly constructed, and works on the inside of the V of the dummy belt rim so that the wheel may be detached without touching the shoe. The model we inspected was fitted with a Sturmey-Archer three-speed hub, and a similar type with a three-speed counter-shaft gear will be ready in a short time.

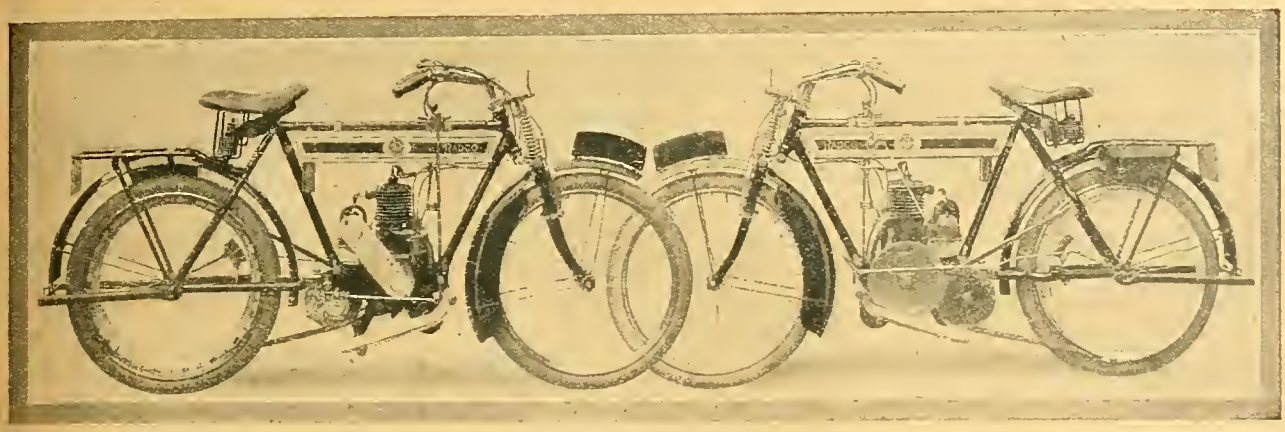


The 5-6 h.p twin-cylinder three-speed Abingdon.



New Benton and Stone lubricator on Abingdon King-Dick.

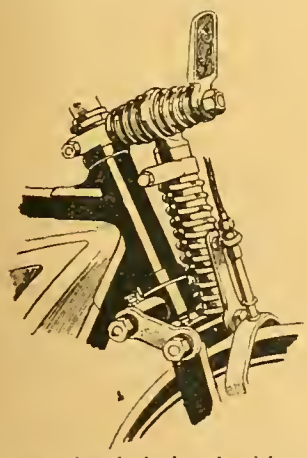
The 3½ single-cylinder model is an exact counterpart of the 5-6 except for the engine, which is the King-Dick 500 c.c.



A specimen of the latest two-stroke two-speed Radco.

LATEST TWO-SPEED RADCO.

We have recently been able to inspect one of the latest models of Radco two-stroke. The little 62 × 70 mm. engine is, of course retained, but there are one or two additions of some importance. A two-speed Albion gear is fitted to the bottom bracket, the drive being by belt and chain, and as the single-geared model was a fine climber, this addition should render it a go anywhere mount. This model is fitted with comfortable inclined aluminium foot plates and a metal enclosed tool-bag. The Bowden wires are neatly held to the bottom of the tank by metal slides. The front mudguard has deep side wings, and one of the most important points is in connection with the spring forks.



Showing springs for backward and forward movement in the new Radco fork.

Previously these have given an up and down motion only, but an attachment can now be supplied which gives an additional forward and backward movement. This consists of buffer and recoil springs arranged to act on a special head piece, which also forms the outer sleeve of the original springing. The conversion from the old type is such a simple matter that it can be easily carried out by an amateur mechanic, and previous Radco owners are encouraged to try the new fitting by the generous offer which the firm make.

If the owner will send to the firm (Messrs. Radnall and Co., Dartmouth Street, Birmingham) the name of the agent through whom he purchased the machine and also the frame and engine number he will be supplied with the new article free of cost. The increase in comfort is said to be considerable, and this is only to be expected, as a great amount of shock is taken by the double springing without being transmitted to the frame.

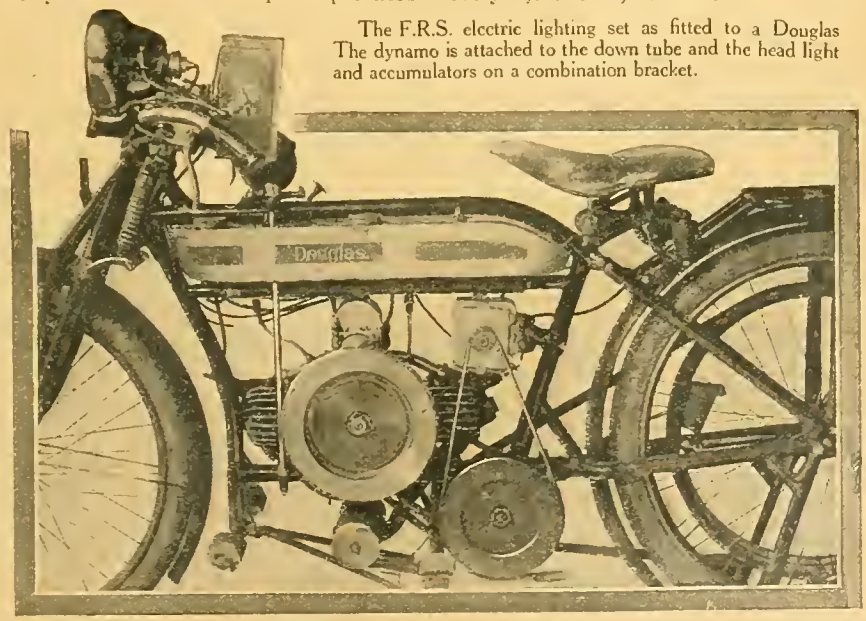
THE F.R.S. DYNAMO LIGHTING SET.

We illustrate herewith the new 1915 dynamo set, made by the F.R.S. Lamp Co., Pershore Street, Birmingham, and fitted to a Douglas machine. As will be seen, the dynamo, very neat in appearance, is attached to the saddle pillar tube and driven by a belt from a pulley fitted to the counter-shaft. The current generated can be taken to the lamp direct, or used to charge the eight-volt accumulators, which are carried in the position usually occupied by the generator of an acetylene set. The candle power produced is twenty-four, and anyone conversant with electric lamps will realise that this will throw a splendid beam when the reflectors are of correct parabolic shape, and we can well believe the claim that this lamp is far more effective than the best acetylene sets made by the firm. It is claimed that five telegraph poles can be seen quite clearly. The candle power can be split up and used in several lamps, head, side, and tail as may be required, but the total candle power must not exceed twenty-four or the current will be taken from the accumulators faster than they can be recharged.

Switches are provided to enable the current to be used direct or through the accumulators, and to give the usual charging, on and off positions.

We understand that a large number have already been ordered and that delivery can begin in about three weeks. The set is made to fit most standard machines, and the price will be £5 10s., or with larger lamp £6 6s. The whole apparatus is self-contained, and requires no attention except that the special brushes may require looking to every 2,000 or 3,000 miles.

The F.R.S. electric lighting set as fitted to a Douglas The dynamo is attached to the down tube and the head light and accumulators on a combination bracket.



TIMES TO LIGHT LAMPS.

(GREENWICH.)

Oct.	8th	...	...	6.23
,,	10th	...	...	6.19
,,	12th	...	...	6.15
,,	14th	...	...	6.10

The Price of Petrol.

An official of the Standard Oil Co. has stated that, in his judgment, there is not likely to be a change in the price of petrol for the next two years.

Automobile Engineering and the War.

At the opening meeting of the session of the Institution of Automobile Engineers, a paper will be read by Mr. L. H. Pomeroy, entitled "Automobile Engineering and the War," in which important suggestions will be made for the conduct of business during war time. All who are interested will be admitted on presentation of their visiting cards at the door. The meeting will take place at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W., at 8 p.m., on the 14th inst.

An Excelsior Two-stroke.

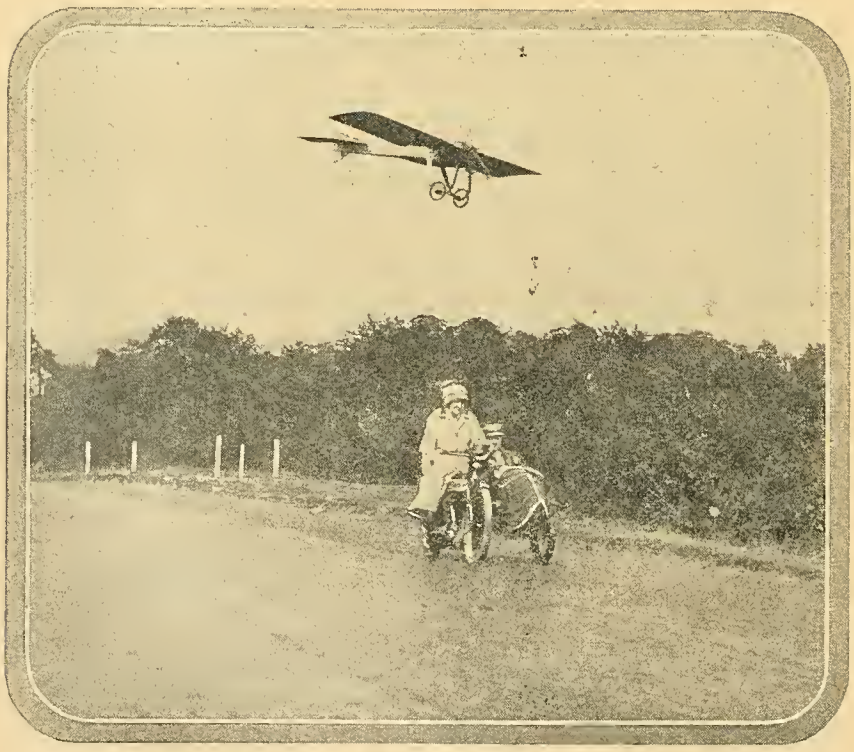
In addition to the 8 h.p. twin-Excelsior which is announced for 1915, Messrs. Bayliss, Thomas and Co., of Coventry, have practically decided to make a further addition to their range of models, in the shape of a 2½ h.p. two-stroke mount. The new twin may have a four-speed gear.

Lady Motor Cyclists Leave for Belgium.

Two lady riders, Miss Chisholm and Mrs Knocker, whose work in connection with the proposed ladies' trial will be recalled, left London last week to assist at a Red Cross centre in Belgium. It is not known, however, at what place they will be stationed.

Rally of 1915 Models.

A rally of 1915 model light cars is proposed by the Cyclecar Club towards the end of November. The idea is that as there will be no show, the motorists in and around London shall seize the opportunity provided by the rally of the 1915 models, say at Wisley Hut or Burford Bridge, to inspect the latest designs.



A lady driving a sidecar combination on the "Fairmile," Cobham, while a military monoplane passes overhead.

SPECIAL FEATURES.

NEW DESIGNS (Illustrated).
A DESPATCH RIDER'S EXPERIENCES.
A TRIAL OF A MONOCAR.

The Fosseway.

We are glad to hear that the Leicestershire Automobile Club has a scheme under discussion for the improvement of the Leicestershire portion of the Fosseway. At present it compares very unfavourably with the Tarmac surfaced roads under the control of the Notts County Council.

Motor Cyclists in the Canadian Contingent.

From across the Atlantic we learn that thirty-two motor cycles are included in the Canadian Division of the Army. The commanding officers have motor cyclists attached to the staff, the 72nd Cameronian Highlanders have four motor cyclist scouts, and each brigade has three machine guns on lorries, with motor cycles and sidecars to convey emergency ammunition.

Severe Trials Vindicated.

The interesting details given in our last issue of the tests for the selection of motor cycles for the Russian Army, recall vividly the severities of the last two A.C.U. Six Days Trials. They prove to the hilt the contention of the Auto Cycle Union that such tests were necessary, and those makers who had the pluck to face these tests in the past knew that their machines were capable of the demands put upon them by the Russian Army representative, and have been rewarded by substantial orders.

War Office Ban on V Twins.

On the subject of V twin-cylinder engines which we dealt with in our last issue, we have received a reply from the Rev. F. W. Hassard Short, secretary of the Motor Cyclist Reserve Committee, Home Counties Division, which we publish on another page. In his notes the Rev. Hassard Short mentions that there are vacancies for experienced motor cyclists in the signal companies of the new Expeditionary Force, and invites readers to apply to him for the positions. Though we have no doubt of the response which will be received for the vacancies, we would point out that, should more motor cyclists be required, the A.C.U. has a list of some 1,500 motor cyclists (including several hundred names furnished by *The Motor Cycle*) who are willing to serve their King and country. Included among this number are many of the leading motor cyclists of the day.

Petrol at 1s. a Gallon.

We are pleased to see that several newspapers are taking up our suggestion of a substantial reduction in the price of petrol with some enthusiasm, and we hope that the petrol companies will consider the question seriously, for we believe that such a reduction would be to their ultimate advantage, as well as to the good of the motor industry in general.

Engine Starting by Acetylene.

A writer in a foreign contemporary states that he has been entirely successful in starting a refractory engine by means of acetylene led through a flexible tube to the induction pipe. Though there is nothing new in the use of acetylene for running an engine our own experience is that starting is difficult, but once under way the engine runs well.

New Ruling Concerning Appeals.

Up to the present a motorist has been able to appeal from a conviction by a Justice of the Peace if the fine imposed exceeds £1. From the 1st of December next he will be able to appeal against any conviction of a Court of Summary Jurisdiction to a Court of Quarter Sessions, provided that he did not plead guilty or admit the truth of the information against him.

A.A. and M.U. Notes.

MOTORING DURING WARTIME.—The Automobile Association and Motor Union is able to report that during the past two weeks a distinct revival of motoring in all parts of the country is to be noted. The departmental records kept by the A.A. show that last week over one hundred members applied at the London headquarters alone for free legal defence. This figure not only shows that British motorists are bringing their machines out on the road, but it also indicates that "measured distances" are more prolific than many would have us believe them to be. The daily reports sent in by the A.A. patrols also indicate that the stop watches are being freely used.

British Despatch Riders.

The following paragraphs were issued by the Press Association last Friday:

"The fine work of the volunteer British despatch riders has called forth the warmest praise of the Allies' commanders, who have been enabled through their services to maintain a constant communication along the huge front, extending about two hundred and forty miles from the Somme to the Moselle, and along the frontier of Alsace Lorraine.

"Many of these young fellows are just fresh from the Universities, and have had no previous military experience, but they show remarkable dash and bravery while travelling on motor cycles through country infested with enemies.

"Yesterday an Australian youth from Cambridge, while speeding along a country road, met a party of fourteen German cavalrymen. He was unable to turn, and drew his revolver and shot down an officer and one man. The others turned and fled, and the despatch rider was able to deliver his despatch, which informed a corps commander that Germans were in the vicinity, and thus prevented what might have been a disagreeable surprise. One member of the corps has been promoted from corporal to lieutenant in three weeks."

The Russian Government Orders.

The Rudge Company and, it is said, the B.S.A. and Indian companies, have in hand orders for motor cycles for the Russian Government. The terms of the Russian Government's orders are extremely severe. Though a certain supply of spare parts are ordered with each batch of motor cycles, these must not be touched for two months, and should any part of a machine give out within that period, the Russian Government exact a penalty amounting to ten times the makers' list price of the defective or broken part.

There is a likelihood of a number of well-known riders spending their winter in Russia looking after the army motor cycles, including S. Wright, J. Oliphant, and A. J. MacDonagh.

A Comprehensive Issue.

Motor cyclists have become accustomed to look to *The Motor Cycle* for the earliest descriptions and illustrations of new models. In this issue we publish photographs and details of the new racing Morgan, a machine of novel and striking design propelled by an eight valve engine, intended for the Cycle Car Race; the Jardine four-speed counter-shaft gear, which a number of different manufacturers propose to adopt as standard; two new King-Dick models for 1915; the latest two-speed Radco; a double-purpose Bramble sidecar; an attractive cylinder design, having an aluminium casing and fins, and a new Jelley hammock saddle.

In lighting outfits the Low acetylene generator and the F.R.S. dynamo lighting set will create interest, and the competition side is represented by details and photographs of the Mersey Club's map reading test, a twenty-five mile road race in Victoria, and an informal event arranged for the motor cyclist special constables.

DESPATCHES.

Swift as a bullet out of a gun
He passed me by with an inch to spare,
Raising a dust cloud thick and dun
While the stench of lubricant filled the air.
I must admit that I did not like
The undergrad on his motor bike.

I have seen him, too, at the wayside inn,
A strapping lad scarce out of his teens,
Grimy, but wearing a cheerful grin;
A young enthusiast, full of beans.
While his conversation was little better
Than pure magneto and carburetter.

Now he, he has got the chance of his life,
The chance of earning glorious scars,
And I picture him scouring a land of strife,
Crouching over his handle-bars,
His open exhaust, with its roar and stench,
Like a Maxim gun in a British trench.

Lad, when we met in that country lane
Neither foresaw the days to come,
But I know that if ever we meet again
My heart will throb to your engine's hum,
And to-day, as I read, I catch my breath
At the thought of your ride through the hail of death!

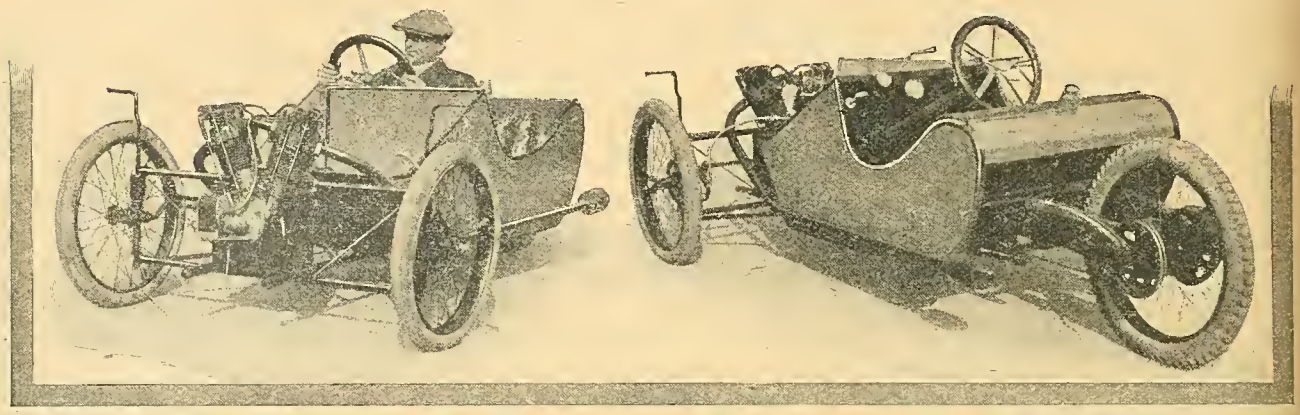
But to you it is just a glorious lark;
Scorn of danger is still your creed.
As you open her out and advance your spark
And humour the throttle to get more speed,
Life has only one end for you,
To carry your priceless message through!

—TORCHSTONE in the *Daily Mail*.

Military motor cyclists making use of petrol tins for dinner tables. Observe the tube on top of tent.

THE NEW RACING MORGAN.

Eight-valve Air-cooled Engine; Extremely Low Centre of Gravity.

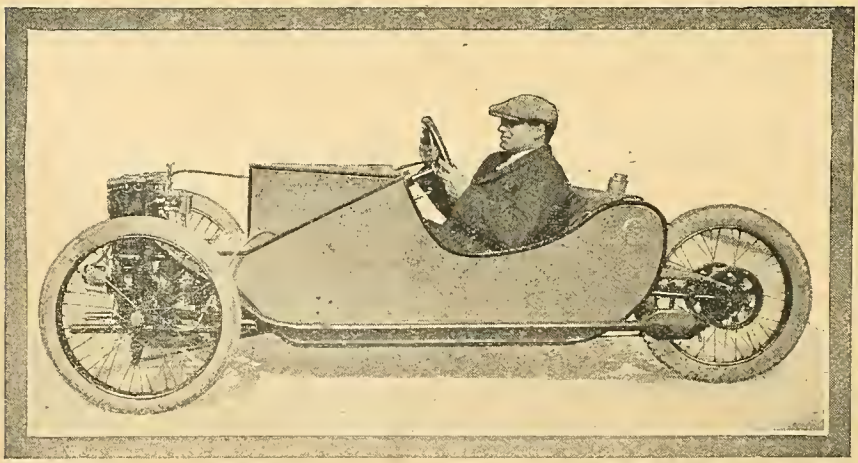


The racing Morgan, specially built for the postponed International Cycle Car Race.

A VEHICLE, concerning the novel features of which many rumours gained currency as the date of the International Cycle Car Race drew near, was the new racing Morgan. It was known that a number of these machines were being specially designed for the race, and a great many fancied their chances against the four-wheelers. The Isle of Man race, as everybody knows, was abandoned owing to the war, and we are now enabled to publish illustrations and a description of the new Morgan racer. When we state that the engine is a special eight-valved air-cooled M.A.G., of a bore and stroke of 82 mm. × 102 mm. = 1,078 c.c., it can be well believed that the runabout has proved much faster than anything which the Morgan Motor Co. has turned out hitherto, these remarks applying particularly to speed on gradients.

Constructional Details.

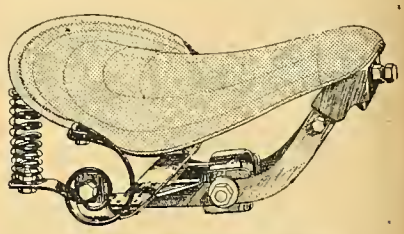
The chassis is the standard Grand Prix type in almost every particular, though the back forks are widened slightly, and larger brake drums are fitted. The gear is of the usual Morgan two-speed type, the ratios being 3¼ and 5¼ to 1 respectively. The clutch is of standard design, but no outside flywheel is fitted. The bodywork is entirely of wood, whilst the front is pointed as shown in the illustrations, and accommodates a good supply of tools. The back part is held together by a large petrol tank the capacity of which is about six gallons—sufficient fuel for a trip of approximately 200 miles. The petrol is pressure fed to an Amac carburetter possessing a very large float chamber, and the pressure is maintained by a pump on the dashboard, discernible in one of the illustrations. A pressure gauge is, of course, fitted. The exhaust is conveyed to the rear of the vehicle by two long and almost straight pipes extending along the sides of the body. The silencers are fitted at the ends of these pipes, and, incidentally, they can easily be removed for racing purposes. One of the most remarkable features of the new racing Morgan is the exceptionally low centre of gravity, the object, of course, being to render the machine safe on corners in particular, and, indeed, the vehicle has proved to be possessed of wonderful stability.



H. F. S. Morgan at the wheel of one of his special racing runabouts. The engine is an eight-valve M.A.G.

A NEW JELLEY SADDLE.

MR. JELLEY, of Spon Street, Coventry, has been responsible for several ingenious devices, mostly in connection with the personal comfort of the motor cyclist. His latest novelty is a cleverly designed saddle, which combines the good points



A newly designed Jelley saddle.

of the hammock saddle with those of the more usual solid top type. The framework is exceptionally strong, and at its rear end is formed into leaf springs, both transversely and longitudinally. The transverse springs have attached at each side the end of a powerful wire spring, the back of which carries the strong fabric of the hammock seat, and joining this spring to the longitudinal springs are long coil springs, while the nose of the saddle is mounted on a block with a coil spring buffer. (This last is not visible in the sketch as it lies neatly inside the frame.)

The effect is to give a most comfortable saddle, which adapts itself to the rider's shape, and gives a very easy riding motion, damping out the most severe shocks. The construction is clearly visible from the sketch, but it is well to add that the seat is a very broad one, which feature is, of course, not clearly visible from a side view.

WAR ITEMS.

Mr. Glyn Rowden, the chairman of the Cyclecar Club and a well-known motor cyclist, is leaving shortly for Paris, where he will drive a motor ambulance for the Red Cross Society.

G. A. Gregson, of Southport, a well-known rider of a Bat-Jap in leading competitions, has obtained a commission in the Royal Engineers.

Frank May has joined the Public School and University Corps.

Maurice Greenwood, whose adventures in returning across France from Grenoble have already been related in these columns, has joined the Mechanical Transport Section of the A.S.C.

The Bristol Motor Cycle Club has been depleted of seventeen members, who have been called away on active service for the war. Mr. Philip Grout, the hon. sec. of the club, who is the inspecting officer of the Royal Engineers Special Motor Cycle Reserve, South Midland Division, Bristol Branch, tells us that he has sent away men since the war commenced.

BELGIAN FACTORIES.

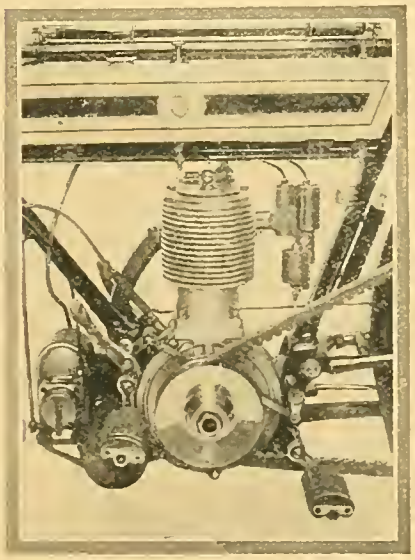
The destruction wrought by the Germans in motor factories has not been so great as was at first feared. A letter has been received by the Institution of Automobile Engineers from the English manager of the F.N. Co. stating that the factory at Liège is intact, and the clerical departments are back at work preparing for next year's programme. The Minerva works at Antwerp have not yet been injured by Zeppelins, and the factory is at work.

MOTOR CYCLES IN THE GERMAN ARMY.

Writing in *The Times* recently "A Neutral" writes: "Where the Germans obtained their vast army of motor cars and motor cycles might at first be thought a mystery, but out of the fifty that the writer saw gathered before the head quarters over one half were of foreign make, there being many English and a few American cars among them. There are to every infantry regiment .at least ten bicycle scouts and, with every brigade, motor cyclists as well, many possessing English and American motor cycles." It is to be presumed that the English motor bicycles have been commandeered from stock in Berlin, or perhaps in a few instances captured. Germany has so persistently neglected the motor cycle movement of recent years that it is not to be wondered at that the German Army has had to fall back upon British machines for their despatch riders.

AN ALUMINIUM ENCASED CYLINDER.

THERE have been many devices for the better cooling of the cylinders of motor cycle engines, but we have never seen a neater or more taking arrangement than the aluminium covered cylinder patented and made by Mr. Wardle, of the Reliance Foundry, Coventry, which we illustrate herewith. The aluminium cylinder complete with radiating ribs is cast on to a liner which may be cast iron or steel, and as it is a proved fact that aluminium is a better conductor of heat than iron or steel, the heat is conducted from the interior of the cylinder and dissipated very quickly in spite of the fact that the cylinder walls are about a quarter of an inch in thickness ($\frac{1}{16}$in. liner and $\frac{3}{16}$in. aluminium). One of the many advantages of improved cooling is a reduced oil consumption with its natural consequence—a cleaner engine.



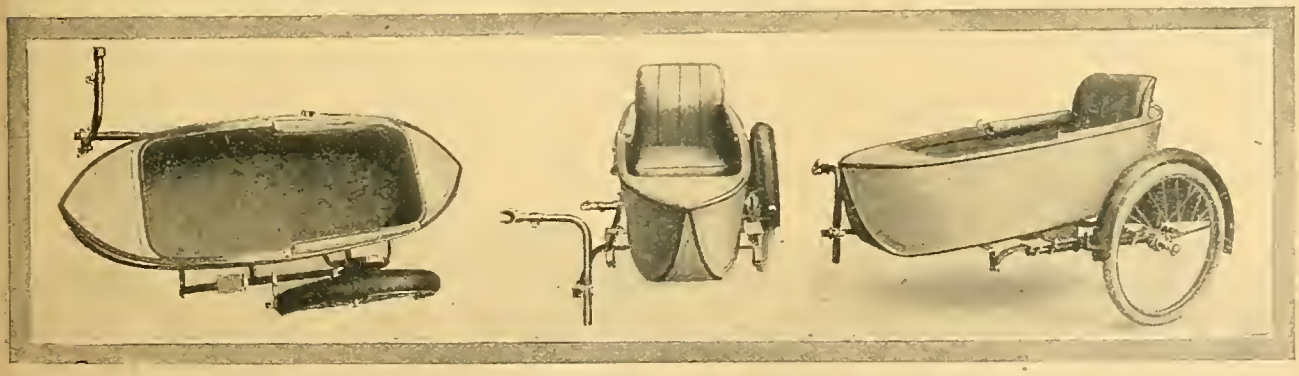
A Triumph fitted with an aluminium encased cylinder giving a wonderfully neat effect.

When the manufacture of these cylinders is taken up commercially the casting will be done in dies, which will produce a perfectly smooth result and ribs as thin as paper if required. The cylinder illustrated is an experimental model, and though it looks exceedingly attractive, it naturally falls short of what the final result will be. A steel lined cylinder with the aluminium case would be a simple job for a two-stroke, and a cylinder of this type should be peculiarly adapted for the high temperatures at which these engines usually run.

A DOUBLE-PURPOSE SIDECAR.

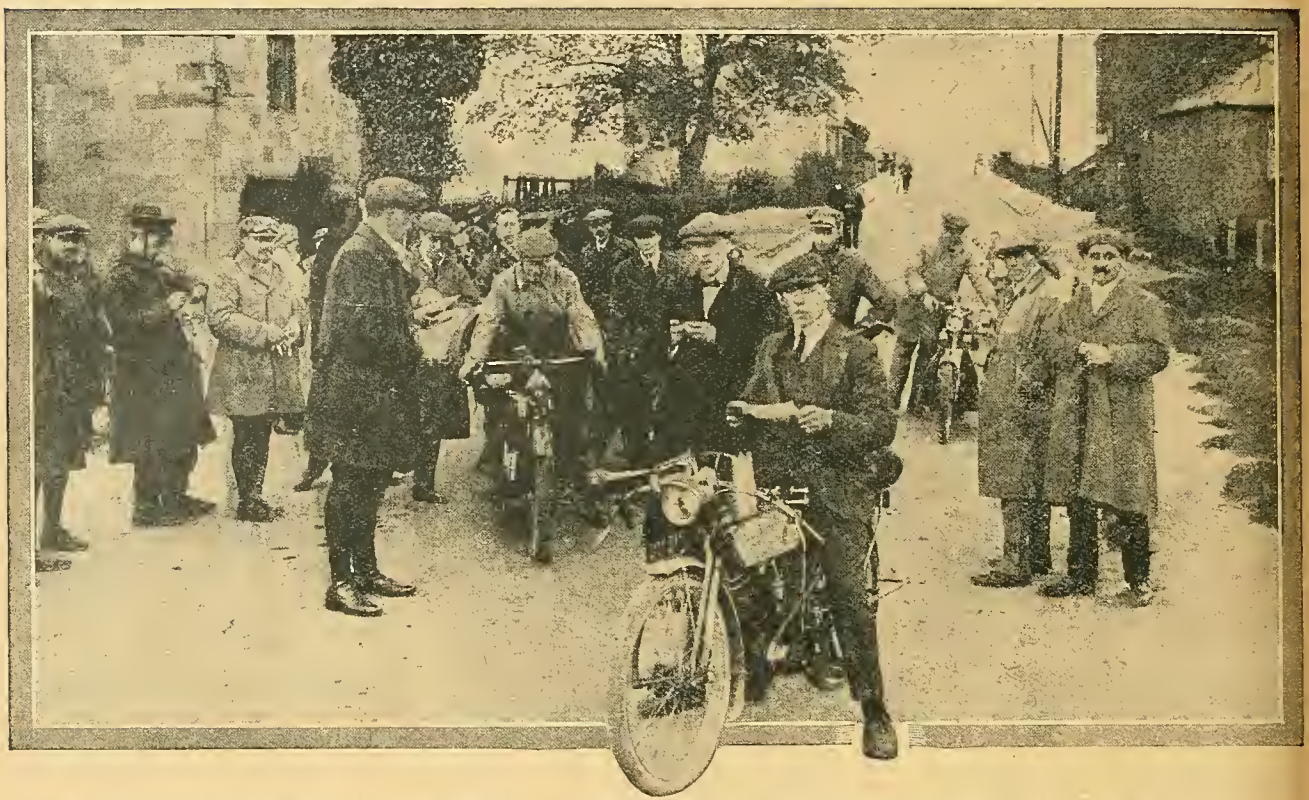
A SOMEWHAT novel solution of the sidecarrier question is the double-purpose sidecar just produced by the Bramble Manufacturing Co., London Road, Coventry. The Bramble Co. hold, and with reason, that many purchasers object to the process of changing bodies, which, with a few notable exceptions, is a long and tiresome job. Therefore, they have designed and constructed a simple canoe-shaped body with a flat bottom. The panels are of steel, which gives great strength, and the design is so simple that lightness also has been obtained. The empty body forms an excellent commercial sidecar with ample capacity, and, what is often almost as important, a large floor space. When a passenger-carrying vehicle is required a comfortably padded back rest is dropped into position, two metal pegs holding it in place. A similar fixing is employed for the tool-box, which, with a deep cushion attached to the lid, forms the seat. A neat footboard completes the outfit, which, in addition to its other features, is pleasant in appearance, and should be eminently suitable for Colonial requirements.

A luggage carrier of somewhat unusual design may be incorporated with the chassis. The carrier is made up of stout strip steel, and when not in use slides under the chassis in guides, and is almost entirely out of sight.



The latest Bramble sidecar—a double-purpose vehicle. As shown in the left-hand illustration, the seat and back-rest may be removed.

THE MERSEY CLUB'S MAP READING TEST.



SCENE AT THE START OF THE MERSEY (LIVERPOOL) M.C.C. MAP READING TEST ON THE 4th INST.
In the foreground will be seen Mr. S. W. Carty despatching the competitors in pairs. The proceeds of this competition were devoted to the Belgian Distress Fund.

The Mersey (Liverpool) M.C. held their fourth sporting trial on the 4th inst., the proceeds being devoted to the Belgian Distress Fund. The start was from the Hawarden Arms, Queensferry, just outside the prison where 2,000 Germans are interned. The course was difficult to find, and, instead of the usual route card, each competitor was provided with a map with the course marked thereon. There were thirty-five competitors.

The first obstacle encountered was a very deep watersplash at Ifrith. Here Farrer James (N.S.U.) turned three somersaults in the water, badly smashing his machine.

A hill near Errwys gave every rider an anxious time, a very sharp hairpin half-way up being banked the wrong way.

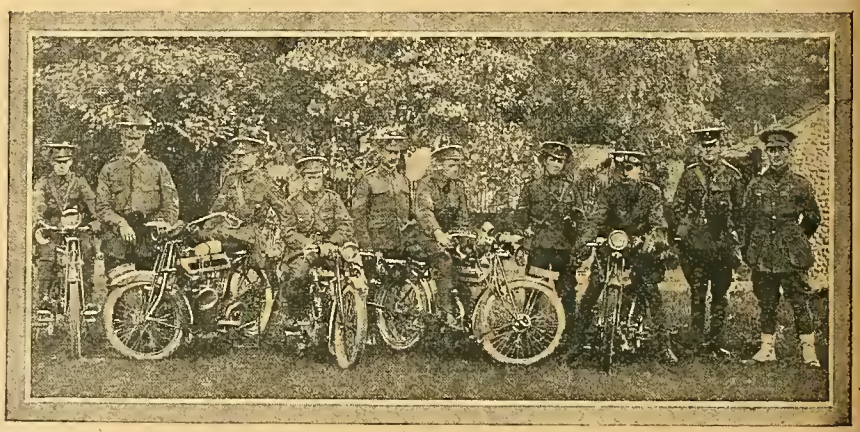
No one managed to complete the whole course, and the judge, Mr. Vance, who kindly offered the prizes for the event, decided to re-run the competition next week.

NEWS FROM THE FRONT.

The last news from the Burney Brothers states that up to the 18th of last month they were well. The Blackburnes were among the few machines used by the despatch riders that had given absolutely no trouble to date, but E. A. Burney had lost his owing to its being driven over by heavy artillery during the night. He is now riding a Douglas, so he still has the pleasure of seeing on outside flywheel on his mount.

Lieutenant A. H. Selwyn, R.E., writes, "At present we are squaring up, cleaning, and repairing machines. Most of my people are undergraduates. They have done very well indeed, and now that they have learned a little about their machines, we will have less damage done. The machines are Triumphs, Douglases, and B.S.A.'s. I must add just a line to tell you that the little Swift cycle car is going wonderfully, and has done about 4,000 miles, and all tyres are as good as new, while the only damage is a broken tappet guide."

Cyril Mocatta had a narrow escape from death the other day. He was given a certain job, but before starting was suddenly taken ill. His substitute started to carry it out and was shot dead, thus Mocatta was posted among the killed.



Two Triumphs, a Rudge, Zenith, and an A.J.S. used by despatch riders attached to the 7th Royal Sussex Regiment at present guarding the Norfolk Coast.

The War Office and V Twins.

MORE LIGHT ON THE SUBJECT.

BY F. W. HASSARD SHORT, Chaplain Kent Cyclist Battalion, Secretary Motor Cyclist Reserve Committee, Home Counties Division.

I THINK I can throw some light on the points raised in the leading article on the above subject in the last issue, and by Frank May in the Correspondence columns. In the first place, there are two sets of regulations for motor cycles, one applying to the Regular Army, the other to the Territorial Force. The Regular Army regulations stipulate "engines of about 500 c.c. with single cylinders, and also horizontal twin-cylinder machines of less capacity." The Territorial regulations allow engines of "at least 500 c.c. with one or more cylinders, and also horizontal twin-cylinders of less capacity." It will be seen, therefore, that V twins are eligible for the Territorial but not for the Regular Army, which accounts for their appearance in photographs in *The Motor Cycle*. One great reason for the restriction in the case of the Regular Army was the difficulty of providing spares for a large number of different makes for an army serving abroad. A further order has been issued now that only Triumph, Rudge, B.S.A., P. and M., and Douglas (with possibly Rover and James) will be accepted for service with the Expeditionary Force. On the outbreak of war the Territorial units which are entitled to motor cyclists, accepted motor cycles of almost any pattern so long as they were in good running order; further, a number of officers and men who are not ranked officially as motor cyclists are patriotically using their machines in the service of the Army at their own expense. It is therefore possible to meet on the roads in England motor cycles of every type ridden by soldiers, and also riders of varying skill (or lack of it).

Why Inexperienced Riders were accepted at the Outset.

With regard to the Expeditionary Force, at the outbreak of war, when motor cyclists were wanted in a hurry to fill the ranks of the signal companies, no doubt a certain number of very inexperienced riders were accepted and sent to the Front. This was for two reasons: first, there was not time or opportunity to test the men, and, second, the War Office having had such difficulty in the past in securing motor cyclists, did not anticipate the rush which actually took place, and therefore took the first who came, lest they might not get enough if they were too particular. Now, however, orders have been issued that no motor cyclists are to be accepted who are unable to carry out ordinary roadside running repairs.

Experienced Riders Wanted for the New Expeditionary Force.

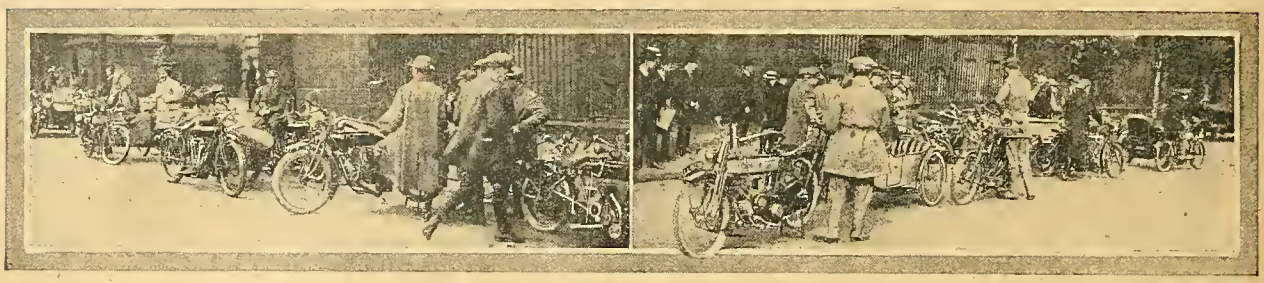
It must be borne in mind, in justice to the motor cyclists, that there are already a great number of very experienced riders in the ranks; many of them are men engaged in the motor trade. With regard to the question of tools or spares, all enlisted men are bound to have a very full kit of tools and spares, but, of course, there is no check on what men, who are riding their own machines at their own expense, may carry in this respect. There are also, I believe, a number of civilian despatch riders employed by the War Office, and I expect there is no regulation or inspection of their machines and kits. It is true that the War Office prefer to enlist a man who can produce a machine which complies with the regulations, but good men whose machines do not comply with the regulations may be accepted and supplied with War Office machines.

There are at present a few vacancies in the signal companies which are being formed for the new Expeditionary Force, and any really experienced motor cyclists who would like to serve their country abroad should apply to me at 2, Castle Street, Canterbury. There are at present no openings for men who are unwilling to serve abroad.

MOTOR CYCLIST SPECIAL CONSTABLES ASSEMBLE FOR AN INFORMAL REGULARITY RUN.

The special constables assembled outside Scotland Yard, for the run arranged at the beginning of the week. The machines owned by these special constables are mainly of British manufacture, but include machines of American, Belgian, and German origin.

Special Constables at Play.

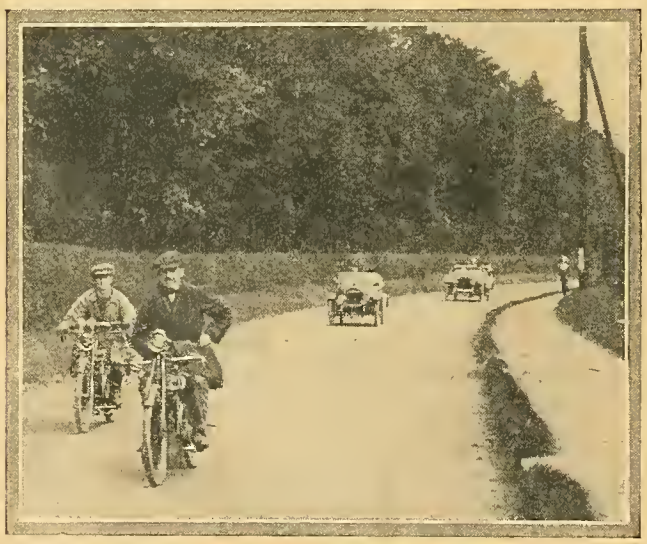


A group of special motor cyclist constables outside Scotland Yard.

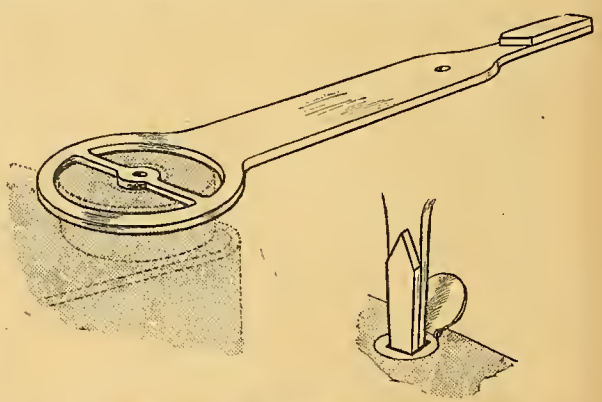
IT is only natural in these times of stress that nearly all trials and competitions should be cancelled, and, in consequence, when any road event is announced, it comes as a pleasant break to relieve the monotony which prevails to so great an extent at the present time to those who cannot serve their country at the front. When war first broke out, Col. Sir Edward Ward took over the work of enrolling and organising a force of special constables, and, recognising how valuable motor cyclists would be, he at once set to work to gather in a sufficient number to meet requirements. Among those asked to assist in this work was *The Motor Cycle*, which was fortunately able to place at the disposal of Sir Edward a list of names of those who were unable to serve with the army.

These men, about thirty in number, are officially known as the detachment of motor cyclist despatch riders to the headquarter staff of the special constabulary. Their work is no sinecure. They attend usually twice a week, on either a night or a day shift, and they have to be ready when called upon to take a message to any part of the Metropolis. They get none of the excitement of the military despatch rider, but instead have long and tedious hours of waiting, only relieved by an order to take a despatch to some out-of-the way place in the East End or elsewhere, where the traffic is heavy and the road surface abominable. They get no pay but receive an allowance of ½d. a mile towards their expenses. As it has been said of the other kind of policeman, their lot is not a happy one, but who can refrain from admiring the cheerful way in which these men effectively carry out their thankless, if not risky, tasks in the service of their country?

To relieve a little the monotony of their existence, to provide a change from the everlasting traffic riding, Mr. J. L. Turner, who is the motor cyclists' sub-inspector, organised a little run or trial on the morning of the 4th inst. Shortly after ten, about twenty men turned up and were ranged outside Scotland Yard, their headquarters, on the Embankment. Mr. Turner gave each man a paper on which his time was marked, and where there was to be found a notice to the effect that the holder was to observe the speed limits and was not to "blind." Then, just before eleven, each man was given the destination—the "fork roads at Gatwick Corner," on the Brighton Road. Altogether seventeen started, which was quite a good percentage, and each man was allowed to take any route he liked. Mounted on a 3½ h.p. P. and M. we followed Robertson (Indian) and Sharples (P. and M.). These two chose the main Brighton Road over Westminster Bridge, and through Brixton, Streatham, and Croydon. The surface was poor for the greater part of the early portion of the route, but fortunately there was little traffic, and the tramlines were not watered. It was a plain, straightforward, go-as-you-please run, and little happened on the journey, only two men, Hoile (Indian) and Wiles (Matchless sc.), failing to arrive. The checking in was carried out by Mr. V. Parker, who is the assistant director of the transport branch of the special constabulary. Mr. Turner, who was in Gapp's Matchless sidecar combination, was carried miles out of his way and only reached his destination after meandering through Kingston. Powell (Douglas), though he came through Sutton, arrived to time, while Tutt (Douglas), Hurley (Singer sc.), and Payne (Douglas) were equally punctual. Of the remainder probably half were too early and the other half too late, while one member of the party succeeded in arriving sixteen minutes too early, which is quite a good effort in a run of twenty-seven miles! Others who finished were Robertson (Indian), Sharples (P. and M.), Connor (Rover), who missed the check, Wolffgang (Sunbeam), Squire (New Hudson), Robbins (N.S.U.), Ferguson (Indian), Holliday (Kerry-Abingdon), Jenkins (James sc.), and Sixsmith (Kerry-Abingdon sc.). After concluding the run most of the party went on to Crawley, and then each man finished the day according to his own inclinations.



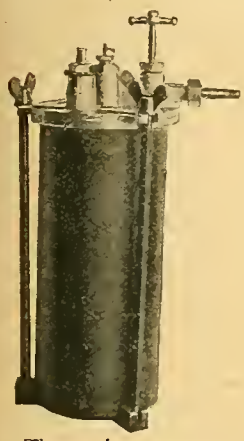
Special constables enjoying the bracing autumn air.



A combined petrol can opener and locker key named the "Autofits" which has been put on the market by Messrs. Autofits of Newcastle-on-Tyne.

The Low Acetylene Generator.

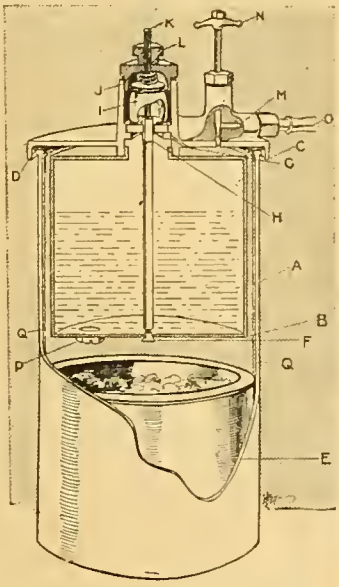
MOTOR cyclists will heartily welcome the arrival of a new generator which promises to be more cleanly, more reliable, and altogether more convenient than the type on the market up to the present. It possesses the advantage of allowing the gas to be turned off and on so long as any live carbide remains and without any wastage. It will thus be seen that it is economical in its action. Of course, the ordinary generator may be used two or three times for short periods after receiving one charge of carbide; but each time there is considerable wastage, as, naturally, the gas goes on generating as long as any moisture is left in the container. The Low generator, however, works upon a different principle. It is, in fact, a small dissolved acetylene plant capable of being recharged by the owner which allows the gas to accumulate under pressure, and automatically cuts off the supply of water as soon as the gas is turned off. It consists of a steel drum A at the bottom of which is placed an ordinary carbide tin of the correct size fitted with a push-on lid, which latter is, of course, removed before placing it in position. It is intended that the carbide should be put up in the special size tins and sold in them, so that if necessary one or two may be carried as spares. To the lid C of the steel drum is screwed the water tank, which is filled upside down after removing the filler cap P. On undoing the milled nut L, the valve F is opened by the pressure of the spring J and water is allowed to drip on to the top of the carbide, when, on opening the main control valve N, the gas issues through the main outlet M through the union O to the lamp. On the gas being cut off, the accumulation thereof continues, and the increasing pressure forces the gas through the narrow passage G into the space above the water; thence it issues through the loose fitting square H on the spindle of the valve F into the ingeniously constructed automatic cut-off. When the pressure exceeds about thirty pounds to the square inch, the rubber ring I is expanded and the valve F pulled up against its seating. No further generation of gas will then occur until the pressure has been reduced by opening the control valve, but when the generator is out of use for a long period it is advisable to cut off the water by means of the milled nut L. As an extra precaution a safety valve is provided. Now acetylene will dissolve in water, and as there is always an excess of water present there is small possibility of explosion. Furthermore, there is a real safeguard in the shape of a lining Q in the steel drum consisting of a mixture of plaster of Paris and asbestos brick compressed, which, like other porous materials, dissolves the gas or occludes its atoms. The particular generator we have described is the car type, but the motor cycle model will be on the market very shortly. It should meet with a very ready demand, and is sold by the Low Motor Accessories Co., 15, Great St. Helens, E.C.



The new Low generator.

PART SECTION OF THE LOW GENERATOR.

A. Steel drum.
B. Water tank.
C. Lid of drum screwed on to water tank.
D. Gastight rubber ring.
E. Carbide tin.
F. Automatic water valve.
G. Passage conducting gas to space above water.
H. Loose fitting square on spindle of valve F.
I. Rubber ring.
J. Spring.
K. Threaded end of valve spindle.
L. Milled nut.
M. Main outlet for gas
N. Control valve.
O. Union to lamp.
P. Filler cap to water tank.
Q. Lining.



The generator dismantled.

SPECIAL CONSTABLES AT PLAY. (See previous page.)

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Free Factory Sites.

Sir,—At the present time there is a great deal being said about the advisability of establishing factories in this country for the manufacture of goods hitherto imported from abroad, but there are many difficulties in the way of our manufacturers—not the least of which is the want of capital.

Recognising this, and wishing to encourage British enterprise, a client of ours has communicated to us his intention to give away freehold sites to firms willing to erect factories for the manufacture of goods hitherto imported from abroad.

As the motor trade is one that has felt, to some extent, the effects of foreign competition, we think our client's generous offer may interest some of your readers. The sites are situated immediately adjoining a station on the G.W.R. main line, about one hour from London.

WAITE AND WAITE (Land and Estate Agents).

Enemy Patents.

Sir,—It is officially announced that "all persons resident, carrying on business, or being in our Dominions," may pay any fees necessary for obtaining the grant, or for obtaining the renewal of patents, or for obtaining the registration of designs or trade marks, or the renewal of such registration *in an enemy country;* and also may pay into the British Patent Office in London, on behalf of an "enemy," any fees payable on application for, or renewal of, the grant of a British patent, or on application for the registration of British designs or trade marks, or the renewal of such registration.

The German, Austrian and Hungarian Patent Offices have issued various temporary rules and indulgences to safeguard certain rights of applicants and patentees which might otherwise have been jeopardised or lost by reason of delays arising out of the hostilities.

Switzerland, though not a belligerent, has likewise provided for special extensions of time for payments and for other matters.

The United States Patent Office, whilst it has no authority to extend the time of filing applications delayed "because of the unsettled condition of European affairs," will probably present the matter to Congress with a view to the obtainment of legislation to remedy the disabilities arising out of such delays. CHARTERED PATENT AGENTS.

The A.C.U. Trials—not Too Severe.

Sir,—I think that we have had far too many complaints in recent years about the severity of the courses of the English and Scottish Six Days Trials, and I was glad to read in your issue of July 30th two letters from well-known manufacturers upholding the A.C.U. in their present policy.

It is to be hoped, as I think most Colonial riders will agree, that the A.C.U. will not show the "white feather" and start organising trials in which every competitor gains a gold medal. Of what use is a trial of this sort if the bad machines and clumsy riders are not shown up in their true colours?

The one thing which I would humbly suggest as a possible improvement is that all machines in the same class should have emergency gear ratios not lower than a certain standard to be decided upon by the A.C.U. Then we should easily be able to spot the weaklings, after a few hundred miles of hard work had spoilt their original tune; but, as it is now, the 3½ h.p. Triumph, let us say, gets no more credit for climbing that bad test hill on an 8 to 1 gear ratio than does the 4 h.p. Konker which knocks its way painfully to the top on a 20 to 1 bottom gear!

No; I say, let the A.C.U. continue to "rub it in" to those short-sighted manufacturers who will send out their machines equipped with rims that buckle and dent, with spokes that break or jump out of their sockets if the slightest bit loose, with forks that let one down miles from anywhere, and fork springs that compel one to ride at the most leisurely fifteen-miles-an-hour tourist gait for fear of breakage, that, in spite of all reasonable care, usually comes about once every 1,000 miles or so. I am not exaggerating our Colonial troubles one little bit, and could mention a few more. C.AZ 100.

Graaff Reinet, South Africa.

What are Ideal Handle-bars?

Sir,—The choice of handle-bars is, in my estimation, a not unimportant point to be considered in the purchase of a motor cycle, concerning which your correspondent Oliver Jones writes in a recent issue, and must depend upon the inclination and intentions of the rider. T.T. bars are a necessary adjunct to speed, but the position which they necessitate is apt to become uncomfortable after riding any distance.

Ordinary touring bars I consider ridiculous for any except the steady, slow, and sure rider, who contemplates covering a limited distance in unlimited time, probably with part of his family in the sidecar. Something comprising features of both these types is wanted, and we find it in semi T.T. bars. These enable one to take corners safely at speed, and are, at the same time, perfectly comfortable for distance riding. As regards knee grips, they are really most invigorating. I confess that merely to be seated on a stationary cycle with knee grips and T.T. bars produces in me most of the sensations attached to an "all out" run on the long touring models. This, I think, is their only advantage, as I have never experienced any troublesome "knee-slip" when travelling at speed, even on fairly bumpy roads. AYSGARTH.

Noisy Motor Cycles.

Sir,—I suppose I ought to thank "Engineer" for his veiled hints at the possibilities of shaft drive being adopted for motor bicycles in the future, but I find it hard to reconcile myself to the qualifications he makes. I am sure that quite the majority of experienced motor cyclists will ask themselves the same question as I asked myself when I read the article, "I wonder how much experience the writer has had, who attempts to suggest fitting a hub gear to wit to the motor bicycle which he puts forward as the type of the future." Does he know that next year will see the end, for all practical purposes, of the hub type of gear, whether two-speed or three-speed?

The reason is quite well known to those who have to consider what they have to make and sell, and I need not say any more. Still, I would like to point out that shaft drive, as applied to the F.N. machine, contrary to eliminating an efficient system of change speed gear, actually makes possible the most efficient all-round change speed gear.

What are the defects of the sliding type of change speed gear "Engineer" refers to? He will probably quote the old and well-worn statement, initiated, I believe, by an eminent French motor engineer, to the effect that a sliding gear was a "barbarous system, but it works." So well has it worked that it has, to all intents and purposes, ousted all other systems. Certain it is that for every defect the sliding type has the epicyclic hub gear has two, so like most compromises it (the sliding type) is the lesser of the two evils.

F.N. (ENGLAND), LTD.
HARRY G. BELL.

The Difficulty of Hearing Sentries.

Sir,—Regarding the suggestion by "Red Indian" in your issue of September 24th, surely he would not have the presence of our soldiers on duty located to a possible enemy. Referring to the danger, on September 21st (the night of which was particularly dark) I came from Sittingbourne to Gravesend, and was stopped seven times by soldiers and police, and on no occasion had I any difficulty in *seeing* or hearing them (in one or two instances a white light was flashed from about twenty yards), although I had only a small electric pocket lamp (my usual King of the Road being out of order). My machine is a Rudge-Multi, and I had never been on the Sittingbourne-Gravesend road before. "Red Indian" ought to observe the limit, and he would find no difficulty in otherwise conforming to the law.

F. J. WEBB.

Running Expenses.

Sir,—The following account of the behaviour and running expenses of a 2¾ A.J.S. may interest some of your readers. I have sold the machine as I have enlisted in the 8th Warwicks.

	£	s.	d.
Cost of machine	52	10	0
Cost of extras	8	10	0
Licences and registration	1	10	0
Insurance (less refund)	1	10	0
Repairs (speedometer)	0	5	0
Druid springs	0	1	8
Petrol (thirty-five gallons)	2	16	0
Oil	0	16	0
Repair outfit, etc.	0	5	0
Carbide	0	1	9
	£68	5	5
Less sale price	42	10	0
	£25	15	5

Distance run, 4,000 miles; total cost per mile, 1.54d.; cost per mile excluding depreciation only, .44d.; depreciation, £18 10s.; petrol, 114 m.p.g. all told with No. 27 jet as fitted by makers; consumption on long journeys, 120; maximum speed in normal circumstances with No. 27 jet as originally fitted, 42·3 m.p.h.; it has rarely touched 45. Lowest gear used twice only, once to cross Pennines and once in Mid-Wales (Llandrindod region). Machine has reached the summit of Clent Hills (donkey track and grass slopes) on top and middle gears, starting from hotel on Bromsgrove Road and non-stop. Cylinder removed twice for cleaning; cylinder scraped through valve caps about four times. Road stoppages, unintentional: Tyres, eight or nine (only four on road); air leak, once; choked petrol pipe, once; plugs sooted twice.

The depreciation is high, due to the large number of extras, early sale through enlistment, and small mileage. The machine would have sold for £40 next Easter with twice the mileage to its credit. The licences, too, have cost 30s. for six months, though this figure would have been the same for twelve months. I have also saved £2 in necessary railway expenses, and countless hours of time. I have not included £2 1s. 9d. for new Dunlop just fitted, as this cost should be reckoned in the running expenses, 4,000 miles to destruction of tyre. I am convinced that to anyone who keeps the machine for two years the total expenses will be under ¾d. per mile, provided that not less than 5,000 miles per annum be run, and less if a greater mileage is totalled. The machine has given absolute satisfaction, and I was sorry to lose it. That I am a school teacher should be a sufficient disclaimer.

H. WALTERS.

A Reader's Specification of the Ideal Machine for Australia.

Sir,—During August of 1912 I purchased a free engine clutch model Douglas and suffered from clutch slip. I wrote to Messrs. Douglas Bros. and asked for advice; to my surprise I received, by return mail, a new 1913 clutch complete, free of charge beyond postage and duty.

I fitted the clutch and found, after trial, that it worked perfectly without any suspicion even of slip. The fitting also was easy owing to the great simplicity of the mechanism, which, to my mind, is one of the virtues of the Douglas motor cycle. Now that I have commenced, please allow me to say a few words in praise of my favourite machine.

During the time I have had it (nine months) I have traversed some of the worst roads in the State and have never yet had a stoppage; I have the same belt that was supplied with the machine, and it is good for a long time to come. The only breakages I have had so far are fork springs, due to the execrable road surfaces; in fact I often marvel at the strength of the frame after going over some bad washouts. Our roads here are not all metalled, just the natural surface banked up here and there, and every shower of rain cuts out fresh gutters across the roads, the succeeding showers deepening them, to the great inconvenience of the unfortunate motor cyclist. Of course, the roads are occasionally repaired, but only very occasionally. Another trouble that we have to contend with is the gathering of mud between the wheels and mudguards in damp weather, which means that after every mile or so one has to get off and pick the mud out of the guards with a piece of wire. I have often wished for another inch of clearance.

But, perfect as the horizontal engined Douglas is, I hope to purchase before very long a motor bicycle which shall be fashioned as follows: A three-speed gear box incorporated in the crank case directly beneath the crankshaft, which would ensure the enclosing of the chain in an oil bath. Instead of having a single bar on which to clamp the crank case I would like to see the power unit fastened between two bars, the duplication continuing to the saddle-pillar tube. A sensitive carburetter could also be placed under the tank behind the magneto, one that would permit the use of paraffin or petrol. I would also like to see the valves operating horizontally instead of inclined as at present, and I would discard the clutch, but fit extra strong wheels and rims for Australian use. The ideal motor bicycle would then be an accomplished fact.

I nearly omitted to mention an all-black finish and the latest Douglas mudguards.

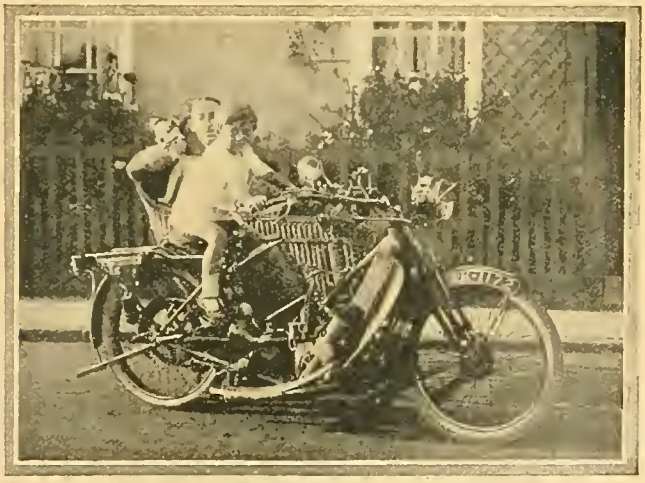
I had the good luck to watch Mr. S. L. Bailey breaking the 3½ h.p. hour record with his little 2¾ h.p. Douglas at the Friendly Societies Track on September, 12th, 1913. He covered fifty-three miles in the hour, the previous best being fifty-two miles.

H. C. FENTON.

Victoria, Australia.

The Latest Recruit.

Sir,—On page 367 of your issue of September 24th there is a photograph of Mr. R. F. G. Kelly on a Scott with "his latest recruit," a lady of 95 years of age. The child in the



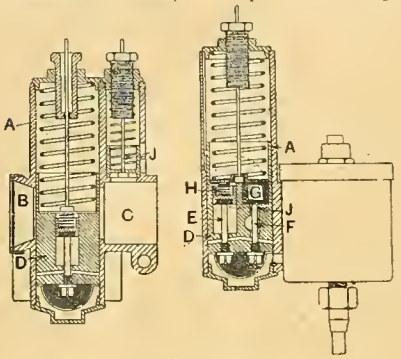
The latest recruit. (See accompanying letter.)

enclosed photograph, I might say, is a still later recruit, and, as a coincidence, is the great grandson of Mr. Kelly's passenger.

GEORGE COX.

A Two-jet Carburetter.

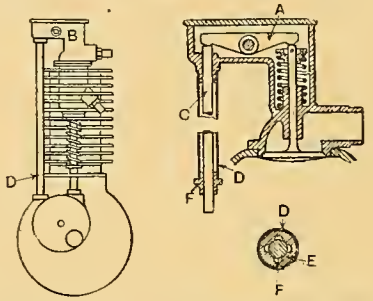
The illustrations are views taken at right angles to one another, A being the carburetter body, B the main air intake, and C the passage to the engine. The throttle D is of special form, being tubular at its upper part, whilst the lower part is solid and provided with holes which pass over the jets E and F. The jet E is the main jet, and F is the pilot jet. To prevent waste of petrol the holes in the throttle are provided at their upper ends with pads adapted to cover the jet outlets when the throttle is fully closed. Of these, G may consist simply



of a pad of leather or other soft substance, whilst the pad H for the main jet is carried by a spring plunger so that it will continue to close the jet outlet even after the pilot jet has been opened slightly. The air inlet for the pilot jet is shown at J and is so arranged that on slight movement of the throttle a small supply of air is allowed to pass the jet F at high velocity, providing a mixture for slow running. The main air inlet and the jet E come into operation on further movement of the throttle. The usual extra air inlet is shown at J.—C. and H. Binks, No. 12,690, 1913.

Overhead Valve Lubrication.

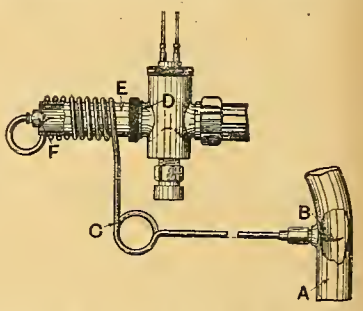
The valve rocker A is completely enclosed in a casing B, and its operating



rod C is contained within a tube D, which extends right down to the engine crank case. The rod C passes through bearings E in the tube D, and these bearings are formed with grooves F. On the down stroke of the piston the air in the crank case is forced along the tube C, through the grooves F, into the chamber B. This air is laden with oil so that efficient lubrication of the valve operating mechanism is ensured.—Soc. Anon. H. and A. Dufaux et Cie., No. 23,078, 1913.

Exhaust-assisted Carburation.

By this invention a small quantity of hot gas is taken from the exhaust pipe A by means of a scoop B, and conducted by



the tube C to the intake side of the carburetter D. The tube C is coiled several times round the intake pipe E for the purpose of heating the latter, and finally terminates in a nozzle F, from which the exhaust gas issues at a velocity calculated to draw fuel from the carburetter jet and assist in atomising it.—H. W. Martin, No. 13,815, 1912.

Long Tyre Life.

A folder has been issued by Messrs. J. Pedley and Son, Ltd., Great Charles Street, Birmingham. This is entitled "11,000 Miles, Still Running," and is descriptive of the wonderful results obtained from Pedley tyres.

Reviews.

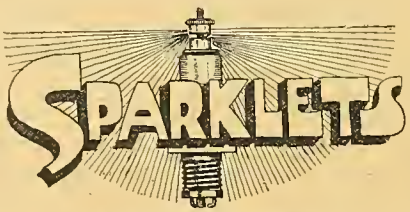
Higham's Magazine, September issue, has a portrait on the front cover of Mr. S. F. Edge, who in the early days of motoring rode a motor tricycle, and the first few pages of the magazine are devoted to an article, which is an appreciation of this well-known automobilist.

A Business Appointment.

We hear that Mr. W. C. Hemy, the well-known competition rider, who for many years has been connected with the sales department of the Service Co., High Holborn, and who has long been prominent in motor cycle competitions around the Metropolis, has joined the firm of W. H. Elce and Co., Bishopsgate Avenue, Camomile Street, E.C.

Repair Works at Willesden.

Among those firms who have recently converted their factories into a general repair works we may mention the M.A.G. Engine Co., Ltd., of Willesden Junction, London, N.W. Mr. de Lissa, during recent slack times, has made all arrangements to take on any form of repair to all types of motor vehicles, and readers who want their machines (motor cycles or cars) overhauled could not do better than hand them on to the makers of the M.A.G. engine.



Two-strokes in Ireland.

We understand that Mr. M. J. Fitzgerald, Richmond Hill, Cork, who has been so successful in Irish competitions and hill-climbs on his Levis, has been appointed travelling representative for Messrs. Butterfields, Ltd., with a view to further popularising the Levis in Ireland.

Lodge Plugs for Polar Work.

The sparking plugs chosen for use on Sir Ernest Shackleton's South Polar Expedition are, we learn, all Lodge plugs. Also a large number of Lodge plugs are being used in the present war. Besides the quantity supplied to the War Office and Admiralty, delivery has just been completed of a consignment of Lodge plugs for the Belgian Army.

Silencers for War.

Messrs. J. C. Lyell and Co., 113, Great Portland Street, have offered to supply volunteers for military service with silencers for use on their machines at one half the usual price. It is necessary that a signed declaration that the machine is to be used for military purposes must be sent to the firm before silencers can be obtained. Special forms are issued, so that intending military motor cyclists can obtain these and fill them in as required.

Sharing the Work.

In order to keep as many of their hands employed as possible during the war, Messrs. W. and A. Bates, Ltd., St. Mary's Mills, Leicester, makers of the Bates tyres and belts, have decided to distribute the work as evenly as possible, and, furthermore, the directors will assist in helping the families of all their employees who join the Army and Navy, and will reinstate all such on their return.

"Honest Injun."

The Indian is the name of a chatty little publication issued by the Melbourne depot of the Hendee Manufacturing Co. It is profusely illustrated, and although one or two of its remarks of English trials are perhaps open to criticism, the whole publication is undoubtedly a very smart piece of advertising, in which our American friends are such adepts. It is evidently intended to issue this magazine monthly, as the one we have received is No. 2 of Vol. I.

Hard Tests for Rims.

We have received a pamphlet from the Roman Rim, Ltd., Upper Priory, Birmingham, dealing with the use of rustless Roman rims on motor cycles. These are not only rustless, but will stand almost any shock received without losing shape, a proof of which is furnished by Mr. C. R. Collier, who showed the company a rim on which the tyre had burst when travelling at seventy-two miles an hour at Brooklands. The rim remained a perfect circle, though it was, of course, considerably marked on the edge, due to its contact with the rough track.

For service swift and sure,

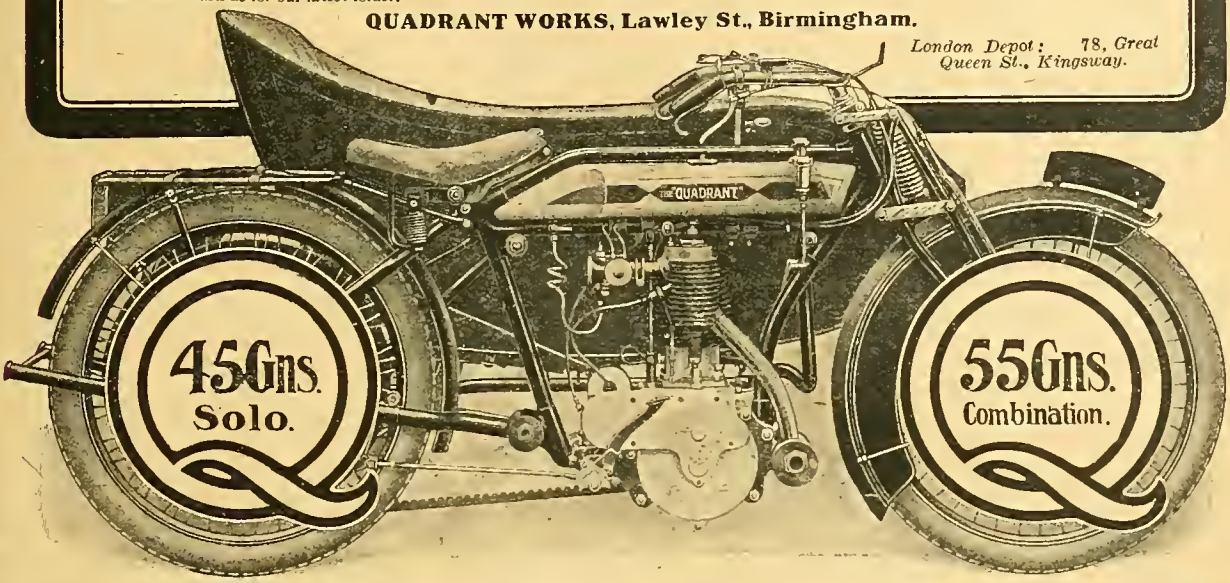
the mount we show you here is simply unexcelled—
That has been proved by riders everywhere, and the latest evidence is the selection by H.M. War Office of the

QUADRANT

4½ h.p. solo as a mount efficiently fulfilling all the exacting requirements of that department and capable of standing up to all demands which active service make upon it.
Note these items of its specification — 4½ h.p. Armstrong 3-speed Gear and Free Engine — Dunlop Tyres and Belt — Bosch Magneto — Senspray Carburetter — Quadrant Spring Forks — also the price, which is less by far than other Motor Cycles of renown.
And then — ask us for our latest folder.

QUADRANT WORKS, Lawley St., Birmingham.

London Depot: 78, Great Queen St., Kingsway.



The Last Word in Motor Cycles

The J.H.

The Famous M.A.G. Engines, 6 h.p.
The Popular J.A.P. Engines, 6 and 8 h.p.
Also 8 h.p. Overhead Valves (Racing Machine).

SPECIFICATIONS:
Chain Drive, 3-speed Gear Box, Sliding Dog Type, Kick Starter, and Cork Clutch.

2¾ h.p. Single Cylinder 2 Speed, Handle-bar Controlled Clutch,
2½ h.p. 2 stroke (Villiers Noted Engines). A Special Line.

Workmanship and Materials the best that money can buy.
Special attention given to the requirements for Colonial Trade.

J.H. MOTOR ENGINEERING WORKS,
Castle Mill Street, Mumps, OLDHAM.

Write for Catalogue at once.

JAMES HOWARTH, Proprietor.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 1914, 6h.p., and sidecar, shop-soiled only; £75.—Walsall Garage, Walsall. [X0235

A.J.S., 2¾h.p., and Watsonian £10 featherweight sidecar, shop-soiled only; £49/10.—Walsall Garage, Walsall. [X0236

1914 A.J.S., 2¾h.p., 3-speed, semi T.T. handle-bars, Lucas lamp, horn, demonstration model; £46.—Hilton and Son, Foxhall Sq., Blackpool. [X0714

1911½ A.J.S., 2½h.p., h.b.c. clutch, counter-shaft 2-speed, good condition, chain drive; ride 40 miles to purchaser.—Daniels, Codsall, Wolverhampton. [X0605

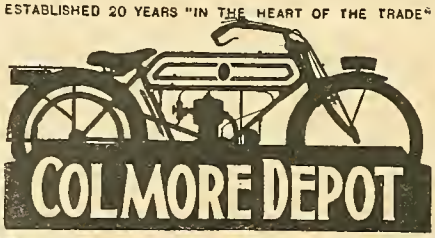
1914 A.J.S., 750 c.c. engine; cancelled order; £65; with £23 Bramble De Luxe coachbuilt sidecar, hood, screen, and storm apron, £78.—Hilton and Son, Foxhall Sq., Blackpool. [X0715

A.J.S., 2½h.p., 1911, 2 speeds, chain drive, lamp, spares, £22; also 4h.p. Matchless-Jap, perfect condition, take sidecar anywhere, trial, what offers?—Billingham, Park Villa, Netherton, Dudley. [X0580

A.J.S., 6h.p., late 1913 model, complete with practically new Bramble £14 sidecar, Lucas lamp, horn, and speedometer; £59/10.—The Great A.J.S. Specialists, Walsall Garage, Wolverhampton St., Walsall. [X0239

A.J.S., 1912, 5h.p., 2-speed gear, kick starter, hand-controlled clutch, lamp set, horn, and tools, guaranteed perfect order; £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0551

ESTABLISHED 20 YEARS "IN THE HEART OF THE TRADE"



THIS WAR

is not affecting the financial position of most of you; some will perhaps be worse off, on the other hand, some are even better off. We have confidence in British credit, and we are prepared now to arrange

Deferred Payments

with any customer who prefers that method of payment. We can supply any machine, either a new one or a second-hand, from our huge and varied overhauled stock, upon any reasonable proposed terms from, say,

£5 to £20 deposit

.. and ..

30/- to £5 monthly

We have new and second-hand of all makes. The following are

A Few Samples. There are 100 Others.

HUMBER, 2 h.p., overhauled; **£21,** or **£5** down and **2S/-** monthly.
TRIUMPH, 3½ h.p., overhauled; **£29,** or **£7** down and **35/-** monthly.
SCOTT and Sidecar, fine condition; **£45,** or **£10** down and **55/-** monthly.
MORGAN Runabout, excellent; **£75,** or **£20** down and **£5** monthly.

WRITE

COLMORE DEPOTS

31, Colmore Row, BIRMINGHAM
62, High Street, LEICESTER
31, Renshaw Street, LIVERPOOL
261, Deansgate, MANCHESTER

MOTOR CYCLES FOR SALE.

A.J.S.

1914 Special 6h.p. 3-speed A.J.S., and Millford coach sidecar, special 750 c.c. engine (standard size only 698 c.c.), Senspray carburetter, handle-bar mag. control, detachable and interchangeable wheels, horn, Lucas rear lamp and King of the Road head lamp, T.T. handle-bars, many spares, new last May, perfect; price £80; would consider 1914 Sunbeam or T.T. Douglas and cash.—No. 6,733, *The Motor Cycle* Offices, Coventry. [X0637

Alcyon.

ALCYON, 1911, 2h.p., Blue Bird, Brooklands record holder, Bosch, B. and B., good condition, tyres; £14, offers.—Newton Vicarage, High St., Bromley-by-Bow. [7649

Alldays.

ALLDAYS 2-stroke Matchless in stock, £26/5, or £9 down and 12 instalments if desired.—Lamb's, 151, High St., Walthamstow. [7737

Antoine.

3½h.p. Antoine, Bosch, B. and B., P.H. lamp, new belt, perfect order; £12, or nearest offer.—Dove, Sculptor, Filey. [X0726

6h.p. Antoine and sidecar, 1914 frame, tank, Armstrong Mark VII. 3-speed, Bosch, Saxon, N'all, like new; £35; exchange lightweight.—Stocks, Thurlstone, Sheffield. [X0633

Ariel.

BRAND New 5-6h.p. Ariel Combination, a lovely set; £86/10; exchanges invited. — Bunting, Harrow. [X0739

ARIEL 5-6h.p. Combination, going cheap, only shop-soiled; E.P. if desired.—Lamb's, 50, High Rd., Wood Green. [7734

ARIEL, 1914, new August, 3½h.p., counter-shaft, lamp, horn, speedometer; cost £70, accept £60.—Baker, Salisbury Rd., Shaftesbury. [7603

ARIEL 6h.p. Combination, only soiled; going cheap; promptest deliveries 1915 models; E.P. if desired.—Lamb's, 151, High St., Walthamstow. [7741

ARIEL, 3½h.p. T.T. model, 3-speed, decompressor, art cane upholstered sidecar, Lucas head lamp, horn, etc., all perfect condition; 35 gns., genuine bargain; trial given.—Inglewood, Chandos Rd. South, Chorlton-cum-Hardy, Manchester. [X0611

Arno.

1913 Arno, 3½h.p., and sidecar, very powerful and fast, special tyres, Sturmey-Archer 3-speed and clutch, perfect condition; £35; without sidecar £32; been passed by War Office.—R.C., Belgrave House, Stockwell Rd., S.W. [X0576

Auto-Wheels.

AUTO-WHEEL, excellent condition; £10, or offer.—D. Wood, Parre Bank, Ashbourne. [X0586

AUTO-WHEEL, nearly new; £10/10, cost £16/16.—Hilton and Son, Foxhall Sq., Blackpool. [X0713

AUTO-WHEEL, 1914, as new; owner bought sidecar machine; £11.—Baker, N.S.D.S., Anerley, S.E. [7623

AUTO-WHEEL, 1914, new, shop-soiled only, 16 gn. model; sell £13/10.—Brown's, 12, Bull Ring, Birmingham. [X0671

Bat.

BAT, 1914, No. 1 model, 4½h.p., 2-speed, brand new; catalogue price £57/10, cash offers wanted.—Laytons, Bicester, Oxon. [X0618

BAT, 1912, 7-8h.p. twin, and sidcar, 2-speed counter-shaft; offers wanted.—Morgan and Maxwell, 80, High Rd., Streatham. [X0683

BAT, 1914, 6h.p., 3 speeds, brand new, shop-soiled only; list £70, accept £58.—P. J. Evans, John Bright St., Birmingham. [X0771

BAT-J.A.P. 6h.p. Combination, bought new 1914, chain, 2 speeds, kick start, faultless; £48.—Blencathra, Highfield Rd., Walton-on-Thames. [X0663

BAT, 8h.p., engine equal to new, 2-speed gear, speedometer, lamp, horn, coachbuilt sidecar; £40, or nearest offer; will separate.—Alston, Cannon St., Dover. [7612

Blumfield.

BLUMFIELD, 5-6h.p., run 600; owner enlisted; sacrifice £25 below cost; trial.—Write, Littleboy, Jordans' Camp, Beaconsfield. [X0600

Bradbury.

BRADBURY and Sidecar, 1912, 2 speeds, F.E.; £28, lowest.—58, Hazeldene Rd., Goodmayes. [7722

BRADBURY, 1911, fine order; seen running; bargain, £18/10.—Speechley, 45, Church Rd., Acton. [X0749

BRADBURY, 1913, 4h.p., and standard wicker sidecar; £45.—251, Tooley St., E.C. (near Tower Bridge). [7766

BRADBURY, 6h.p., 1914, 3-speed combination, lamps, speedometer, wind screen, etc., practically new; cost over £100; owner no time; accept £80.—Walls, 47, Platt Lane, Hindley, Wigan. [X0624

MOTOR CYCLES FOR SALE.

Humber.

3½h.p. Humber, new December, 1913, condition perfect, S.A. gear, Herald sidecar, owner recruited; must sell this week; sacrifice 32 gns.—Mulsey, Clovelly Rd., Ealing. [X0383

HUMBER, 3½h.p., 3 speeds, and Chater-Lea sidecar, new in January, not done 1,000 miles, speedometer, all accessories; £43, or near offer.—High, 37, Boston Rd., Walthamstow, Essex. [X0565

1912½ 2-speed Hmmber and sidecar, every necessory, speedometer, etc., satisfactory reason for selling, splendid condition, also commercial delivery sidecar, 11 guinea model, perfect condition; £45 the lot, or would separate; want small car.—King, Shipton Bellinger, Hants. [7639

Illston.

1913 Illston, 2¾h.p., 7-speed, F.E., Brampton; going cheap; cash wanted, £19, worth £25; as new.—Fletcher, 65, Cornwall Rd., Brixton Hill. [7694

Indian.

INDIAN 7h.p. 1914 2-speed Combination, electrical equipment; £65.—P. J. Evans, John Bright St., Birmingham. [X0766

1911 Free Engine Indian, 5h.p., guaranteed good running order; only £26; payments taken.—Colmore Depot, 31, Colmore Row, Birmingham. [7647

1914 Indian T.T. Road Racer, 7h.p., and clutch, only 12 weeks old, looks as new, guaranteed perfect; £47; owner going abroad.—Abdul, 35, Southmoor Rd., Oxford. [7616

1914 (August) 7h.p. Indian, clutch model, and 14 gn. Swan sporting sidecar, everything as new, ridden about 900 miles; £49.—King, Sunnyside, Stapleford, Cambs. [X0743

INDIAN, late 1913, 7h.p., 2-speed, clutch, with Millford sidecar, horn, lamps, and accessories, in perfect condition, very little used; £50.—Doune, 16a, Hopton Rd., Streatham. [7658

INDIAN, 1914, 7h.p., standard model, not done 1,000 miles, guaranteed perfect, full equipment, ridden solo only; £50.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0481

1913 (September) Indian, 2-speed, Millford sidecar, electric horn, spares, 3 tyres, 5,000 miles; price £50, accept 1914 Triumph, Douglas, with cash adjustment.—Willis, 39, Heathwood Gardens, Charlton, S.E. [X0594

INDIAN, 1913, 7-9h.p., 2-speed, free engine, very powerful, fast, 28×3 Kempshalls, all accessories, watch, mirror, Pillion seat, etc., Indian 2-seat sidecar, underslung; bargain, £55; trial.—45, Charles St., Commercial Rd., E. [X0702

1914 7-9h.p. Hendee Special Indian, electric starter, 2 head lamps, spares, Mills-Fulford de Luxe sidecar, perfect condition; cost £100, reasonable offer.—Poole, 131, Holden Rd., Woodside Park, Finchley, 'Phone: 329 Finchley. [7595

1914 Indian, Hendee Special, 20 gn. sidecar, full electric equipment, self-starter, etc.; cost over 100 gns., nearly new, perfect condition; owner bought cycle car, must sell; best offer over 58 gns. secures.—Write offers, c/o Clapham, King George St., Greenwich. [X0758

1914 7-9h.p. Hendee Special Model Indian sidecar combination, electric starter and lighting, fully equipped with speedometer, tools, etc., Mills-Fulford de Luxe body, splendid condition, very little used; cost nearly £100, bargain at £65.—M.R., 21a, Store St., W.C. [4829

GENUINE Snip.—1914 7h.p. Indian, electric head and tail lamps, horn, speedometer, fitted with handsome coachbuilt Indian sidecar, with wind screen and large apron, heavy Kempshall tyres all round, the let brand new in June last, been carefully used and in spotless condition; cost £91, take £68 cash.—Wallis, High St., Saffron Walden. [X0751

Ivy.

IVY 2-stroke, complete with lamp and horn, new two months ago; £19/10.—Walsall Garage, Walsall. [X0240

James.

JAMES 1914 3½h.p. Twin, T.T. model, just returned by makers after thorough overhaul; a perfect machine, complete with accessories; £45.—G. A. Mills, Colonial House, Tooley St., S.E. [7754

JAMES, 1913, 4½h.p., big single, and Canoelet sidecar, 3-speed counter-shaft gear, clutch and kick-starter, chain drive. Lucas accessories, Cowey speedometer, splendid order; £45.—Below.

JAMES, 1914, 3½h.p., twin, 3-speed counter-shaft gear, clutch and kick-starter, Lucas accessories, Watford speedometer, not done 1,000 miles, guaranteed perfect; £48. — Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0480

JAMES, 1914, 4½h.p., big single, and Canoelet sidecar, 3-speed, list price 73 gns., new, special price 65 gns.; new 3½h.p. 3-speed twin, 54 gns.; also James 2-stroke, 35 gns., for immediate delivery.—Stevens (James specialist), Gooch St., Birmingham. [0432

J.A.P.

J.A.P., 1911, 4h.p., P. and M. gear, Bosch, re-enamelled, wicker sidecar, complete, lamps, and accessories; £28.—111, Grove Lane, Camberwell. [7652

Lea-Francis.

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

3 SPECIAL SNIPS,

All absolutely new 1914 models and fully guaranteed.

1. 2½ h.p. 1914 **Wolf,** Jap engine, 2-speed countershaft gear, spring forks, magneto etc. Usual price, £33 .... **Our price, £26**
2. 4 h.p. 1914 **Wolf,** Jap engine, 2-speed countershaft gear, combined belt and chain drive. Usual price, £44. **Our price, £34**
3. 4 h.p. 1914 **Wolf,** Jap engine, 2-speed countershaft gear, all chain drive. Usual price, £46 ..... **Our Price, £36**

SECOND-HAND BARGAINS.

3½ h.p. 1914 **MOTOSACOCHE,** Enfield gear, fine order £40
3½ h.p. **BROWN,** M.O.V., chain drive, **2-speed gear** .. £8
3 h.p. **EXCELSIOR,** vertical engine, spring forks £8
2-3 h.p. Twin **MOTO-REVE,** magneto ignition, Druids £11
3½ h.p. 1908 **REX,** M.O.V., Bosch, B. and B. carb. .. £16
3½ h.p. **N.S.U., 2 speeds and free engine,** Bosch magneto £17
3½ h.p. 1912 **RUDGE,** 1914 Sonspray carb. £17
3½ h.p. **PREMIER, Bowden 2-speed gear,** Bosch £18
5 h.p. **VINDEC, 2 speeds,** kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds,** handle starting .. £19
3½ h.p. **TRIUMPH,** ball bearing engine, M.O.V £19
5 h.p. 1908 **REX** de Luxe, **2 speeds,** handle starting £19
5 h.p. 1908 **REX, 2 speeds,** kick starter, Bosch, Amac £19
6 h.p. 1912 **REX** de Luxe, **2 speeds,** handle starting £25
3½ h.p. 1912 **HUMBER, 2 speeds,** handle starting .. £28
6 h.p. 1912 **CLYNO** and Clyno Sidecar, **2 speeds,** kick £33
6 h.p. 1913 **A.J.S.** and A.J.S. £20 Sidecar, **3 speeds** .. £55
8 h.p. **Cycle Car,** Chater-Lea engine, **3-speed gear** box and worm drive, speedometer, screen, etc. £60
8 h.p. 1914 **MORGAN** Runabout, sporting model, with hood, screen, etc.; cost, with extras, £110; a real bargain; sacrifice £75

NEW 1914 MACHINES.

1914 2¾ h.p. **DOUGLAS,** Model V. ..... **What offers?**
1914 3½ h.p. **ARIEL,** 3-sp. counter-shaft gear **What offers?**
1914 6 h.p. **NEW HUDSON,** 3 speeds ..... **What offers?**
1914 6 h.p. **ENFIELD** Combination ..... **What offers?**
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BABY Levis, 1913¾, perfect, new tyres, spares; £20.—Hammond, 8, Spain, Petersfield. [7665

LEVIS, 2¼h.p., Baby model, excellent order throughout, lamp, horn; £18.—Laytons, Bicester, Oxon. [X0617

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LEVIS, 1914, £33/10 Baby model, first-class order, lamp, horn, guaranteed; £22/10; approval.—Laytons, Bicester, Oxon. [X0616

1914 (September) 2¼h.p. Levis, 2-speed, free engine, cost £47/10, never ridden, brand new; £38.—King, Sunnyside, Stapleford, Cambs. [X0743

LEVIS, 1914, 2¼h.p., Baby model, capital order, complete with lamp, horn, and speedometer; cost £37/10, and now worth £30, cash price £25; approval.—Laytons, Bicester. [X0615

Little Giant.

LITTLE Giant, 2h.p., 2-speed, 25 gns.—Longman Bros. and Aitken, wholesale and retail agents, 1, King St., Acton. Tel.: Chiswick 1578. [7689

Matchless.

1912 3½h.p. Matchless, just overhauled, fast and reliable; £26.—Parker and Son, St. Ives, Hunts. [X0651

MATCHLESS, 1913, 3½h.p., 3-speed twin, grand order; £35.—P. J. Evans, John Bright St., Birmingham. [X0769

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

MATCHLESS, 1913, 8h.p., 2-speed gear, chain drive, has been stripped, re-enamelled, and plated, now perfect; £55 cash.—Colmore Depot, 49, John Bright St., Birmingham. [X0648

MATCHLESS, 3½h.p. J.A.P. engine, 3-speed Armstrong gear, just been overhauled by us; £38: grand sidecar or solo mount. Payments taken.—Colmore Depot, 31, Colmore Row, Birmingham. [7648

MATCHLESS, 1912, 8h.p., Canoelet sidecar, Sonspray, speedometer, electric horn, Dunlop and Whittle belts, large lamp and generator, tyres good, splendid condition throughout; owner gone to the war; bargain, £40.—L.P., 28, Elmwood Rd., West Croydon. [7656

Minerva.

2¼h.p. Minerva, running order, lamp, horn, etc.; £6.—226, York Rd., Leeds. [7614

3½h.p. Minerva, 1910, just re-bored and re-hushed, 1912 Bosch, 1912 B. and B. carburetter, spring forks, low frame, guaranteed perfect; £14.—R. Kuechone, Chapel Lane, Crich, Matlock. [X0606

M.M.C.

M.M.C., 3½h.p., really good order, eminently suited to a beginner; 14 gns., or on E.P.—Lamb's, 151, High St., Walthamstow. [7747

Moto-Reve.

MOTO-REVE, 2½h.p. twin, mag., good condition; £9. Rogers, 42, Church Rd., Hendon. [X0695

MOTO-REVE, 1911, 2¾h.p. twin, just re-enamelled and overhauled; £12/10.—1, King St., Acton. Tel.: 1578 Chiswick. [7687

Motosacoche.

LOOK Here.—1912 Motosacoche, 2½h.p., mag., F.E., nice solo mount; £12.—Lewington, Enfield Wash. [7758

1913 Motosacoche Lightweight, brand new machine, £25; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff [0548

2½h.p. Motosacoche, 1911½, jockey pulley, very good order and condition, good push bike part; offers.—Fernside, Shepherd's Lane, Dartford. [X0688

MOTOSACOCHE, 2½h.p., 1911, Bosch mag., F.E., not used once during 1912 or 1913, in perfect order; £12, lowest.—J. Hill, Boreham St., Sussex. [7678

MOTOSACOCHE, 2½h.p., Bosch, semi-automatic carburetter, F.E., Druids, new Rich butted tubes, Avon covers, all in perfect condition; £18, or close.—41, Crescent Lane, Clapham. [7698

New Hudson.

1913 4h.p. New Hudson, 3-speed, sidecar, splendid condition; £38.—Voce, Garendon, Nuneaton. [X0643

NEW HUDSON, 1914, 3½h.p., 3-speed Armstrong; what offers? any trial.—Morgan and Maxwell, 80, High Rd., Streatham. [X0682

NEW Hudson 2-stroke Lightweights in stock; extraordinary good value for £27/5; E.P. if desired.—Lamb's, 151, High St., Walthamstow. [7738

NEW Hudson 2-stroke Lightweights in stock; extraordinary good value for £27/5; E.P. if desired.—Lamb's, 50, High Rd., Wood Green. [7739

NEW Hudson 1914 6h.p. Combination, grand condition, absolute no trouble machine, every possible refinement; cost £98, accept £70.—Dawson, 61, Livingstone Rd., King's Heath. [X0590

NEW HUDSON, 1913, 2¾h.p., touring model, 3 speeds and clutch, footboard, accessories, complete, splendid order; £30.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [04..

MOTOR CYCLES FOR SALE.

New Ryder.

NEW Ryder, 2-stroke, not done 400 miles, good as new; £23.—E. Furlonger, Lipbook, Hants. [X0734

NEW Ryder. — Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

N.S.U.

1914 2h.p. N.S.U. Lightweight, 2-speed, new; accept £31.—Parker and Son, St. Ives, Hunts. [X0653

N.S.U., 3h.p., mag., Amac, recently overhauled; £12/10, bargain.—Groom, Carnfield Hill, near Alfreton. [X0701

N.S.U., 3¼h.p., mag., B. and B., spring forks; any trial; £7/10, bargain.—15, Curzon St., Leicester. [X0665

1914 3½h.p. N.S.U., T.T. twin, 2-speed, new; list £57, accept £50.—Parker and Son, St. Ives, Hunts. [X0654

3 h.p. N.S.U. Twin, variable gear, thoroughly overhauled, re-enamelled, plated, equal new; £16.—138, Catherine St., Leicester. [X0729

N.U.T.

EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

N.U.T. 3-speed 3½h.p. Touring Model, just arrived; swaps or offers.—West Lancashire Motor Co., Southport. [7544

O.K.

O.K. Junior, 2-speed, perfect, nearly new; must sell; best offer over £20.—102, Church St., Croydon. [7727

Peugeot.

PEUGEOT, 3½h.p., 1911, spring forks, mag., new belt, accessories; £13/10.—Ivy House, Audlem. [7785

P. and M.

P. and M., 1913, like new, £45; Canoelet, £10.—Ponzio, Whipp's Cross, N.E. [X0566

1914 Phelon, June, done 700, completely equipped; cost £69, accept £56.—128, Bartholomew St., Newbury. [X0587

P. and M., August, 1913, special finish, spare cylinder and piston, absolutely perfect; bargain, £45.—Matthewman, 36, Thomas St., Thornton Lodge, Huddersfield. [X0690

P. and M., 1914, 3½h.p., in absolutely new condition, 2 speeds, chain drive, kick starter; a genuine bargain, £49.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0598

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

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PRECISION, 3¾h.p., 3-speed 1913 model, Bosch mag., Druids, B. and B., low frame, with 1914 coach-built sidecar, splendid combination; £36; accept lightweight part.—A. Holland, Clarendon St., Coventry. [X0731

3¾h.p. Precision, free engine, Bosch mag., powerful, fast, splendid condition, low 15in. frame, Dunlop belt, 26×2¼ Dunlops, Druids, B. and B. carburetter, all accessories, mirror, watch, £18/10; handsome nearly new coachbuilt sidecar, plated rim, Carbab, £5/10; would separate.—17, Bedford Sq., Stepney. [X0703

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PREMIER, 3½h.p., clutch; £19; beautiful condition; must sell.—24, Tulse Hill, Brixton, S.W. [7772

1913 3½h.p. T.T. Premier, Philipson pulley, condition perfect; £30.—Ross, 22, Gilmore Rd., Lee, S.E. [7620

1914 (July) Premier, 2½h.p., perfect condition, lamp, horn, spares; £25.—J. W. Fortnum, Middlewich. [7624

PREMIER, 1913½, clutch, splendid condition, new belt, accessories; £23/10.—36, Graemsdyke Av., East Sheen, S.W. [X0558

PREMIER, 1914 model, 3-speed, kick starter, and Forward coachbuilt sidecar, done about 800 miles; £47/10, complete.—Walsall Garage, Walsall. [X0238

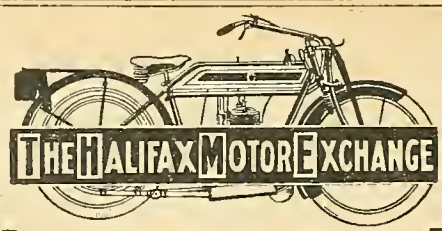
1911 Free Engine Premier Motor Bicycle, fitted with Millennium 2-speed gear, complete with wicker sidecar; £23.—Robinsons, Green St., Cambridge. [6867

PREMIER, 1914, 3½h.p., 3-speed countershaft, brand new, shop-soiled; £57/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

PREMIER, 1913¾, 3½h.p., 2-speed counter-shaft, like new, speedometer, horn, lamps, splendid coachbuilt sidecar, spares; £42/10, bargain. Tel.: 525.—Scholes, Colliery Agent, Blackburn. [X0692

COMPLETE 1909 3½h.p. Premier Motor Cycle, good tyres and belt, controls, everything except engine set, perfectly sound lot; cheap £5/10; take good push cycle part.—Wallis, High St., Saffron Walden. [X0753

PREMIER, 1912, 3¼h.p., purchased new in 1913, 3 speeds and clutch, ridden solo only, splendid order, accessories complete; £32.—Elce and Co., 15, Bishopsgate Av. Camomile St., London, E.C. [0597



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1912 3½ h.p. **LINCOLN-ELK**	£24 10
1912 3½ h.p. 2-speed **ALLDAYS**	£29 10
1912 3½ h.p. **RUDGE**, free engine	£28 10
1911 3½ h.p. **TRIUMPH**, variable gear	£29 10
1911 W.-C. 2-speed **SCOTT**, late model	£29 10
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1911 2½ h.p. 2-speed **A.J.S.**, counter-shaft ..	£22 10
1911 3½ h.p. 2-speed **N.S.U.**, almost as new ..	£25 10
3½ h.p. Magneto **TRIUMPH**	£20 0
1910 3½ h.p. 2-speed **TRIUMPH**	£25 10
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1912 6 h.p. 2-speed **REX**, chain drive, and new Sidecar	£43 10
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£5 Deposit and 7/6 per week purchases any of the following machines. Every one guaranteed in running order.

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TRADE SUPPLIED.

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P.M.

1913 P.M., 2-speed, splendid condition, only run 1,500 miles solo; £30, no offers; seen by appointment.—V., 97, Chamberlayne Rd., Kensal Rise, N.W. [7709

P.M.C.

P.M.C. and Coach Sidecar, 1912, 2-speed, £39/10; also a 3-speed model, and coach car, £37/10; open to reasonable E.P. suggestions.—Lamb's, 151, High St., Walthamstow. [7735

1914 P.M.C., 2½h.p., like new, speedy, and good climber, guaranteed perfect throughout; any trial; £25, or exchange F.E. Triumph.—B. Russell, 45, Cornwall Rd., Brixton Hill. [7750

P.V.

1914 Spring Frame P.V., 3½h.p. A.B.C. engine, Jardine 2-speed counter-shaft gear, appearance like new, perfect condition, light, fast machine; £50.—Lees, A.B.C. Works, Hersham, Surrey. [7716

Quadrant.

3h.p. Quadrant, very low, Bosch watertight mag., B. and B., spring for fast; £9, bargain.—138, Catherine St., Leicester. [X0728

Radco.

QUICK Sale, 1914 Radco, perfect, £20; 2½h.p. twin Moto-Reve, mag., slight repairs, £12, bargain; close cash offers.—Box 6,724, *The Motor Cycle* Offices, Coventry. [X0519

Rex.

REX, brand new, 1913, 6h.p., 2-speed twin, and new sidecar; £57/10.—Collier's Motories, Westgate, Halifax. [0445

REX 1913 6h.p. 2-speed Coach Combination, just overhauled; £32.—P. J. Evans, John Bright St., Birmingham. [X0768

REX 6h.p. Twin, 2-speed and free engine, with sidecar, magnificent condition; £33/10.—73, Church St., Camberwell. [7704

5h.p. Rex, twin-cyl., Bosch mag., excellent condition; £17.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0593

REX Twin, 5-6h.p., accumulator, tyres and tubes in good order, ready for road; first £8/8 secures.—Pullan, Cirencester. [X0645

1914 Rex Sidette, brand new, never ridden; cost £77/10, accept £60; owner enlisted.—132, Darnley Rd., Gravesend. [7771

3½h.p. Rex, coil, 2-speed, excellent condition, new belt, tyres; £10.—Glenhurst Garden Suburbs, Humberstone, Leicester. [7700

REX Sidette, new 1914 6h.p. twin, 2 speeds, coach built body; real bargain, £65.—228, Pentonville Rd., King's Cross, London, N. [7577

REX Sidette, 1914, 2 speeds, coachbuilt, perfect running order, fully equipped; £55, or offers.—Lloyd, Victoria Terrace, Leamington. 'Phone: 533 [X0610

REX, 3½h.p., Bosch, B. and B., engine lately rebushed, m.o.v., h.b.c., tyres as new, spring forks; must sell; £10.—R. Cooper, Tarbet, Loch Lomond. [7695

FOR Sale, 6h.p. twin, water-cooled, 2-speed, belt driven, Rex Litette, splendid condition; a bargain.—Barker, Corporation Works, Prittlewell, Essex. [X0696

3½h.p. Rex, 1911, F.E., automatic variable pulley, good Hutchinsons, good order, accessories; photo; £18.—271, St. Saviour's Rd., Saltley, Birmingham. [X0595

REX Cumbination, 6h.p., 1911, late, 2 speeds, handle starting, Whittle, overalls, and £2 spares; also 3h.p. Stevens, £6/10.—30, Bloomfield Rd., Burdett Rd., E. [7718

REX Sidette, 1913¾, 6h.p., 2 speeds, Bosch, speedometer, cane sidecar, cover, splendid condition; war forces sale; offers.—Box 6,756, *The Motor Cycle* Offices, Coventry. [X0722

REX 1913 6h.p. Combination, 1914 coachbuilt body, wind screen, lamps, horn, etc., 2-speed, free engine, excellent and reliable turnout; £48; take lightweight part, 2-stroke preferred.—A. Holland, Clarendon St., Coventry. [X0730

Rex-Jap.

REX-J.A.P., 1912, 8h.p., 2-speed, and sidecar, in fine order; £50, or near offer.—Cocker, 114, Manchester Rd., Blackpool. [X0567

REX-J.A.P. 1914 8h.p. Sidecar Combination, very fine condition; cost £94, accept £67/10.—Collier's Motories, Westgate, Halifax. [0388

REX-J.A.P. 1912 De Luxe Model, 8h.p., 2-speed, coachbuilt sidecar, in very good order; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

1914 3½h.p. Twin-cyl. Overhead Valve Rex-Jap, brand new; listed at £57/15, a bargain, £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0592

REX-J.A.P., 1913, 8h.p., De Luxe model, torpedo coachbuilt sidecar, overhauled and guaranteed perfect; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Rover.

1913 3-speed Rover Motor Bicycle, Armstrong gear, Dunlop cover front, 2½in. Hermetic cover back, Brooks B170 saddle, Dunlop belt, lamp, and horn, in absolutely perfect condition; £37.—Robinsons, Green St., Cambridge. [6866

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WELDED Sidecars.—Purcells' art catalogue of welded sidecare ie the most detailed list issued; 30 models; trade quoted.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [3760

OWING to the War we are clearing all our £10 Windcutter coachbuilt sidecars at £7/10; only 50 left; 5 years' guarantee.—Oakleigh Sidecar Co., 65a, Rosendale Rd., West Dulwich. [7790

P.M.C. Sidecars from £5/17/6 to £10/10; write for catalogue fully illustrating the various models and patent P.M.C. quick fit couplings.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0154

WATSONIAN Folding Sidecar, coachbuilt and roomy, apron, cushion, and side lamp complete, all in excellent condition, and only been few hundred miles, folded or unfolded instantly without tools; cost £13/13, selling for £6/10, exceptional bargain.—61, Lillieshall Rd., Clapham. [7725

PHŒNIX Sidecars, highest grade, from £4/15 complete with tyres; immediate delivery. Send for illustrated list of different design chassis and bodies. Sidecars on hire. Second-hand sidecars always in stock.—Phœnix Motors, Ltd. (Motor Cycle Depot), 736, Holloway Rd., London, N. Tel.: Hornsey 449. [0135

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BODIES.

CIGAR Shape Coach Bodies, £3/10.—Bright and Hayles, 73, Church St., Camberwell. [7705

STANDARD Bodies, coach, complete with toolbox; £3/10.—Bright and Hayles, 73, Church St., Camberwell. [7706

SIDECAR Bodies, brand new, nicely upholstered; bargains, £3.—Hurlin and Co., Ltd., 295, Mare St., Hackney. [7567

CYCLE CARS.

G.N. Cycle Car; sell £60, exchange twin bike and cash; photo. — Paterson. Percival Parade, Worcester Park. [7659

1914 Carden Monocar, 3¾h.p. Precision engine, Albion clutch, chain drive, splendid order, all accessories, complete; £38; trial.—Below.

1913 Cycle Car, 5-6h.p., 4-cyl., shaft drive, 3-speed gear box and reverse, live back axle, 2-seat. body, wind screen, lamps; £40; trial.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0600

SMART 2-seat. Cycle Car, 1913, 8h.p. J.A.P., chain drive, 2 speeds, good as new; cheap, £48.—Powell, 153, Bowes Rd., Palmer's Green, N. [7664

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0527

CYCLE Car, 8h.p. Precision engine, water-cooled, 3 speeds, enclosed body, hood and screen, modern, wire wheels, equal new; bargain, £40.—12, Bull Ring, Birmingham. [X0670

A.C. Sociables.—Several 1913 models from £40 upwards, usual price 75 gns. Must clear to make room for 1915 models. Call and try them.—15, Little Portland St., W. [7626

A.C. Pattern Cycle Car, 4½h.p. De Dion engine, mag., new, wants dash and guards to complete; what offers?—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham. [X0680

WILKINSON Cycle Car, excellent condition, recently overhauled, tyres good, 5 lamps, hood and screen; £100; seen any time.—Walter Scott Motor Co., 109, Goldhurst Terrace, Finchley Rd., N.W. [7615

SABELLA Cycle Car, 8-10h.p. J.A.P., Bosch, variable gear, hood, screen, etc., perfect condition; trial by appointment; accept £25 quick sale; motor cycle considered exchange.—79, King George St., Greenwich. [X0759

CARS FOR SALE.

ROVER, 6h.p., 2-seat., hood, screen, very good order; worth £40, price £32/10.—Laytons, Bicester, Oxon. [X0613

WANDSWORTH Motor Exchange.—Sizaire, 2-seat. 8h.p., scuttle dash, running; £19/19; easy payments.

WANDSWORTH.—Singer. 2-seat., 7-9h.p., mag. (gate change), nice order; £47/10; easy payments.

WANDSWORTH.—Sabella (latest) cycle car, 8-10h.p. J.A.P., water-cooled, hood, screen; £45; easy payments.

WANDSWORTH.—De Dion Bouton 2-seater, 8h.p., new tyres, tubes, hood, screen; £32/10; exchanges.

WANDSWORTH.—Humber, 2-seater, 10-12h.p., 4 cyls., mag., hood, screen; £38/10; easy payments.

WANDSWORTH.—Rover, smart 2-seater, 6h.p., mag., hood, screen; 30 gns.; easy payments.

WANDSWORTH.—Darracq, 2-seat., 6h.p., good tyres, ready drive away; £12/10 cash; exchanges.

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CLYDE, 2-seater, dual ignition, live axle; any trial; £35; exchange for combination considered.—46, Hillcrest Rd., Acton. Tel.: Chiswick 1578. [7686

16 h.p. Humber 5-seat., good tyres, lamp, hood, magneto, in good order throughout; exchange Douglas or Triumph motor cycle.—Ames, Lynn Rd., Wisbech. [7683

8 h.p. Genuine De Dion Chassis, Trier and Martin carburetter, everything ready to fit body to make fine light delivery vehicle; bargain, £12/10, or exchange.—45, Wherstead Rd., Ipswich. [X0774

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SWIFT 1914 Light Car, quite new, but slightly soiled, complete with hood, screen, lamps, horn, etc.; £110, usual price £140. Do not miss this bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [7629

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1914 Warren Lambert de Luxe, complete hood, screen, lamps, horn, pair of new tyres never been on car, same car that climbed Brooklands test hill with five up; insurance policy to cover same car; a bargain for £90, owner must sell.—Messrs. Hulbert Bramley, 96, Upper Richmond Rd., East Putney. [7669

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4-CYL. Humber, 2-seat., with light detachable van body; £45.—Henshaw, Wheelwright, Stockport. [X0698

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3½h.p. 4-cyl. F.N., mag., complete, less carburetter; £3.—Jarvis, Cirencester. [X0724

ABSOLUTELY New 5-6h.p. Blumfeld Engine Set (less magneto); £11/11.—Farrar's Motories, Halifax. [X8389

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5-6h.p. Twin Peugeot Engine, complete, in fine order, Bosch, Arnac, suit monocar; £6.—Hennessy, Kilbeggan, Westmeath. [X0719

PRECISION Engine, 4¼h.p., nearly new, with carburetter, £8/15; Brown engine, 3½h.p., £2/10.—12, Bull Ring, Birmingham. [X0669

REX 6h.p. Twin Engine, Bosch mag., adjustable pulley, m.o.v., 1911 model, perfect condition; £8/8.—44, Clarendon St., Coventry. [X0732

5-6h.p. Rex Engine, and mag., m.o.v., 1911, £9; O.T.A.V. cycle car, complete, £17; 2¾h.p. Enfield twin, £22.—Holmes, Treville St., Plymouth. [X0602

BASTONES.—New Rex 6h.p. twin engines, with pulley, silencer, and pipes, complete, less magneto; £12/10.—228, Pentonville Rd., King's Cross, London, N. [7576

8h.p. Twin A.C. Quadrant, mag., B. and B. carburetter, Badcock's bypass, fan silencer, just overhauled; £12/10.—Cathery, 11, Honiton Rd., Kilburn. [7712

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TYRES.

BASTONES.—Hutchinson 1913 T.T. rubber studded covers, 26×2½, fit 26×2¼ rims, 24/-.

BASTONES.—Hutchinson 1913 passenger covers, 26×2 20/-, 26×2½ 28/-.

BASTONES.—Hutchinson Brookland rubber non-skid covers, 26×2 12/-; ribbed pattern, 26×1¾ 10/6.

BASTONES.—Clearance Michelin etandard covers, 26×2¼ 22/6, 26×2½ 24/-, 28×2½ 24/-.

BASTONES.—Michelin 1914 covers (beaded), 26×1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18/6, 28×2 16/6, 28×2¼ 16/9.

BASTONES.—Michelin 1914 covers (wired), 26×1¾ 11/6, 26×2 13/9, 26×2¼ 15/-, 26×2½ 16/-, 28×2 14/9.

BASTONES.—Michelin clearance cycle covers, wired edge, 28×1½; 5/3.

BASTONES.—Guaranteed red tubes, 26×2 4/9, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.

BASTONES.—We have a huge stock of covers and tubes (various makes). 'Phone or send your requirements.—228, Pentonville Rd., King's Cross, London, N. Tel.: 2481 North. [7581

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Under £20.

Stock No.	Date	H.P.	Make, and Tyres.	Price
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858.	1914		**JENBRO** Sidecar, Hutchinson	£20 0

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587.	1912	2	**HUMBER**, Dunlop	£28 0
633.	1914	2½	**CONNAUGHT**, Hutchinson	£27 0
717.	1912	2¾	**DOUGLAS**, 2-speed	£30 0

£30 to £40.

601.	1911	3¾	**SCOTT**	£32 10
180.	1912	6	**CLYNO**, 2-speed	£35 0
391.	1913	3½	**MATCHLESS**, twin J.A.P., 3-speed, Michelin and Hutchinson	£37 10
193c.	1912	3½	**P. & M.**, 2-speed	£40 0
	1912	6	**CLYNO**, 2-sp., Palmer & Hutchinson	£35 0
721.	1911	6	**ZENITH-J.A.P.**, twin	£33 10
684.	1913	3½	**B.S.A.**	£35 0
694.	1912	3½	**HUMBER**, 2-speed	£32 10
745.	1914	3½	**SINGER**, clutch model, soiled only	£37 10
250.	1912	4	**ZENITH-J.A.P.**, re-enamelled	£35 10
	1914	2	**O.K.** Junior, Dunlop	£29 0
559.	1911	3½	**P. & M.**, with Swan Sidecar, 2-speed	£40 0

£40 to £50.

738.	1913	2¾	**DIAMOND**, Hutchinson	£45 0
505.	1912	6	**ZENITH** and Montgomery Sidecar, Rom and Hutchinson	£43 0
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527.	1912	6	**MATCHLESS-J.A.P.**, with Hutchinson, Matchless cane car	£47 10
404.	1912-13	8	**WILLIAMSON**, with Forward coach-built car	£47 10
382.	1912	8	**ZENITH**, with Millford Sidecar	£50 0
702.	1913	3½	**TRIUMPH** T.T. Roadster, 3-speed	£42 10
603.	1912	3¾	**ZENITH**, with Regal cane Sidecar, Kempshall and Hutchinson	£43 0

Over £50.

269.	1914	5-6	**RUDGE** Multi, soiled only, Dunlop	£59 0
819.	1914	6	**BRADBURY**, 3-speed, soiled only, Dunlop	£67 10
513.	1913	6	**CLYNO**, 3-speed, Kempshall	£57 0
736.	1914	6	**ENFIELD** Combination, 2-speed	£65 0
714.	1913	8	**MORGAN** Cycle Car	£65 0
697.	1913-14	6	**ZENITH**, clutch model, with 1914 Gloria projectile car	£60 0

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TYRES.

HOLYOAKE'S, 92, Battersea Rise, SW.—Vulcanising, re-treading, new and second-hand tyres, tubes, etc. [X0658

HUTCHINSON Non-skid Motor Cycle Cover, 26in.×2in., unused; 16/-.—Mason, 31, Watford Rd., King's Norton. [7643

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NEW Heavy Peter-Union Covers, 24×2¼ 12/-, 26×2 10/6, 2¼ 15/-, 2½ 17/6, 28×2 12/-, 2½ 17/6.—Murray's, 37a, Charles St., Hatton Garden, Holborn. [X0712

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ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Send for price list, together with free sample of Elite Sticktight patches.

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ELITE.—Kempshall clearance covers, heavy anti-skid, 26×2¼ 24/6, list price 32/6; 26×2⅜ 26/6, list price 37/6; 28×2½, suitable for Indian, 30/-, list price 42/-; 28×3 35/-, list price 57/6; Kempshall sidecar covers, 28×3 25/-.

ELITE.—Special clearance lines of Wood-Milne covers, 28×3, heavy grip rib pattern, 25/-.

ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 28/6.

ELITE.—Dunlop Pillion covers, 1913 stock, 650×65; 26/-, list price 50/-.

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ELITE.—Hutchinson Brooklands, 1913 stock, 26×2 12/6, T.T. 26×2½ 16/6 (list price 33/6).

ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2½ 28/- (list price 41/3), 26×3 to fit 2½ rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 26×2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

ELITE.—Hutchinson small car covers, 650×75, to suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Michelin clearance covers, beaded edge, 26×2 light 8/9, heavy plain tread 26×2¼ 22/6, 26×2½ 24/6.

ELITE.—Clearance Michelin covers, wired on; Standard 26×2½ 26/-, 26×2¼ 24/6.

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ELITE.—Dunlop heavy rubber studded covers, 26×2¼ 17/6 (list price 30/-), old 1913 stock.

ELITE.—Clincher 700×80 covers, plain tread 21/6, heavy grooved 25/-; Clincher tubes, 700×80, 6/6, suit 650×65 rims.

ELITE.—Clincher extra heavy tubes, best quality, 26×2¼ 6/6.

ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26×3 7/6, butted 1/3 extra.

ELITE offer a rebate of 7/6 off new motor cycle covers costing not less than 40/-, providing old covers are returned with order, and 15% off covers listed at less than 40/-. This offer does not apply to clearance lines as mentioned above.

ELITE.—Motor cycle covers re-treaded by special process; treads guaranteed not to come loose; special heavy 15/-, heavy 12/6, medium 10/-; sections on application.

ELITE.—It is impossible for us to advertise all the special lines which we have in stock; therefore, if there is anything you require which is not mentioned in our advertisement, we shall be pleased to quote you upon receipt of a postcard.

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LEGGATE, Edinburgh. — Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅛ 6/6, 26×2½ 7/-; worth double.

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LEGGATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh. [X0282

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WE will willingly forward any of the following goods subject to being unsold on 7 days' approval upon receiving remittance, and return cash in full if not satisfactory. During the whole of last year and up to the present this, we have not had a single return.

12 Only 26in.×2in. Motor Cycle Covers, beaded edge, been used for testing purposes and may have had slight repairs, from 5/- to 10/- each.

50 26×2 Second-hand Tubes, all been tested; 3/6 each, post free.

WE can offer you guaranteed rubber studded covers which have been proved to do 4,000 miles carrying passenger, 26in.×2in. 16/6, 26in.×2¼in. 18/6 each, postage 6d. extra.

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HEAVY 3-ply Rubber Non-skid Covers, 26in.×2in. 19/6 each, 26in.×2¼in. 21/- each, postage 6d. extra.

WE will re-tread your motor cycle covers, all sizes up to 2½in., during this month with heavy rubber studded tread, together with new insertion, for 10/-, or special tread, suitable for driving wheel, 12/6.

DO You Require a special heavy cover, the best made? Heavy 4-ply fabric, 2¼in., 27/6; 2½in., 32/6 each. —Redfield Rubber Co. Works: Redfield, Bristol. Showrooms: Tyre House, Bristol Bridge, Bristol. Tels.: 2107 and 3577. [X0388

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GARAGE.—We can garage your motor cycle or combination.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., opposite Olympia, London. [7635

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STANLEY FASTENER.

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EXPERT Reports.—Purcells send experts to examine machines; 10/6 plus fares.—78, Charlotte St., Fitzroy Sq., W. (See advertisement.) [3473

FINANCIAL.

HEIRS to Money.—Private gent. is prepared to advance money on reversions, life interests, motor cycles, cars, or would purchase.—Jones, 165, Euston Rd., Morecambe. [7427

WANTED.

SPARES. — Morgan and Maxwell. Streatham. [X7877

F.N. Engine, or cylinder and crank case, 1911.—Chilton, High St., Watford. [X0635

3½h.p. Engine, must be cheap.—B. Shorter, 1, Audley Rd., Saffron Walden. [7778

WANTED, motor cycle, well-known make, cheap for cash.—65, Hilden St., Bolton. [X0717

SIDECAR, for twin Rex (1907), cheap for cash.—Marsh, Chatwell, Newport, Salop. [X0562

100 Motor Cycles wanted; spot cash paid.—Bring or send, Palmer's Garage, Tooting. [7672

WANTED, 3½ or 4h.p. engine, any condition, but sound.—Harburn, Art School, Barnstaple. [X0765

WANTED, 2-stroke engine, also N.S.U. cylinder, 80 bore.—31, Nursery Row, Walworth, S.E. [X0736

MORGAN Wanted, cheap, cash; near Potteries; exchange 1913 Levis.—Roberts, Albion St., Burslem. [7607

WANTED, second-hand lightweight motor cycle, for cash.—O. Hall, 132, Preston Rd., Blackpool. [X0386

WANTED, magneto, carburetter, tyres, lamp set; cheap.—Write, Brooke, 23, Park Rd., West Green, N. [X0761

WANTED, light engine, 1½ to 2¼h.p., magneto, carburetter.—Letters, Avins, 2, Horsman St., Camberwell. [7622

FREE Engine Triumph, 1913; good allowance in exchange or purchase, a bargain.—Bunting, Harrow. [X0741

DOUGLAS, late, 2-speed, in exchange for carved oak sideboard and cash.—Rochester House, Maple Rd., Surbiton. [X0588

WANTED, for spot cash, magneto motor cycles, any condition.—Box No. 6,738, *The Motor Cycle* Offices, Coventry. [X0744

WANTED, for cash, N.S.U. gear, to fit 1913 Triumph; state lowest price.—Norman Rhead, Fenton, Stoke-on-Trent. [X0598

WANTED, Douglas, 1914 model, must be cheap for spot cash; no dealers.—Cochrane, 62, Hillfield Rd., West Hampstead. [7621

WANTED, cylinder, Rex, 84 bore; also engine, 3½ to 4½h.p.; on approval.—J. B. Jones, Mayros House, Harcourt Rd., Mountain Ash. [X0569

WANTED, 1914 twin combination, with all accessories; no fancy prices.—Box L6,213, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7618

WANTED 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories, cheap.—125, London Rd., Manchester. [0560

DOUGLAS or Indian Motor Cycle wanted in part exchange for A.C. car.—Write or call, Anto-Carriers (1911), Ltd., 15, Little Portland St., W. [7627

WANTED, motor cycles, cycle cars, good cash prices. —Wandsworth Motor Exchange, Ebner St., Wandsworth Town Station 'Phone: Battersea 327. [X6518

CASH Buyers for 1914 shop-soiled Morgans, and G.W.K., Victor, Lagonda, and Calthorpe light cars.—Collier's Motorles, Westgate, Halifax. [0488

WANTED to Purchase, motor bicycles, light cars, or cycle cars for cash down.—Write, Box L6,190, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7584

WANTED, cycles and combination, to include next Kensington auction, 27th.—Apply, Mordant's, Automobile Auctioneers, 9, Fenchurch St., London. [7763

WANTED, 1914 combination (sidecar coachbuilt).—Full particulars, including distance run and very lowest cash price that will be accepted, to Box 6,209, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7611

GOOD coachbuilt sidecar; exchange Rollo cycle car, 3-seater, good tyres, belts, hood, screen, etc., complete, less engine; sell cheap, or take motor goods payment.—Olapham, King George St., Greenwich. [X0760

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell, London Motor Salerooms, 80, High Rd., Streatham, London. [X9559

EXCHANGE.

MORGAN and Maxwell, 80, High Rd., Streatham, London, for exchanges. [X0679

PALMER'S Garage, Tooting, will make you a good exchange. Write for complete catalogue. [7673

EXCHANGE.

4½h.p. 4-cyl. F.N., just overhauled, new transmission, etc.; will exchange for good single.—Jarvis, Cirencester. [X0725

1913 Enfield Combination, perfect, for Douglas or 3h.p. Enfield, or sell £60.—Binder, Weldon, Kettering. [X0630

O.K. Precision, 4½h.p., and sidecar, mileage 800, for Douglas, sell £38.—446, Blandford Rd., Beckenham, Kent. [7726

EXCHANGE Scott, T.T., footrests, new gear chains, Seaspray, for Levis or Douglas.—Easte, "Grays," Harliogton, Middlesex. [X0721

1912¾ 3½h.p. Kerry-Abiogdon, in perfect condition; will take screw-cutting lathe in part exchange.—L. Bull, Hills Rd., Cambridge. [7644

EXCHANGE upright grand piano and piano player, latest models, cost £80, for 1914 motor cycle.—232, Lancaster Rd., N. Keasiogton. [7715

EXCHANGE B.S.A., 1911-12, 3½h.p., free engine, excellent condition, for good Douglas, 2-speed.—Lenton, 36, Scotgate, Stamford. [X0666

EXCHANGES Wanted against shop-soiled 1914 Rex-Jap, Williamson, and Sun Villiers machines.—Motor Exchange, Westgate, Halifax. [0446

TWO Motor Cycle, 2¾h.p. Peugeot, mag., splendid hill-climber, and 2¾h.p. Bradbury, for higher power value at £25.—Davis, Greengate, Salford. [X0629

EXCHANGE 1913½ 4h.p. New Hudson combination and cash for 1914 Headee Special combiaation; sell £55, cost £85.—21, Rupert St., Bolton. [7711

SMALL Car in exchange for motor cycle and cash; cycle car chassis, 10/-; motor frame, 15/-; motor cycle, £4/10.—74, Upper Tooting Rd., S.W. [7690

9h.p. 2-cyl. Darracq, Bosch mag., hood, screen, Stepney, smart little car; exchange sidecar combination, cash either way.—P. Riddelsdell, Boxford, Suffolk. [7713

EXCHANGE 5-6h.p. 1913 Blumfield Twin and sidecar for 3 or 4-wheeled cycle car, or lightweight motor cycle, or sell £30.—Etruria, Tile Hill Lane, Coventry. [X0612

1913 8h.p. Matchless and sidecar, 2-speed, free engine, kick starter, all accessories, splendid condition; exchange for light car.—72, Perry Vale, Forest Hill. [7770

8h.p. Matchless, J.A.P. twin, 2-speed, with £16/16 sidecar, scarcely soiled; what offers, cash, or consider lower power and cash.—156, Ladypool Rd., Birmingham. [X0676

EXCHANGE 1914 Triumph, 3 speeds, Lucas head and rear lights, horn, Cowey speedometer, and coach-built sidecar, for Morgan runabout, or sell.—Asher, Wincobank, Sheffield. [X0520

NEARLY New Humher and Sidecar, 3½h.p., free engine, 2-speed, handle starting, for higher power, Enfield or Indian preferred, cash adjustment.—Apply, 194, Philip Lane, Tottenham, N. [7685

MORGAN Cycle Car, 8h.p. twin J.A.P. engine, lamps, speedometer, etc., in splendid order; accept £65 cash or motor cycle and cash to value.—76, Summerley St., Earlsfield, S.W. [7730

ARIEL, 1912, 3½h.p., 1913 engine, 3 speeds, free engine, semi-T.T. model, nearly new Dunlops, new belt, fully equipped, like new throughont, for lightweight, or sell £35.—Peat, 127, Treatham St., Southfields, S.W. [7773

TYPEWRITER, Remiagton (worth £10/10), Ellam's £10/10 duplicator, and one new gold-cased huoter watch, cost £2/10, and cash adjustment (if necessary) for good class motor cycle, genuine business.—E. W. Gaskin, 150, St. Saviour's Rd., Saltley, Birmingham. [X0673

A.C. Sociable (Model de Luxe), hood and screen, 2 Lucas side lamps, 2 P. and H. acetylene head lamps, with large generator, Dependence tail lamp, 1914 Senspray, horn, mirror, tools, etc., aluminium oumbers, recently overhauled, in splendid condition, any trial, for late model variable geared motor cycle and cash.—Stoak Farm, near Chester. [7619

REPAIRERS.

ANTOINE Cylindere, pistone, and parts; prompt delivery.

CYLINDERS, crank cases welded; quotatioos free.

COMPRESSION.—Cylioders ground and new piston fitted, 24/-.

OLDEST Engines restored to highest vitality.

COMPLETE Overhauls at lowest possible prices. Full stock of Rex, Triumph, and J.A.P. parts.

COUNTER-SHAFT Gears.—We can aow quote the trade for our Rex-J.A.P. 3-speed gear at inclusive prices, including fitting to old machines.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0246

WHITTALL Machinists' Co., War Office Contractors, for all repairs.

WHITTALL.—Expert welders; repairs returned, accurately machined, inside 7 days. No charge if unsuccessful.

WHITTALL.—Re-horing and new pistons. All motor repairs. Old engines rejuvenated. All work guaranteed; no exaperating delays.—Whittall Machinists' Co., Whittall St., Birmingham. [0136

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—"General Opinion."

1914 **A.J.S** and Sidecar, hood, screen, detachable wheels; original price £94 17s. 6d.; shop-soiled; reduced to ..... **80 gns.**
1914 Junior **TRIUMPH** ..... **40 gns.**
1914 **TRIUMPH**, 4 h.p., 3-speed **£60 0**
1911 **TRIUMPH**, grand condition ..... **19 gns.**
1913 3½ h.p. **TRIUMPH**, 3-sp., Montgomery Sidecar, lamp, horn, speedometer, etc.; cost over £78 ..... **38 gns.**
1914 **CLYNO**, 2-stroke **£30 0**
1914 **NEW IMPERIAL-J.A.P.**, 2-speed .... **31 gns.**
1914 **B.S.A.**, 3-speed, chain and belt drive just received **£59 18**
1913 **B.S.A.**, 2-speed, absolutely perfect, with £13 coach-built Sidecar ..... **45 gns.**
1914 Popular Model **LEVIS** **£25**
1912 **DOUGLAS**, magnificent condition .... **22 gns.**
1912 **ENFIELD**, 2-speed, as new ..... **23 gns.**
1914 **PREMIER**, new; reduced to ..... **27 gns.**
1914 **ARIEL**, 3-speed gear box, chain and belt drive, with coach-built Sidecar, magnificent condition; cost £84 ..... **48 gns.**
Several Sidecars from **£2** upwards.

LIGHT CARS IN STOCK.

1914 **PERRY** Cabrio Coupé, shop-soiled .. **145 gns.**
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1913 (Sept.) **G.W.K.**, with £6 6s. lighting set **95 gns.**
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Broad St., READING.

43 years' reputation. Biggest Dealer in the South.
'Phone 1024.

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Motor Cycle Free of Cost.

We are selling second-hand machines now which you can easily resell after six months' use at the same price. Such are the bargains we are offering. All thoroughly overhauled and guaranteed. Delivery to-day. Write for full list.

1914 **TRIUMPH**, 4 h.p., 3-speed gear **£45**
1914 **P. & M.**, 3½ h.p., 3-speed gear **£48**
1914 **JAMES**, 3½ h.p., twin, 3-speed gear **£45**
1914 **CLYNO**, 2-stroke, 2-speed **£32**
1914 **DOUGLAS**, 2¾ h.p., 2-speed gear **£38**
1914 **LEVIS**, 2¾ h.p., 2-speed gear **£35**
1914 **ZENITH**, T.T., counter-shaft model **£48**
1914 **INDIAN**, 7 h.p., 2-speed, and clutch **£52**
1914 **LEVIS**, 2¾ h.p., Baby model, soiled **£28**
1913 **JAMES**, 4¼ h.p., Canoelet Sidecar **£42**
1913 **DOUGLAS**, 2¾ h.p., 2-speed, and clutch .. **£33**
1913 **J.A.P.**, 8 h.p., free engine, and Sidecar .. **£36**
1913 **ABINGDON**, 2½ h.p., 3-speed, and clutch **£35**
1913 **REGAL-GREEN**, 3¾ h.p., 3-speed, clutch **£35**
1913 **JAMES**, 4¼ h.p., 3-speed, Canoelet Sidecar **£40**
1913 **TRIUMPH**, 3½ h.p., 3-speed, and clutch.. **£38**
1913 **PRECISION**, 2½ h.p., Brampton gear **£25**
1913 **REX** Sidette, 5-6 h.p., 2-sp., cane Sidecar **£38**

EXCHANGES. EASY TERMS.

SIDECARS to fit any of the above machines in stock at greatly reduced prices.

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REPAIRERS.

MORGAN and Maxwell, Streatham, for cheap, quick, good repairs. [X0678

WELDINGS, Ltd., Dept. M.C., 235, Gt. Ancoats St., Manchester.—Oxy-acetylene welding experts.

BROKEN Flanges, valve seats, pistons, crank cases, water jackets, welded and machined complete.

SEND Your Old Engine or complete machioe for overhauling, re-bushing, cylinders re-ground, new pistons, rings, and gudgeon pins fitted.—Weldings, Ltd., Dept. M.C., Manchester. [6234

VALVES.—Nickel steel valves, any size, 3/6; per pair 6/-.—C. R. Foster, Kirkstall Rd., Leeds. [0253

REPAIRS.—Don't scrap your old body. Get our estimate.—Bright and Hayles, Church St., Camberwell. 'Phone: Hop 50. [7707

CYLINDERS, Crank Cases welded; quotations free; send your enquiries.—Premier Motor Co., Aston Rd., Birmingham. [0248

OXY-ACETYLENE Welding, first-class work; moderate quotations.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [6750

CRACKED Cylinders; castings, forgings, etc., successfully repaired by Lea's metallurgical process.—Lea, Engineers, Runcorn. [5197

WELDING.—All metals, cylinders, and crank cases. We have the plant, experience, and method for every job. Quick delivery.—Below.

CYLINDERS Re-ground, new pistons fitted, complete with rings, etc.; 22/6.—Oxy-Acetylene Welding, 349, Lillie Rd., Fulham. 'Phone: Hammersmith 1617. [6430

WELDING.—Broken cylinders, flanges, pistons, crank cases repaired and machined; worn valve seats built up, cracked seatings welded and machined.

CYLINDERS Re-ground, new pistons fitted complete, worn parts duplicated.—West London Welding Co., Essex Place, Chiswick. Tel.: 536. [7104

MINERVA Spares, cylinders ground, pistons fitted, rebushing, parts duplicated.—Ellenborough Motor Works, Ellenborough Rd., Wood Green, N. [8394

CCCCCCCC Cylinders Re-bored, new pistons fitted, bear 13 stone on compression.—Gradior Machine Co., Compression Specialists, Stafford. Est. 21 years. [7314

PISTON, fitted with top and bottom, step-cut rings, hardened steel gudgeon pin, and your cylinder rebored and ground, 24/-.—C. R. Foster, Kirkstall Rd., Leeds. [0310

REPAIRS.—Now is the time to have your motor cycle overhauled. All kinds of repairs at lowest prices.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., opposite Olympia, London. [7634

UNBREAKABLE Chrome-nickel Valves.—Numerous testimonials prove superiority. Guaranteed one year. Any make, 3/6 each, 6/- pair, free per return.—Capacity Tool Co., Broseley, Shropshire. [X0693

CYLINDERS Reground, fitted with new piston, hardened gudgeon, and step-cut rings, 85 mm., 21/-; overhauls, re-bushing, estimates free.—The Motor Repair Co., Stretford, Manchester. [X0716

TONGE Welding Works, 174, Oldham Rd., Middleton, Manchester.—Experts in broken cylinders, crank cases, etc. Welding aluminium a speciality. Nothing too difficult. Sound work at moderate charges. [1389

COMPRESSION.—Cylinders re-bored and ground, new pistons, rings, and gudgeons, complete, 16/-; overhauling, re-bushing, efficiency guaranteed.—Reliance Motor Engineering Co., Spon Lane, Smethwick, Birmingham. [7282

LOWEST Prices Quoted for any repairs or complete overhauls to motor cycles, cycle cars, or cars, or work done on the premises and fully guaranteed; cylinders cleaned by oxygen process, 2/6 single, 4/6 twin.—Maudes, 136, Gt. Portland St., W. [7348

SERVICE Reliable Repairs and Overhauls.—We will do your work at specially reduced prices during the war. Up-to-date and well equipped workshops, skilled mechanics.—1 and 2, Harpur Mews, Theobalds Rd., W.C. Offices 292, High Holborn. 'Phone: 260 Central. [7185

F.N. Owners Note.—W. Earl, late foreman at the Highhury repair works, is at your disposal for all repairs. Our special engineering plant and the personal attention of a recognised F.N. expert will ensure best results at minimum expense.—Below.

F.N. Spares, special announcement.—We have a large stock of new, also sound second-hand parts. If unable to obtain certain replacements please consult us.—Below.

3-SPEED Gears for any model 4-cyl. F.N., converts your F.N. into a first-class passenger machine. We are the sole manufacturers of this gear and also the new type Horstmann 2-speed gears. Note special low prices during war period; particulars gladly on application.—Earl's Engineering Works, 5, Heath St., Hampstead. [X0762

WAR.—To keep our factory going full time we will do your repairs at practically cost. Our well-known high standard of excellence will be maintained. Every job will bear our full guarantee. The sole difference will be the prices, which hold only during the crisis; our ordinary rates will be charged as soon as normal times return. Cylinders re-bored, ground, fitted new pistons, rings, and gudgeon, 15/6; re-bushing, overhauling, welding, frame alterations, etc., all at cost. Send jobs along at once. You will be thoroughly well satisfied in every way.—Tennant Engineering Co., Pershore St., Birmingham. Official repairers to A.C.U. [X0685

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

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An index to advertisements will be found on the page facing the back cover.

Activity in the Motor Cycle World.

Value of British August and September Exports of Motor Cycles and Parts. } **£140,996.**

PERHAPS the most signficant and reassuring outlook in connection with the motor cycle industry since the war began is the figure given above, representing the value of exports of British-made motor cycles and parts during the two complete months of the war. We have been told that our Overseas trade would be paralysed owing to the risks and difficulties in regard to shipping, but so far, at any rate, our exports have not been materially affected. The figures are down, of course, but not nearly so much as might have been expected. Last year during August and September we exported motor cycles and parts to the value of £146,218, so that this year's figures for the corresponding period represent a decrease of only £5,222, which amount, it must be admitted, is remarkable for a country in a state of war, and it is a further testimony to the efficiency of the British Navy.

Imports have been a good deal more affected, but nevertheless Great Britain was able to take foreign motor cycles and parts to the value of £15,855 during the two complete months of the war, of which £6,278 represents September.

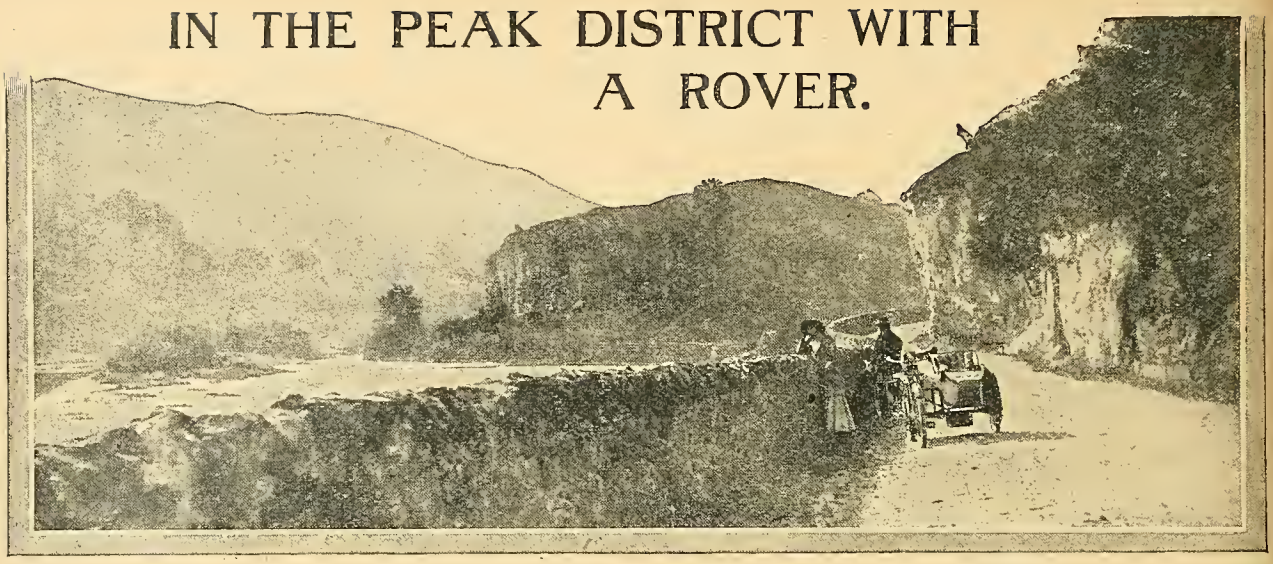
But everything points to more normal conditions being attained. The country is rapidly recovering from the shock of the war, trade in all directions is reviving as people become accustomed to war conditions, and, with the termination of the Moratorium, money is being spent more freely. Factories in most cases are in full swing, some are working all night on Government orders, and, in short, our readers in out-of-the-way corners and Overseas dominions would, we are confident, be agreeably surprised to see with their own eyes the state of activity in the motor cycle world in England. 1915 models are well in hand (indeed, the pages of *The Motor Cycle* with descriptions and illustrations are proof of that fact), and though in some cases a certain amount of delay has been occasioned by the war, it is expected that the majority of makers will have definitely fixed their plans within the next month, and be in a position to make their usual announcement respecting new designs at Show time. As there is to be no Show this year, our annual Buyers' Guide, to be published on November 19th, will fill the breach.

The Control Question.

OUR crusade for the standardisation of controls is progressing. The necessity of this is admitted on practically all sides—it could hardly be otherwise—but there are certainly some difficulties in the way, for at present some riders prefer their levers to open outwards, and some in the reverse direction; some prefer the brake to be operated by the right foot, others would rather use the left, and the two-footed brake certainly has great advantages. Again, some brakes are worked by the heel and some by the toe. In the matter of clutches, too, there is diversity of opinion, but the handle-bar control is gradually gaining adherents, while on some few machines control can be exercised by both hand and foot, as may be most convenient at the moment.

We print in our correspondence columns some letters on this important subject, one being especially interesting, as it points out that the Engineering Standards Committee have a sub-committee at work on the question of standardisation of controls of motor cars, and from this it is but a short step to similar agreement in the matter of motor cycles; in fact, on the whole the motor cycle question is the simpler of the two. Of course, any universal rule on the subject must mean a certain amount of trouble for the minority, but this cannot well be helped, and the advantages certainly outweigh any inconvenience caused to individuals.

IN THE PEAK DISTRICT WITH A ROVER.



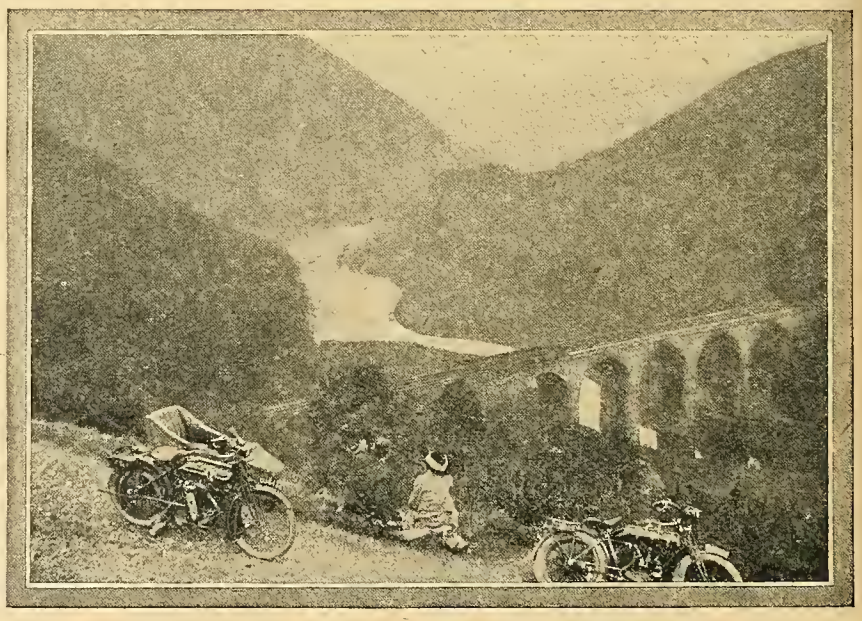
WE wonder how many motor cyclists who regularly tour abroad have penetrated into the regions of the Peak District? Whenever it is our pleasure to journey that way we are always constrained to remark upon the grandeur of the scenery, and the beautiful effect of hills and dales in that district. It was the writer's privilege only a few weeks ago to journey to the South of France by road, and he does not hesitate to state emphatically that for the first three hundred miles there was no scenery encountered which could compare for one moment with that which can be enjoyed at home.

During the last few weeks we have had the good fortune to have a 3½ h.p. Rover sidecar outfit placed at our disposal for the purpose of an extended trial, and a holiday approaching, the machine was used for a short tour among the hills and dales of the High Peak District of Derbyshire, in company with a camera. The Rover placed at our disposal drew forth praise at the outset, for with the thoroughness characteristic of the Rover company, the machine was equipped in every detail, complete with lamp, horn, and all tools, and even possessed a spring carrier for a touring valise, and another carrier under the sidecar axle for the transport of a two-gallon tin of petrol. Here was a good start, at any rate.

Having occasion to visit the Midlands before proceeding to our headquarters in the Peak District, we renewed our acquaintance with the fine Fosseway to Newark, then branched to the left over the Trent, leaving the ruins of the castle to our left towards Mansfield and Chesterfield. Despite the prevalence of a fairly strong head wind, the Rover got along very well, though it seemed rather too highly geared on top in view of the elements, and showed signs of slight overheating from time to time. It is a curious thing that both a low and high gear can produce overheating, and, if anything, an engine which is overgeared, or, in other words, overloaded, will heat up quicker than if geared on the low side. The machine, however, ran with the regularity of a train, and we reached our journey's end well satisfied with the first impressions of the Rover outfit on the road.

Excellent Brakes a Feature of the Rover.

For a week the machine was used as a hack in visiting the different dales and notable spots in the High Peak, the Rover always responding to our beck and call, and requiring the minimum amount of attention. We need not dwell upon the ordinary runs referred to, for the camera will testify to the beauty of the points



MONSAL DALE, A WELL KNOWN VIEW IN THE PEAK DISTRICT
The machines are a 3½ h.p. Rover sidecar outfit and a 2¾ h.p. Humber.

In the Peak District with a Rover.—

visited. One morning we spent at Monsal Dale and Littonslack watching the antics of a friend attempting to get his lightweight up the 1 in 4 gradient which had caused such a high percentage of failures in the A.C.U. Six Days Trials. Littonslack is a most deceptive gradient; indeed, it is only possible to get a true idea of its steepness when a machine has got to the summit, and it is desired to get it to the bottom again. It needs the finest of brakes to hold any machine on such a slope, and there is no doubt that the descent is more of a task than a clean ascent on a machine of the go-anywhere type.

In this connection, a word as to the Rover brakes may not be out of place, for they were most powerful in action, and did not require adjustment on any occasion. The foot brake is interconnected with a band brake on the sidecar wheel, and has a compensating action, and, contrary to general expectation, the steering was not affected when the sidecar brake was applied either with or without the front rim brake.

Minor but Important Details.

The Rover regularly covered 65 m.p.g. with its B. and B. carburetter, which must be considered extremely good, and while on the subject of carburation, it may be recorded to the credit of this machine that the handle-bar levers will remain where they are put, and not jolt open or closed, which is an all too common occurrence with standardised handle-bar levers on even the best of modern mounts. The detail work generally calls for admiration, and the large glass-topped filler caps serve their purpose excellently, and are a most useful guide to the amount of fuel remaining in the tanks.

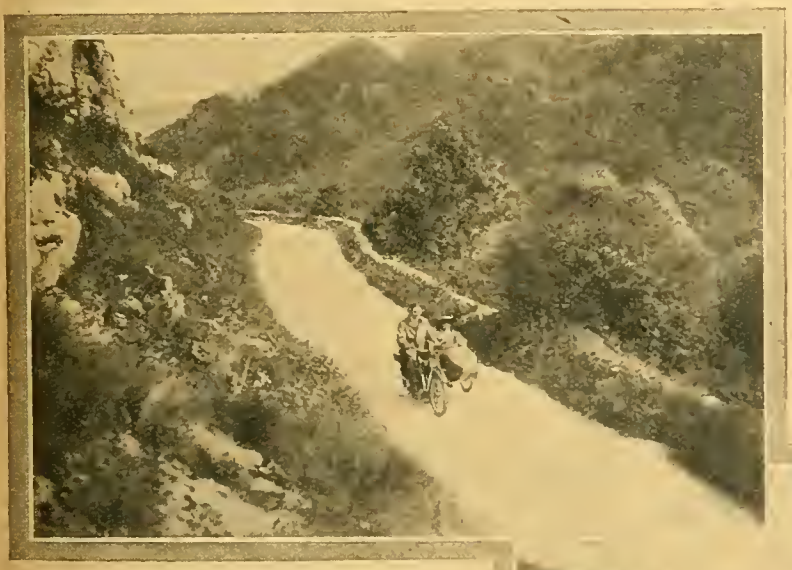
The silence of the cam and valve gear on the Rover has more than once been referred to in these pages, but as it is such an excellent feature, which unfortunately cannot be applied to every leading make, we feel that this is a point on which the Rover cannot have sufficient credit.

The admirably efficient method in which the designers have silenced the exhaust gases without creating undue back pressure, combined with the cam and valve gear already alluded to, render the 3½ h.p. Rover one of the most conspicuously silent machines on the market, and as such is bound to find favour with a large section.

Slogging against the Wind.

Perhaps the finest performance of the Rover was a hundred mile journey mostly covered after 4 p.m. First starting from Bakewell along the Leek Road in an opposite direction to home, we called at Chelmorton, near Buxton, which village is reported to possess not only one of the most lofty but one of the oldest churches in England, and a very fine relic it is. Here we were 1,200 feet up. We headed for home at 4 p.m. with a howling gale blowing over the moors, consequently the middle and low gears were frequently called upon. After plodding along against wind and gradient, the engine began to show signs of feebleness, and a halt for inspection revealed the fact that the exhaust valve had lengthened and destroyed the compression in the engine. It was the work of a few moments to adjust the tappet to give a clearance of the thickness of a visiting card, and so restore the pristine vim. We were heading for Taddington, on the main Buxton-Derby road, as the most direct route to Coventry. At Taddington there is a two-mile drop towards Bakewell, and it was only necessary to apply the brakes judiciously on the corners to check the speed in a silent swoop down this noted hill. The wind, too, now favoured our course, and consequently an excellent average was maintained.

We passed through Matlock about five o'clock, and such progress did we make that it was not necessary to light up until we got to Ashby-de-la-Zouch, only thirty-three miles from our journey's end, but lighting up was easier said than done, as the brand new tail



Views in Millers Dale, near Litton Mills.

In the Peak District with a Rover.—

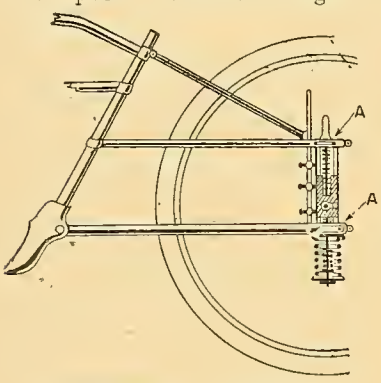
lamp burner was found to be choked and nothing in our possession was fine enough to clear the stoppage, nor could one or two motor cyclists whom we encountered help us. Moral, carry a piece of fine wire. We thought of removing the burner altogether and turning the generator on more, but the flame which occasionally shot out of the lamp gave cause for alarm, so there was nothing for it but to risk being stopped by the police, but we were in luck's way, for we managed to complete the last stage of the journey and escape the vigilance of the law.

Throughout the run the machine had given no trouble, the Dunlop tyres and belt sharing in the general excellence of the turn-out by calling for no attention whatever. But for the necessity to adjust the tappets the toolbag and its contents might have been left at home. G.S.

A view from Taddington Moor.

A Rear-sprung Mount.

THE accompanying illustration shows the construction of a motor cycle frame adapted to employ one form of the Palmer patent rear suspension. The patent shock absorbers are slid into special fork-ended lugs A A, and are adjustable backwards and forwards. The horizontal rear stays (upper and lower) are joined together towards the rear, and just short of the slots in the lugs A by straight upright members. There are three adjusting set screws passing through reinforcements at intervals on the upright connecting members, and these impinge upon the slide rod of the absorber mechanism, providing the possibility of firmly fixing the absorbers at any desired point of their backward or forward adjustable movement in the lugs A. The full force of all road shocks is dealt with by three independent coil springs on either side of the rear wheel. One of the lower springs is a large diameter strong coil from 3½in. to 5in. long, while within it and closely encircling the downward extension of the central steel slide rod is a short length of spring, which is independently adjustable upwards or downwards upon this rod. This last spring comes into action only in cases where the shocks are of such intensity as to compress the upper and lower main springs to a previously determined point.

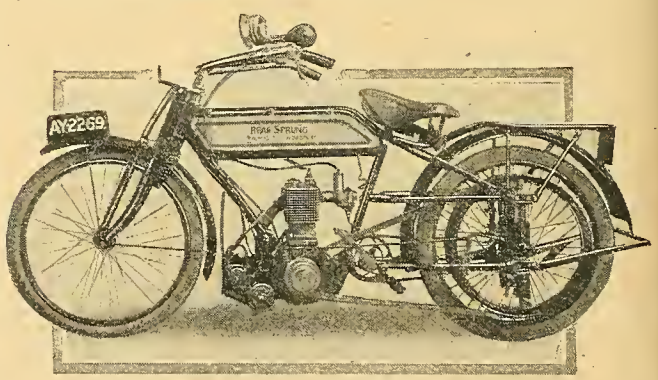


Diagrammatic sketch of Palmer rear suspension.

It will be seen, therefore, that the shock-resisting power of the springs in this type of suspension is automatically reinforced as called for by the conditions of surface traversed, and also that sufficiently resilient springs for comfort when negotiating normal surfaces are not, as in many cases, too weak, when bad potholes and exceptionally rough roads are being encountered. There is claimed to be no side play or sense of lack of rigidity sideways, and that the life of the rear tyre with this suspension is greatly prolonged.

A rider who uses this suspension on the rough roads of Holland confesses that he would have been compelled for physical reasons to have abandoned the motor cycle as a means of travel entirely had he not fitted to his 2¾ h.p. machine this cushioning device.

The suspension can be supplied in bracket form capable of being fitted to existing machines or embodied in machines of standard design. The patentee hopes that this springing device will be taken up by makers of rigid frame machines.



A rear-sprung motor cycle described on this page.

THE VALUE OF THE MOTOR CYCLIST IN WAR.

We continue to receive excellent news concerning the motor cycle despatch riders serving with the Expeditionary Force. A daily paper, which at the beginning of the motor cycle movement was hostile to the pastime, has now published a photograph of a group of motor cycle scouts with the superscription, "An effective arm of the Service."

By appointment to *H.M. King George V.*

War service

corroborates the wonderful wear-resisting qualities of Dunlop motor-cycle tyres.

Albany Road Hospital, Cardiff.
September 23rd, 1914.

"I should like to say how much I appreciated Dunlop tyres out in Belgium and France. I am a motor-cycle despatch rider, and was one of the first to go to the front. I covered well over 2,000 miles in three weeks and only had one puncture. The roads in Belgium were some of the most fiendish imaginable, and I frequently rode across fields of stubble and tracks of all descriptions. This shows that Dunlop tyres are the best and wear the longest, for active service is a sure test of endurance and fitness.

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(Signed) Corpl. J. K. STEVENS, R.E.

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AGENTS EVERYWHERE.

Cheap Machines often Poorly Equipped.

The other day I sampled one of the cheap lightweights, as delivered to a customer. A few miles out the back tyre deflated, and I made the pleasing discovery that this model is not provided with either a tyre pump or tyre repair outfit, whilst the tool equipment is exceedingly meagre. For example, it does not contain a pair of pliers, and as the locknut of the tyre valve had been tightly screwed up, and was half jammed against the belt rim, I had to knock it round with a screwdriver and spanner.

Engine Repairs.

Switching off delivery tune for the moment, I desire to call the attention of departmental managers to the need of reform in many repair shops. I shall not fill my column with a lot of evidence unless I am pressed to do so, but my information proves that the system in vogue at many factories is as crude as one could imagine. Here are two recent cases: an engine was returned because the owner was troubled with intermittent noises; it came back with the trouble untraced and uncured, but flanked by an imposing bill. I found that a roller in an engine bearing was damaged, and that the factory had merely sent the machine out with a tester, who reported that he could trace no noise, but had ground in the valves and devoted some minor attention to the magneto. The correct system would surely have been to write the owner, informing him that a tester could not perceive the alleged noise, and that a certain fee would be charged if the owner was so positive that he desired the engine to be taken down. In another case, a piston was smashed. The repair shop fitted a new piston, but never inspected the cylinder, which had been badly scored by the gudgeon pin. In both cases the owner has to send his machine on a second journey of some length at considerable expense. In some of the cases brought to my notice, the personal factor has obviously been to blame. An inefficient mechanic has somehow or other wormed his way into a responsible position, and the firm suffers for his faults and their own slowness in testing their men. If I managed a repair shop and I had to place a new hand in a responsible position, I should take very good care that his first tricky job was thoroughly supervised "unbeknownst" to himself. In other cases the system is faulty. Wherever an owner complains of engine trouble, the entire engine should be dismantled by a trustworthy man, for trouble in one detail of the engine is so apt to affect other details, such an engine should not leave the engine shop till it has been submitted to a short bench test. In other words, the average running shed is a very casual and irregular sort of department. At one and the same time, experimental machines, competition machines, directors' machines, brand new machines for urgent delivery, and old machines of countless different dates and types are undergoing a variety of repairs, tests, and adjustments. A machine sent for repair after 10,000 miles by a customer residing a hundred miles away requires more than a casual inspection and ten-mile trip in the hands of one of the testers. Its engine should invariably be removed, sent through the engine shop, and be passed by the head of the engine repair room before the machine is returned to its owner. I cannot emphasise these points too strongly. On two occasions I let myself be coaxed into returning my machine to the factory before an important competition; and in both cases it came back in a condition far inferior to that in which it had quitted my own shed, and very considerably inferior to the "tune" which I could have produced by a day's hard work on my own.

A Rudge Refinement.

I have long been watching for some small invention which should raise the Rudge-Multi gear to the hill-climbing level of such gears as provide a 13 to 1 bottom ratio in emergencies. The Zenith people have already dodged the hoodoo of infinitely variable pulley designs by mounting their gear as a countershaft, which drops their emergency ratio from 7 to 12 at a step. On page 310 of our issue of September 3rd we printed details of a new Rudge patent which appears to me "the goods." A very simple epicyclic reducing gear is embodied in the hub shell, the crankshaft multi pulley and variable belt rim being retained. This gear is plainly better than a design limited to three arbitrary ratios. To begin with, the usual series of ratios, all direct and practically frictionless drives, are retained without employing the epicyclic hub, and the series range from, say, 3½ to 7. When a precipitous hill is encountered, a second infinitely variable series is switched into operation by the use of the epicyclic hub, and if this hub affords a reduction of 50%, the secondary series would range from 7 to 14 to 1. The design has extraordinary merits, as follows:

1. Any gear between 3½ and 14 to 1 is instantly obtainable without a stoppage.
2. On the emergency ratios of 12, 13, and 14 the friction of only a single epicyclic train is encountered.
3. The hub is extremely simple.
4. The intermediate ratio of 7 to 1 is direct, instead of indirect as on the three-speed hub.
5. If the expanding pulley should become deranged, a 50% reduction low gear is still available.

I am vastly in love with the design, and my only wonder is that so shrewd a factory should have been so long in finding a solution. Methinks the Rudge and Zenith must now be seriously reckoned with in the forthcoming battle between opposing gear designs. I hope the new patent will figure on the 1915 Rudge-Multi models, but I received no encouragement in response to a query I made.

NOISY MOTOR CYCLES.

Another Point of View.

THE article by "Engineer" on the silence of motor cycles in the issue of October 1st was particularly interesting, and has doubtless been appreciated by that vast majority of motor cyclists who prefer a comparatively silent machine. While the end he has in view is both desirable and necessary, the means "Engineer" suggests to attain this end are largely open to criticism.

The question of silencing the exhaust has received the closest attention of present day manufacturers, and, as a result of their efforts, the motor cycle of to-day is silent enough compatible with safety.

The practice, which appears to be almost universal, of a long exhaust pipe leading from a large expansion chamber, seems to be satisfactory, although a greater degree of silence might be gained if the exhaust gases were diffused more gradually.

Valve clatter seems to be a fault which has not had the same consideration at the hands of manufacturers. Larger valves and smaller valve lift certainly are worth consideration, but the suggestion of fibre topped tappets is certainly open to criticism. Owing to quick wear, they would need continual adjustment, and it must not be overlooked that the manufacturer has to cater for all classes—the average motor cyclist could not pretend to be continually adjusting the valves of his machine. It seems that the question is one of the actual composition of the steel used for tappets, and this seems to be proved by the comparative silence of the valve gear of certain machines.

The adoption of the completely enclosed mechanically-operated overhead inlet valve, with its numerous other advantages, is to be recommended.

The subject of transmission is indeed a vexed one, and there is no need to reiterate the old arguments in favour of either belt or chain drive. What is much more convincing is that for all high-class passenger machines, almost without exception, chain drive throughout has been adopted, and at the same time a silent transmission has been evolved, especially in the case of all enclosed chain drives. Whether shaft or chain drives will become universal is a matter which is open to question, but in either case hub gears will not find favour.

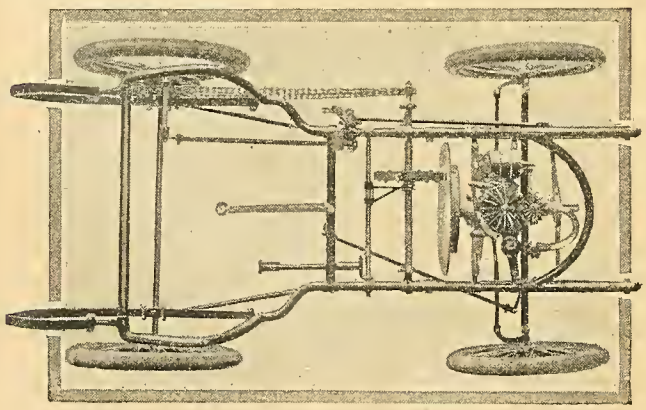
Back wheel accessibility is a serious consideration, and it is doubtful if any lessening of noise caused by the adoption of hub gears would compensate for an inaccessible back wheel. A counter-shaft gear box with accurately cut gears can be made almost silent, and, in conjunction with a silent chain from engine to counter-shaft with a shock-absorber of the Sunbeam type and a chain of generous dimensions as the final drive all totally enclosed, would form a practically silent transmission. At the same time, the back wheel would be as accessible as it is possible to be, and the distribution of weight would be more correct.

The ingenious shock-absorbers fitted to the majority of chain drivers impart a velvety softness to the chain drive, making it almost as supple a drive as the belt, and at the same time rendering a separate counter-shaft clutch unnecessary.

While much remains to be done in the evolution of the ideal passenger machine, there are several machines made, such as the Matchless, Scott, Sunbeam, Indian, and Enfield, all of which are silent enough in all conscience, and prove that to obtain a silent machine it is unnecessary to resort to undurable tappets and hub gears with separate counter-shaft clutches and the unreliable belt drive. W.S.

Cycle Cars of the Past.

IF any further proof were needed of the fact that the cycle car was one of the earliest motor conveyances instead of quite a late development a reference to a few ancient catalogues would convince the most hardened sceptic. For instance, we have a copy of the Maurer-Union catalogue for vehicles made twelve years ago. It illustrates, among the many types, a two-seater, the chassis weight of which was just 3½ cwt. A 3 h.p. single-cylinder air-cooled engine was carried in the front of a tubular frame, and drove a counter-shaft through friction gearing in the usual manner. The final drive was by a single chain to one rear wheel, on which the brake was mounted. Steering was direct, either by wheel or lever, and the friction wheel was moved laterally to change the gear ratios by means of a fork mounted on a screwed shaft behind the counter-shaft. It is interesting to note that a low-tension magneto was used, and pneumatic tyres and wire wheels were fitted all round, while one slightly larger vehicle (a 4 h.p. water-cooled model) is illustrated with a spare wheel complete. Thus we find in this old machine an intelligent anticipation of events. This, of course, is only one of a number of vehicles made many years ago, from the earliest 3½ h.p. Benz and the 4½ h.p. De Dion *vis-à-vis*, all of which would come nowadays under the A.C.U. definition of a cycle car. Despite their rather crude design, many of these old machines gave excellent service over long periods.



A simple cycle car made at Nuremberg twelve years ago.

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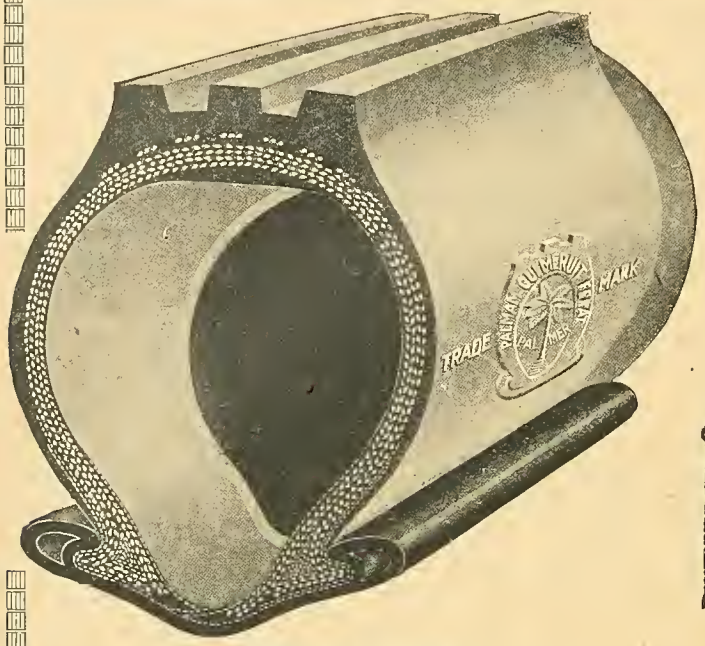

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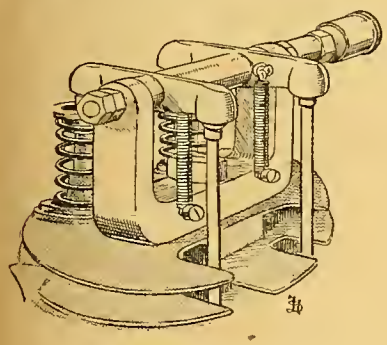
LATEST DESIGNS.

Advance Descriptions and Illustrations of 1915 Model Motor Cycles and Accessories.

SINGLE-CYLINDER RACING IVY.

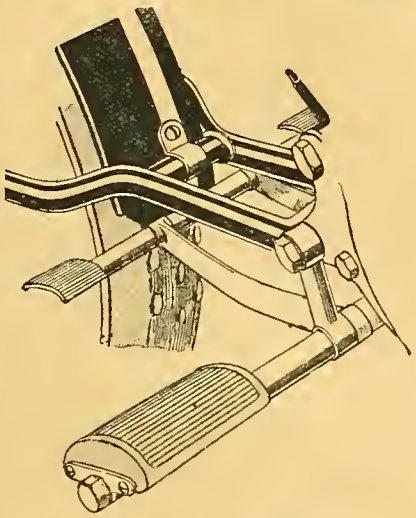
A RECENT visit to the works of Mr. S. A. Newman, the maker of the Ivy, proved of great interest. Howard Newman, who is so well known to all keen motor cyclists, both on Brooklands and in competition work, is serving his country in France.

First of all we inspected the mount which Newman was to have ridden in the Grand Prix, and though this is not to be a standard model, it is such a perfect little racing machine that a few words on the subject may prove interesting.



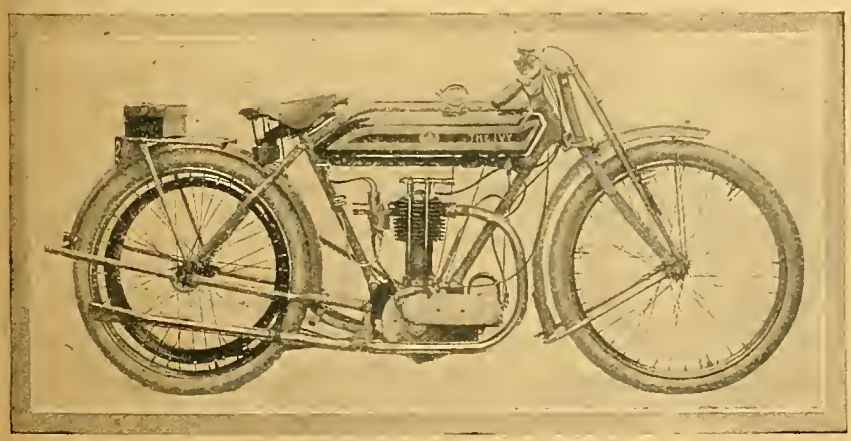
Overhead valve gear and greaser on the Precision racing engine.

The engine is a 2¾ h.p. overhead valve Precision, with a bore and stroke of 70 × 90 mm. respectively. The radiating ribs are deep and well arranged, and the rockers are mounted on a spindle through which grease can be forced from a large greaser at one end, so as to minimise wear and rattle.



Double heel brake on the Grand Prix Ivy.

The Brampton variable pulley gear is employed with a direct belt drive. Ivy spring forks are, of course, fitted, and the neat general lines can best be judged from our illustration. Both tank filler caps are 2½in. inside diameter, and oil is fed through a drip feed tap. The rear brake is exceptionally powerful and is operated by a double heel pedal in such a manner that all the rider's weight may be thrown on it at a moment's notice if necessary.

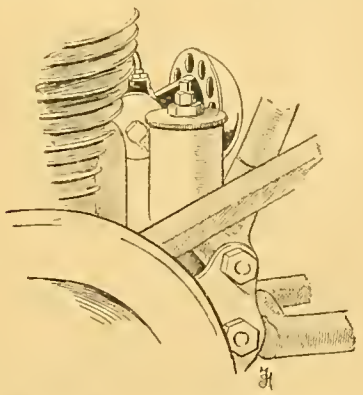


The single-cylinder Ivy racer which Howard Newman was to have ridden in the Grand Prix Race.

STANDARD TWO-STROKE IVY FOR 1915.

Enquiries about the two-stroke led to an offer of the new modèle de luxe on trial, and it was not long before we were astride one of these comfortable little machines. By the way, the Ivy two-stroke is made entirely in the Ivy works, two sizes of engine being manufactured, one of 70 × 70 mm., and one of 64 × 70 mm. It was the smaller of these two that was fitted in the machine we had on trial, but in spite of the fact that it was single geared (4⅞ to 1) and thoroughly equipped, it was capable of taking a rider over any average road.

The fittings are wonderfully complete, and the 26×2¼ tyres and large pan saddle are a luxury to which one is seldom treated on a light machine. Besides this, two stands, excellent mudguards, pannier tool-bags, and a large petrol tank make the Ivy de luxe one of the most sensible lightweights we have ever handled. The riding position is excellent, and the engine flexible and so easily handled

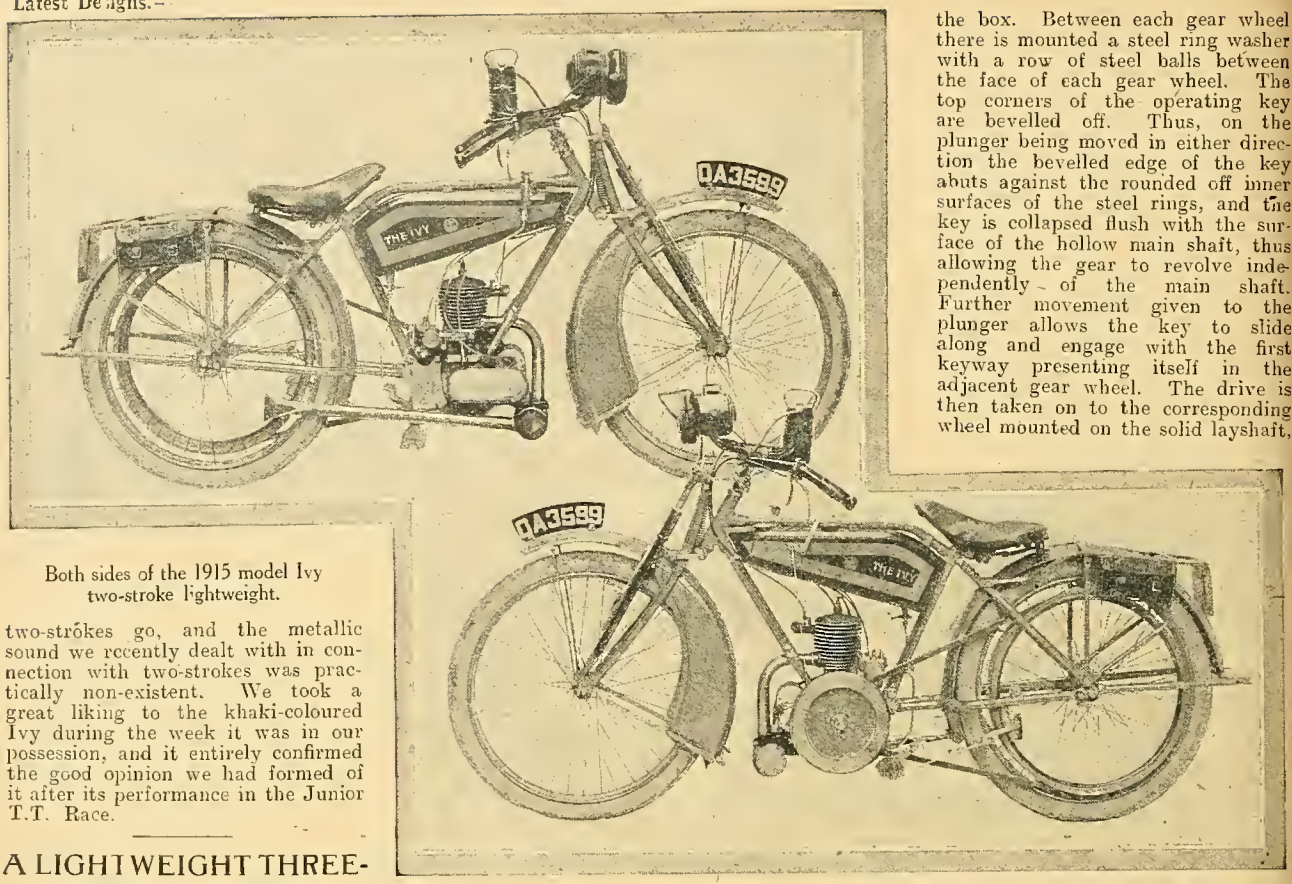


Neat carburetter position and air intake on the Ivy two-stroke.

that we felt at home on it in a minute, even in thick Birmingham traffic. The Bull Ring was proved much too easy a test, and on the road to Coventry, Meriden Hill was taken at a speed which it may be better not to mention. Comfort, power, flexibility, and neat appearance are all special features of this little machine, which may be fitted with a two-speed counter-shaft and three-speed hub gear, in which case the machine would be capable and comfortable for long touring in almost any district.

The maker of the Ivy has not made the mistake of adopting flimsy and toy-like parts on his machine; instead, it is built to stand hard wear. It is very silent as

Latest Designs.—



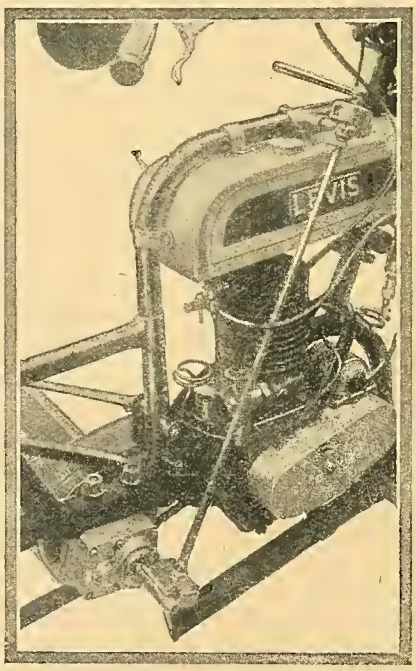
Both sides of the 1915 model Ivy two-stroke lightweight.

two-strokes go, and the metallic sound we recently dealt with in connection with two-strokes was practically non-existent. We took a great liking to the khaki-coloured Ivy during the week it was in our possession, and it entirely confirmed the good opinion we had formed of it after its performance in the Junior T.T. Race.

A LIGHTWEIGHT THREE-SPEED GEAR.

A TINY three-speed counter-shaft gear, which rather suggests the possibilities of the folding pocket motor bicycle, was shown to us last week, fitted to a Levis. The dimensions of this miniature gear box are 2½in. deep × 3⅜in. broad, and it weighs but 7¾ lb. all complete with its operating mechanism and 6in. driving pulley.

This new gear has been tested by the Levis Co., and is recommended by that firm for attachment to existing machines of their manufacture. It will fit all Levis frames since 1912 without structural alteration, and it can be adapted to the counter-shaft of most other lightweights by the use of an adapter plate. The gear is manufactured by Messrs. Jonah Banks and Sons, London Works, Willenhall, and is designed for chain-cum-belt transmission. No dog clutches are used, and the wheels are always in mesh. The gear change is effected by a steel collapsible key carried in a plunger, which is capable of being traversed along the hollow main-shaft by means of a rod housed in an extension of the gear box. As this key registers with one of the three keyways cut in each of the three gear wheels, it is forced outward by the action of a spring, and that gear wheel is locked to the driving-shaft. The sprocket and driving pulley are mounted side by side on the hollow shaft, which has a solid extension at one end of smaller diameter. On this latter portion the sprocket is mounted, the belt pulley being fixed to a hollow shaft which is solid with the first gear in the box. Between each gear wheel there is mounted a steel ring washer with a row of steel balls between the face of each gear wheel. The top corners of the operating key are bevelled off. Thus, on the plunger being moved in either direction the bevelled edge of the key abuts against the rounded off inner surfaces of the steel rings, and the key is collapsed flush with the surface of the hollow main shaft, thus allowing the gear to revolve independently of the main shaft. Further movement given to the plunger allows the key to slide along and engage with the first keyway presenting itself in the adjacent gear wheel. The drive is then taken on to the corresponding wheel mounted on the solid layshaft, and conveyed in the usual manner to the main driving gear which carries the belt pulley. The ratios provided are 6, 9, and 12 to 1, and a clutch may be fitted if desired.



A tiny three-speed gear fitted to the bottom bracket of an open frame Levis. This new gear is made by Jonah Banks and Sons, and is described on this page.

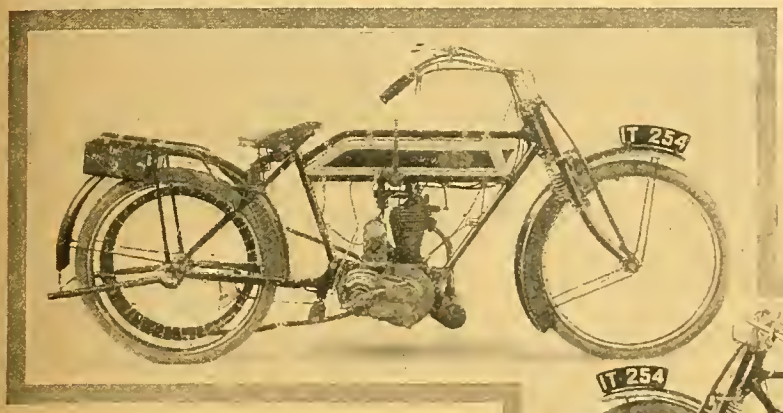
We tried the gear on a two-stroke Levis machine, and found that it was possible to change up and down without hesitation, and without even touching the throttle or valve lifter. Mr. Faville, who demonstrated the gear on behalf of Messrs. Jonah Banks and Sons, went so far as to make a standing start by moving the gear into the first position with the engine roaring round. This sort of treatment is not to be recommended, as something or other is bound to go sooner or later, but it shows the confidence the makers have in their product. A slight humming noise emanated from the wheels on the two lowest gears, but it seemed capable of withstanding really rough usage. The change is effected by a lever with a lateral movement, but future gears will have the more orthodox backward and forward movement.

NEW J.H. MODELS.

WE illustrate on next page two interesting lightweight machines called the J.H., which are being introduced by Mr. James Howarth (formerly manager of the Bradbury Company), at the J.H. Motor Engineering Works, Oldham. The general details of the machines are very similar: both are fitted with B. and B. carburetters, Dunlop belts, Dunlop or Palmer

Latest Designs.—

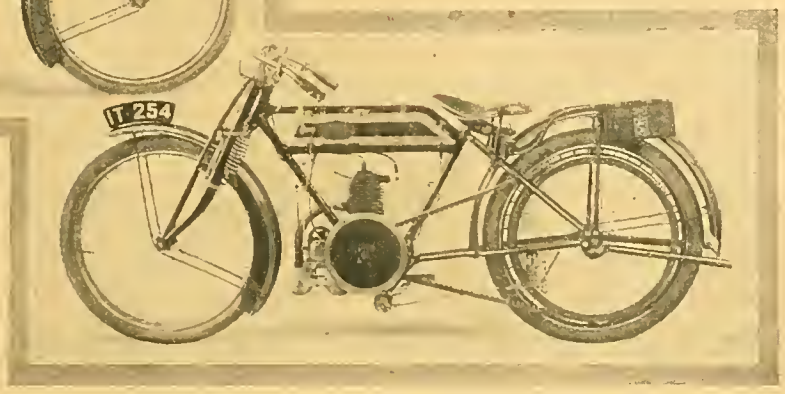
tyres of 2in. section on 26in. wheels. Respecting the engines, No. 1 is fitted with the Villiers 2¾ h.p. power unit, comprising a four-stroke engine, 74½×80 mm. bore and stroke, 349 c.c., and a change speed gear carried in an extension of the crank case, giving ratios of 5¼ and 10¼ to 1, the gear wheels being always in mesh, and provided with a friction clutch of the cone type on both speeds, operated by a Bowden wire from the handle-bar. The gear lever is carried in a convenient position to the right hand side of the tank. With the exception of the driving pulley the whole mechanism is enclosed in an aluminium case, through which there is a complete circulation of oil. The transmission is by silent chain to the two-speed gear and thence by a ¾in. belt. The price of this model is forty-four guineas.



The 2¾ h.p. J.H., showing gear control lever and clutch-operating pedal.

Our second illustration shows the 2½ h.p. two-stroke model, which sells at twenty-eight guineas; the engine is the well-known Villiers two-stroke, 70 × 70 mm. bore and stroke, 269 c.c., and is provided with a double silencer, rendering it comparatively silent. The lubrication is on the "petroil" system, and the magneto, a U.H., driven by an enclosed chain. The tanks hold about 1¼ gallons of petrol and two pints of oil. It is claimed that this machine can be driven at a walking pace up to 35 or 40 m.p.h.

Mr. Howarth caters for all tastes, and other models are fitted with 6 and 8 h.p. J.A.P. and 6 h.p. M.A.G. engines and three-speed gears. They are listed at seventy and seventy-two guineas, and are well suited for sidecar work.

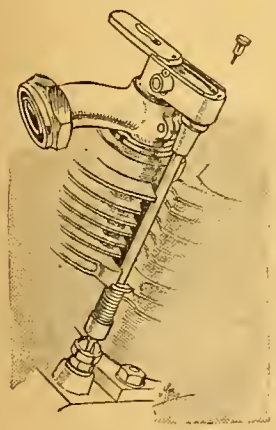


Belt side of the new 2½ h.p. J.H. two-stroke model.

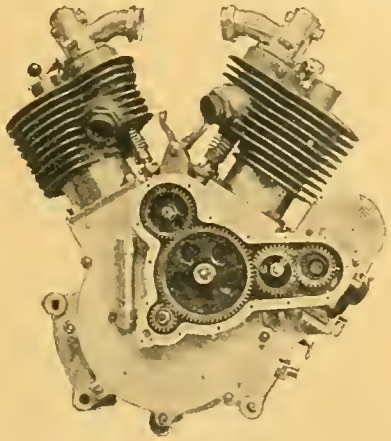
1915 BROWN MOTOR CYCLES.

A NEW 4 h.p. TWIN AND A NEAT TWO-STROKE LIGHTWEIGHT.

WE recently had an opportunity of inspecting two new models which Messrs. Brown Brothers are introducing for 1915. The larger machine is fitted with a beautifully made V-twin engine of 3½-4 h.p. As the bore and stroke respectively are 63 × 83 mm., the engine comes just outside the 500 c.c. class, being actually 518 c.c. It is, however, powerful enough for sidecar work. The chief features are the neat scissors type of exhaust lifter, and the excellently designed overhead inlet valves, the rockers of which work in a dustproof case, which may be filled with oil. The accompanying sketches clearly show the admirable way in which this piece of design has been carried out, and the close fitting slides which exclude the dust. The chamber in which the spring works has a large "window" cut in it, and sufficient air is admitted to ensure the adequate cooling of the spring. Well-designed adjustable tappets are fitted. The illustration of the timing gear shows that the magneto is driven by eccentric wheels, which have the effect of causing a very sudden break immediately after the maximum position has been obtained, thus causing a powerful and brilliant spark.



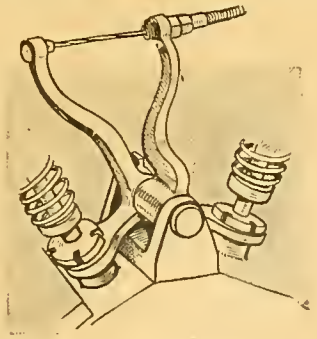
Enclosed inlet valve on the Brown. The screw shown is for securing the dust-tight cover.



The engine of the new 3½-4 h.p. Brown.

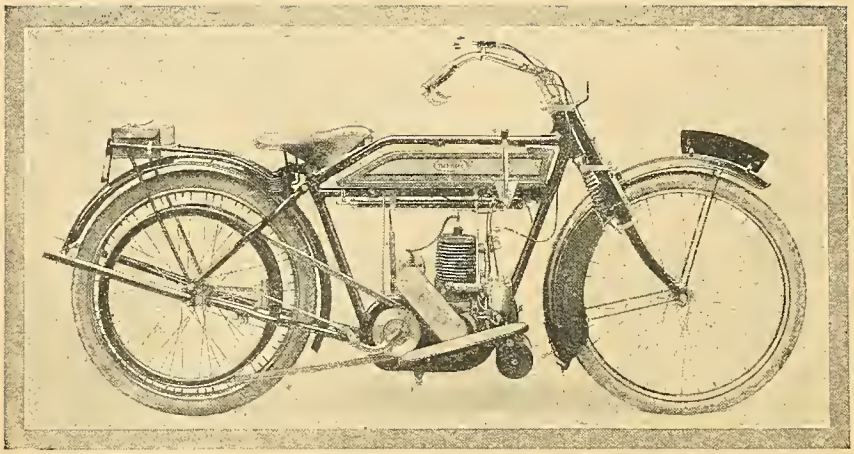
An Entirely New Model.

Quite an innovation for Messrs. Brown Bros. is the introduction of a 2¼ h.p. two-stroke motor cycle, which is to be known in future as the Vindec, and is, of course,



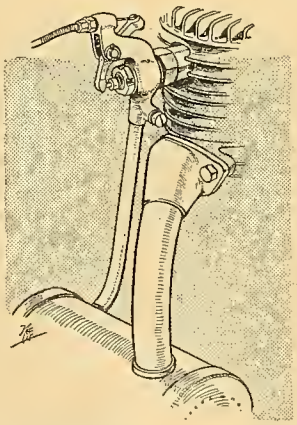
Scissors type exhaust lifter on the 3½-4 h.p. twin Brown.

Latest Designs.—



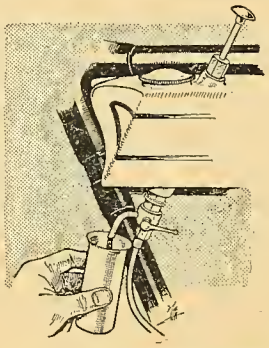
Belt side of the new Vindec two-stroke.

very different from the Vindec Special, which older readers of *The Motor Cycle* will remember. Its motive power is a two-stroke engine 64 × 70 mm. of 226 c.c., the transfer port of which is cast integrally with the cylinder. A large outside steel flywheel is fitted. The release valve exhausts directly into the silencer, a point which is most essential, as these valves are often objectionably noisy; not only so, but oil is sprayed out and gives the machine an untidy appearance. The lubrication is carried out in an interesting manner. The general lubrication of the engine is effected by means of the ordinary mixed or "petroil" system, the measure for the oil being carried inside the filler cap of the petrol tank. Close to the two-way tap of the hand pump is a spout which, when the tap is placed in the correct direction, allows the oil to fill the measure. The tap, when placed in the other direction, injects oil directly from the oil tank to a



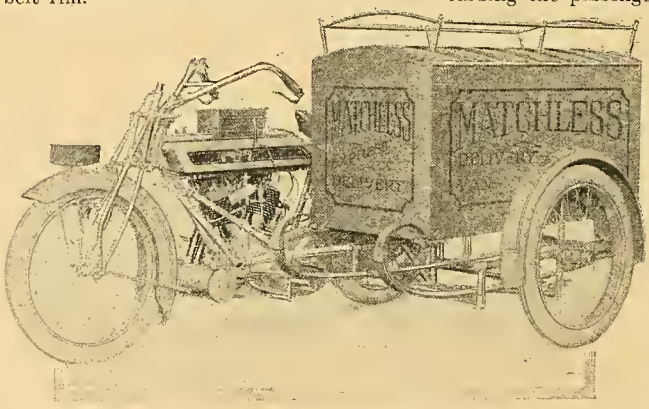
Hand control for compression release, which exhausts into the silencer.

ring running round the top of the crank case, which is in direct communication with the main bearings of the engine. A type of two-speed gear which has long been proved to be effective is fitted. It is of the dog clutch pattern, and the transmission is by chains in oil-tight cases on each side of the crank case, one for the high and the other for the low gear. From counter-shaft to rear wheel the transmission is by a ¾in. rubber belt. It is interesting to note that spring footboards are fitted. The specification in-



How the oil measure is filled.

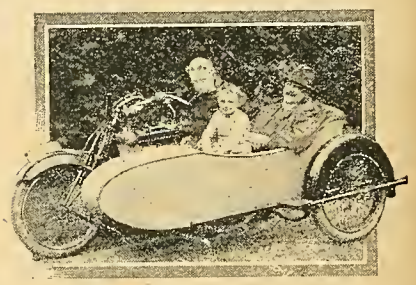
cludes 26in. × 2in. Dunlop tyres, Senspray carburetter, C.A.V. magneto, Druid forks, and Lycett saddle. The mudguarding of the front wheel is well carried out, the guard being provided with valances, while the rear guard is of wide section with an extension over the belt rim.



The Matchless sidecarrier which is propelled by a twin-cylinder engine. This sidecarrier is the latest addition to the list introduced for tradesmen's use.

THE HAMMOCK SIDECAR.

The latest Williamson sidecar is called the Hammock. It is primarily intended for one occupant, but can easily be

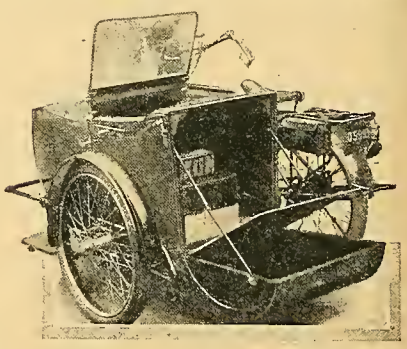


The Williamson hammock sidecar

arranged to accommodate a couple of children in addition. The child's seat is so arranged that it does not interfere with the leg room of the adult passenger, and so as to be easily removable. This sidecar is only 5 lb. heavier than the Williamson speed model, and it can be fitted to any make of machine.

A WATSONIAN SIDECAR FOR 1915.

We have often referred to the desirability of being able to get the luggage



The large boot at the rear of the latest Watsonian sidecar.

or tools stored in a sidecar without disturbing the passenger. This idea is well carried out in the Watsonian sidecar, which we illustrate herewith. The back of the car forms a boot which will hold quite a considerable quantity of luggage, or, if more room still is required, it can be let down and used as a luggage grid; it also contains compartments for small articles and places for petrol and oil tins. The chassis of this sidecar was shown in our issue for the 1st inst., and the whole should be most serviceable.

SIDECARRING FOR LADIES.

TESTS OF DIFFERENT SIDECAR OUTFITS. By May Walker.

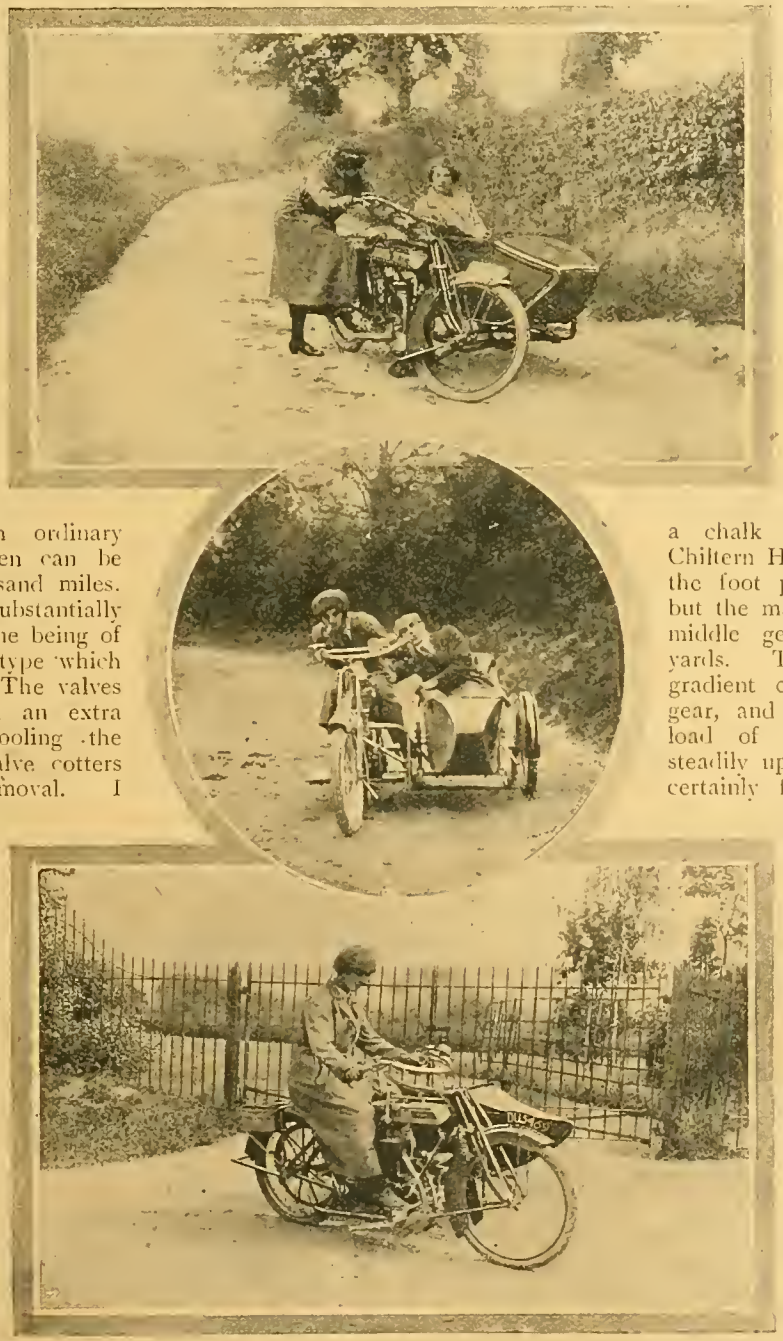
The 3½ h.p. Ariel.

IT was a brand new Ariel motor cycle and grey coachbuilt sidecar that the makers lent me for a week's trial to see what a good 1914 combination is capable of in the hands of a feminine driver. The outfit taken from its wrappings was a pleasure to the eye, the enamel and plating, together with the grey finish and upholstering of the passenger's seat, giving the impression that no trouble had been spared to create a good effect.

It was fitted with a counter-shaft three-speed gear with a big easily operated gear lever and quadrant on the side of the tank. The gear box only requires filling with ordinary gear grease and then can be forgotten for a thousand miles. The whole outfit is substantially constructed, the engine being of the low-compression type which will pull for ever. The valves are very large, and an extra flange assists in cooling the exhaust. Patent valve cotters also ensure easy removal. I filled its tank, which held eleven pints of petrol and three of oil, then, putting the gear lever in the neutral notch and opening the throttle, I started the engine with ease with the kick-starter aided by the half-compression cam.

Seating myself in the Brooks pan saddle, which was mounted on a little spring frame of its own, I brought the low gear into action, and gradually engaged the clutch, the machine with its load then moved away easily, the cork inserts of the clutch causing it to take up the drive very sweetly. The bottom gear has a ratio of 16 to 1. This makes any gradient climbable on which the wheels grip; after all, hill-climbing is only a matter of gearing if the engine does not overheat, and I found the Ariel satisfactory in this respect.

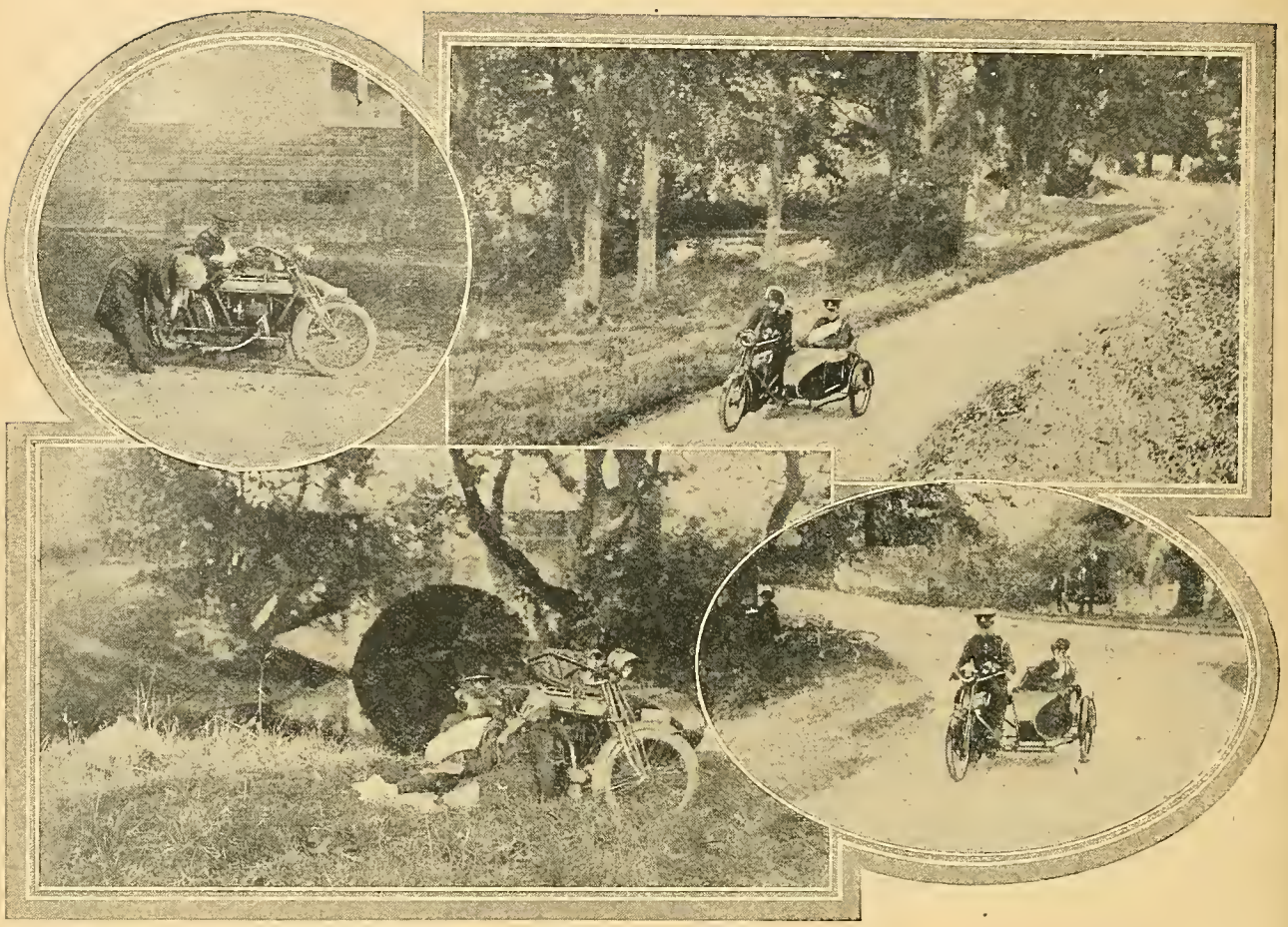
I took the combination with two passengers over many miles of Hertfordshire and the surrounding counties and through country lanes with rough and chalky surfaces and over long stretches of smooth Tarmac roads. With a hot engine I approached Whipsnade Hill, well known to all local motor cyclists; this really comprises a chalk cutting through the Chiltern Hills. A sharp turn at the foot prevents any rushing, but the machine pulled away in middle gear for a good 500 yards. Then the increasing gradient called for the lowest gear, and the machine and its load of three people soared steadily up—a most useful gear certainly for traffic and freak hills. I liked the 3½ h.p. Ariel sidecar outfit very much, it was always ready to go anywhere, do anything, and do it well.



(1) Starting the Ariel by the kick starter.
(2) At the bend on Chaul End. The machine is a 6 h.p. Hobart.
(3) The 3½ h.p. Premier and sidecar.

The 3½ h.p. Premier.

Another 3½ h.p. sidecar machine which I have had the pleasure to drive a good many miles during the last few weeks is the well-known Premier. This very machine had just returned from a trial in Holland, and, consequently, was not in the pink of condition. I made



THE SIDECAR SAMARITAN.

A pretty story told in pictures, which might appeal to the novelist or the producer of cinema simplets, showing how a lady sidecarist, adopting the suggestion of *The Motor Cycle*, takes a wounded soldier for a run in the country. Their company proves mutually agreeable, till at last the positions are reversed, and in the last picture Tommy Atkins, well again, takes Mrs. Tommy Atkins on the honeymoon.

several adjustments and then took it out on the high road to test its powers. It was capable of a good speed, but the coachbuilt sidecar seemed to be too heavily built, making rather a severe load when carrying an adult passenger, but this, I was informed, had originally been drawn by an 8 h.p. The auxiliary exhaust valve is characteristic of the Premier, helping greatly to cool the engine, allowing a long gradient to be climbed without undue heating. The counter-shaft three-speed gear was so solidly designed that it was not necessary either to declutch or lift the exhaust lever when changing gear. The large pulley, too, is "kind" to belt wear. The sidecar couplings, while strong and secure, are easily detachable, and the engine developed extraordinary power for one of 500 c.c. capacity.

The 6 h.p. Hobart.

I have also lately sampled a 6 h.p. Hobart sidecar with a J.A.P. engine. It was in design similar to several other 6 h.p. combinations on the market. The standard black and gold finish is very workmanlike, and the details are well carried out, the long and adjustable footboards giving a welcome change of position. The machine is chain-driven and is fitted with a two-speed gear having direct drive on both gears controlled by a lever on the tank. The two-speed gear is of the expanding clutch type. The harshness associated with some chain-driven machines is eliminated, as a cush drive hub is fitted and a patent slipping clutch on the engine-shaft. It is, in fact, the well-known Enfield transmission. I took it up several severe hills. In the low gear it climbed well, the engine being silent and efficient. On level roads, I found the machine would run regularly and well from six to forty-five miles an hour on top gear. It was easy to handle, and any rider who is accustomed to only a featherweight would feel no nervousness at the helm of this flexible and capable sidecar outfit.

LOST AND FOUND.

We receive many letters regarding accessories, etc., both "Lost" and "Found," which we are unable to find space for. As these particular matters are of interest to two persons only, viz., the finder and the loser, we keep a list of such articles, and all that are notified to us are inserted in this list. Should we receive a letter from the finder which corresponds to the article lost, the two persons are put into communication, but it must clearly be understood that we cannot enter into correspondence on the matter beyond this.

"SUNSTONE" for machines up to 8 h.p. A good anti-skid and unrivalled for heavy work. 26×2¼ 40/- 26×2½ 45/-

"COMBINATION"—the enduring Non-skid (steel studs and rubber bars). 26×2¼ 48/3. 26×2½ 50/-

"STONEHENGE." Same design as "Combination," but all-rubber tread. For machines up to 4 h.p. 26×2 20/9. 26×2¼ 22/6

"TRICAR" for tricars and machines up to 5-6 h.p. Rubber studs. 26×2¼ 35/- 26×3 45/-

"DRUID" for sidecars and lightweights. Hexagonal rubber studs. 26×1¾ 15/9. 26×2 17/6

Ride "The Cheapest Luxuries in Motordom."

FIT British Avon Tyres NOW if you would enjoy the non-slip, no-trouble service that has helped competitors in the principal 1914 races, hill-climbs, and reliability trials, to win both Junior "T.T.'s," 10 Cups, 45 Gold Medals, 36 firsts, etc., etc.

¶ Avons mean "more comfort for more miles, less trouble and less expense."

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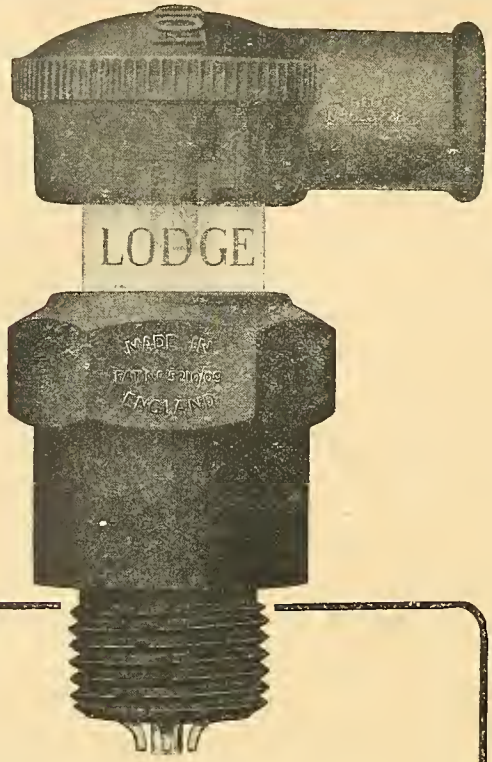

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BRITISH MADE AND BRITISH OWNED

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CHAS. L. CUTHBE & CO.,
37, Gt. Eastern Street, E.C.
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The BEST Oil for Winter use.

Motor cyclists will be unable this year to call at Olympia, and they should write for H.L. Literature, which fully describes many interesting preparations.

PRICES' COMPANY LIMITED,
BATTERSEA, LONDON, S.W

South Birmingham M.C.C.

The fourth annual captain's run, on the 3rd inst., took the form of a paperchase over a course of about twenty-five miles. A good trail was laid by the captain, J. J. Woodgate, on his 10 h.p. Singer light car, which included several watersplashes and bits of "Colonial" road. The results were as follow: 1, E. L. Edkins (6 Ivy-Jap), 3.6; 2, S. H. Fletcher (3½ Premier), 2.1; 3, W. Mansell (4 Norton sc.), 1.8. E. G. Bastock (6 Enfield sc.) and A. H. Johnston (2½ Alldays two-stroke) also made non-stop runs.

Southampton and District M.C.C.

The annual competition for the Oakley challenge shield took place early last week in the New Forest. The competition is usually very keen, and this year resulted in a dead heat between three members, one of whom was a lady. The final test took the form of a fifty-three mile non-stop trial, run at the legal limit, watches and speedometers being barred, in which all the competitors came through without a stop, the winner being E. C. Prince (3 h.p. Enfield), who completed the course within 6m. 16s. of correct time. J. Tuffin (3½ h.p. New Hudson) ran a very close second, being within 44s. of the winner. Third place fell to Miss B. Sims (6 h.p. New Hudson and sidecar).

Southern Counties Cycling Union.

The entire proceeds of the annual Bohemian concert, to be held at the Horns Assembly Rooms, Kennington, S.E., on November 18th, will be handed over to the British Red Cross Society. Hon secretary, Mr. G. A. Newton, 126, Merton Road, Wandsworth, S.W.

Coventry and Warwickshire M.C.

The closing run is to be held next Saturday to Stratford-on-Avon, meeting at the Grammar School on Warwick Road at 1.45 p.m. In connection with the run a rifle shooting competition will be held at the Shottery Range, commencing at 3 p.m. An entrance fee of 2s. will be charged, the proceeds to be devoted to the Prince of Wales's Relief Fund.

Acton and District M.C. and L.C.C.

The opening run was held on the 3rd inst., and was well attended. Dr. A. M. Low, the president (A.C. light car), led the way by a circuitous route to the Hut at Wisley, where tea was served, after which the short run home to headquarters was uneventful. A hill-climb, with separate classes for private owners, will take place shortly. The honorary secretary is Mr. E. B. Hunt, 47, Woodfield Crescent, Ealing.

Members of the Acton and District M.C.C. assembled for a run to the Hut at Wisley.

Imports and Exports of Motor Cycles.

THE import and export figures for September are more than usually interesting, for September is the first month to be affected from first to last by the war. The trade in motor cycles and parts thereof does not show anything like the decrease that might have been expected, and, in fact, they compare very favourably with other manufactured goods. The imports are naturally affected to a large extent by the fact that some foreign countries are not in a position to despatch machines. We quote from the Board of Trade returns:

Exports.

FOR THE MONTH ENDED SEPTEMBER 30TH.

1912.	1913.	1914.
£76,398	£78,504	£63,875

FOR THE NINE MONTHS ENDED SEPTEMBER 30TH.

1912.	1913.	1914.
£477,740	£729,928	£915,062

Imports.

FOR THE MONTH ENDED SEPTEMBER 30TH.

1912.	1913.	1914.
£16,539	£13,737	£6,278

FOR THE NINE MONTHS ENDED SEPTEMBER 30TH.

1912.	1913.	1914.
£131,528	£198,667	£168,009

In August last the value of imported motor cycles, together with parts, was £9,577 against £19,284 of August, 1913, and the value of the British exports £77,121 against £67,714 of the previous year.

Comparing the decrease for the month with that of motor cars, we find that exports of motor cars decreased in value £55,382 (22%), whereas the decrease in value of motor cycles was £14,629 (18½%).

The decrease in the value of motor cars imported was £425,814 (76%), compared with the decrease in the value of motor cycles imported £7,459 (55%).

In spite of the war, which has now lasted over two complete months, the total export value of motor cycles exceeds last year's by nearly £200,000 for the nine months.

TIMES TO LIGHT LAMPS

(GREENWICH.)

Oct.	15th	...	...	6.8
,,	17th	...	...	6.3
,,	19th	...	...	5.59
,,	21st	...	...	5.55

Artillery Wheels on Sidecars.

We hear of a new design sidecar outfit, which will most probably have artillery wheels as standard.

Petrol Imports Last Month.

During September 9,378,348 gallons of motor spirit were imported into this country (value £365,353, or about 9¼d. per gallon). In September, 1913, the quantity was 12,712,120 gallons and value £532,166.

More Douglases for the W.D.

It is interesting to have to record that Messrs. Douglas Brothers have received an order for a further hundred Douglas motor bicycles for the War Office. The extreme handiness and efficiency of these little machines are evidently greatly appreciated by the British military authorities.

Standardisation of Controls.

A distinct step toward standardisation of controls has been made by the formation of the Engineering Standardisation Committee, mentioned in our "Letters" columns this week. The A.C.U. and the Motor Cycle Manufacturers' Union have already considered the matter without result. Perhaps the efforts of the new committee may meet with better success; at any rate, we hope so

Well-known Rider for the Front.

J. Chater-Lea, Junior, who has been well to the front in road and track competitions during the past few seasons, has volunteered for active service, and has been attached to the Royal Engineers as Sergeant in Charge of the Motor Cycle Section. He is riding his Chater-Lea 2½ h.p. two-stroke motor cycle, and is at present stationed at Newhaven.

Cheaper Petrol.

Last week *The Autocar* gave it as its opinion that a decrease of a penny a gallon upon both light and heavy grade motor spirit is a possibility of the near future. Though a penny reduction will "not set the Thames on fire," motor cyclists will be thankful for small mercies.

The price of petrol is now being discussed in many quarters, since the recommendation of *The Motor Cycle* to reduce the price to a shilling a gallon, and thus bring about more extensive motoring.

BS

Motor Cycle Fire Brigade.

In response to a call last week the fire brigade at Green Street Green turned out on their Royal Enfield outfit to a fire in farm premises at Downe. The four miles up hill was covered in less than eight minutes, and the brigade arrived in time to avert any damage of an extensive character.

More Despatch Riders Wanted.

The Auto Cycle Union has been approached by the First London Machine Gun Battery for assistance in the enlistment of fifty motor cyclists. The battery is a privately raised force which will be attached to a battalion, which is probably leaving for the Front within a month, and is at present in camp at Wembley Hill. About twenty-five men are required as motor cyclist despatch riders, and the remainder will be required to be equipped with sidecar machines, which may also be needed to pull machine gun trailers. The men will be required to enlist for three years or duration of war, and must provide their own kit, which will cost in each case about £5. The machine will be taken over on the ordinary War Office terms. Motor cyclists desirous of joining should apply for further particulars to the Recruiting Office, 104, Victoria Street, London, S.W.

SPECIAL FEATURES.

LARGE EXPORTS OF MOTOR CYCLES.
DESPATCH RIDERS' EXPERIENCES.
IN THE PEAK DISTRICT WITH A SIDECAR.

Head Lamps Barred.

By a new regulation the use of head lamps on cars is barred in and around Margate. At night cars are using paraffin side lamps, and even the trams have only a few interior lights. Great care is necessary on the narrow twisty roads. Apparently standard motor cycle lamps are permitted, the regulation only applying to cars.

A Liverpool Roll of Honour.

A list of Liverpool motor cyclists who have been called up for military service is being compiled by Mr. S. W. Phillpott, North-Western Centre Secretary of the A.C.U., who asks the relatives and friends of all such to be good enough to furnish him with the following details:

Name and home address of the motor cyclist.

Regiment or Service joined.

Whether as motor cyclist or otherwise.

Froghole Cottage, Newington, which is believed to be the oldest house in the county of Kent, having been built in 1501.

M.C.C. Roll of Honour.

The committee of the Motor Cycling Club is compiling a list of members who are serving in any of His Majesty's forces.

An Equipment Number.

In addition to the annual Buyers' Guide on November 19th, a special issue of *The Motor Cycle* will be published on Thursday, December 10th, dealing with accessories, tyres, clothing, and equipment generally.

Splendid Response of Motor Cyclists.

After our letter pages had gone to press we received the following letter from the Rev. F. W. Hassard Short: "Sir,—It may interest you to know that I have received in the last few days applications from over 200 motor cyclists anxious to enlist for service with the R.E. Signal Companies. Amongst these are many well-known riders. So far I have only been able to offer places to nine of them, but hope to find places for more in course of time.—F. W. Hassard Short, Secretary, Motor Cyclist Reserve Committee, Home Counties Division."

Pro Patria.

Another instance of the willingness of motor cyclists to help their country was the number of replies received to the Scott Company's appeal for motor cyclists for enlistment. On Monday as many applications as could be dealt with had been received by the Scott Company.

What New Zealand Clubs are Doing.

Immediately on receipt of news that war had been declared between England and Germany the respective secretaries of the Pioneer Athletic and Bicycle Club (Motor Section) and the North Canterbury Motor Cyclists' Club wired the Prime Minister of Dominion (Right Hon. W. F. Massey), offering the services of the clubs to the Defence Authorities. These offers have been accepted, and members of the clubs appointed as despatch riders. The Pioneer Club also decided to hold a rally to collect money, etc., by motor cycle and sidecar rides in aid of the Patriotic War Fund. The fund is mainly to help to provide equipment for members of the Expeditionary Force, and to maintain those dependent on the volunteers for the force.

A Large Order for Coventry.

Coventry firms have reason to congratulate themselves upon the order for motor cycles received from the Russian Government, which is as follows:

Rudge, 3½ h.p.	400
Rover, 3½ h.p.	350
Humber, 3½ h.p.	300
Triumph, 4 h.p.	300
Premier, 3½ h.p.	300
Premier, 7-9 h.p.	12

It will be noticed that the great majority of these are single-cylinder belt-driven machines of a capacity in the neighbourhood of 500 c.c. Naturally, the aforementioned firms are very busy at present, and some are working over the week-end, for it is necessary to get the machines sent off very soon. Taking the average price to be only £50, the gross value of these machines amounts to £83,100.

The New Hudson Co., of Birmingham, and the Clyno Co., of Wolverhampton, were also favoured with large orders.

More Motor Cyclists Wanted for the Army.

Mr. J. W. Stocks, the well-known motorist, who first became acquainted with the internal combustion engine on a De Dion motor tricycle, from which he developed into a racing expert, has received a commission in the Royal Naval Volunteer Reserve in connection with the armoured motor car scheme of this body. He has been authorised to look out for a number of *experienced* motor cyclists who possess a thorough knowledge of French, who will be required for active service as despatch riders. Further particulars can be obtained on application to Mr. J. W. Stocks, 10, Great Marlborough Street, London, W.

Dangerous Dogs.

A correspondent, who has been frequently attacked by a dog, has sent the following letter to the owner by registered post: "Sir,—On several occasions recently a brown Irish terrier has rushed out from your grounds attacking me whilst riding my motor bicycle, very narrowly causing a serious accident.

"I understand the dog belongs to you, and this letter is to call your attention to the fact, so that should any accident occur through this habit of the dog you may be liable for damages.

"I am sending copies of this letter to the Automobile Association and *The Motor Cycle*."

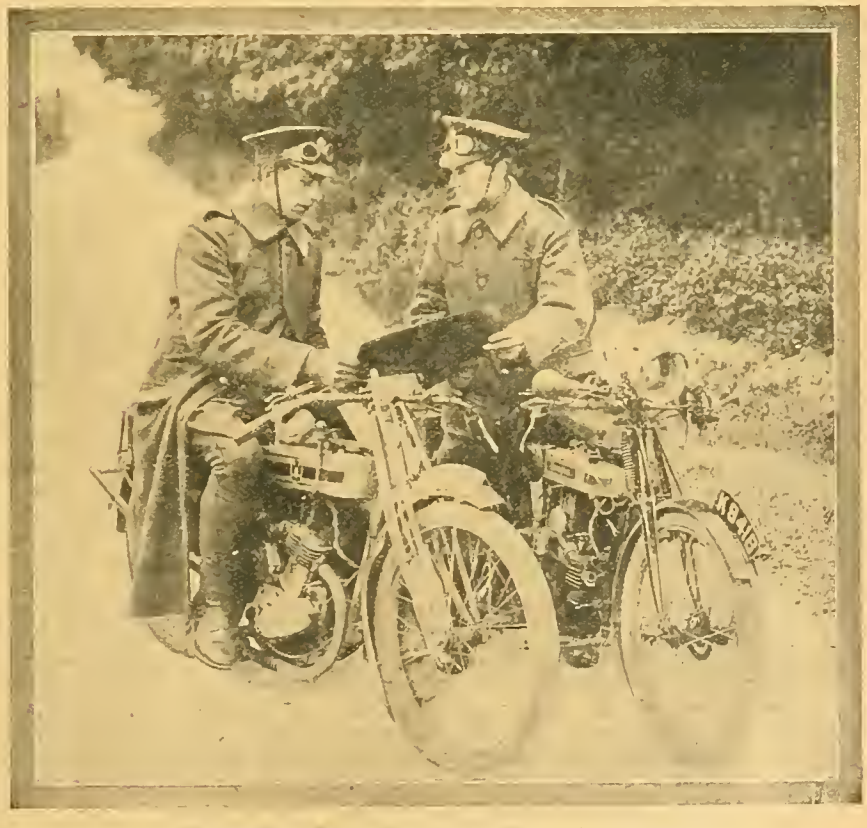
Other readers, who have been similarly annoyed, are advised to follow the same procedure.

The Multiplication of Gears.

In connection with our leader of last week dwelling upon the multiplication of gears in connection with 1915 models, it would appear that the movement has spread to America, but whereas in the States two-speed gears are giving place to three-speeds, British makers are a stage further advanced, most having three gears and moving up to four. Manufacturers in the States have hitherto shown themselves entirely satisfied with a two-speed gear, but for 1915 the Harley-Davidson have adopted a three-speed gear of the sliding type fitted in the counter-shaft, a "step" starter being incorporated in the design. By the way, the new Harley-Davidson twin-cylinder bicycle is rated at 11 h.p.—it was 8 h.p. originally, its capacity being 60.34 cubic inches (989 c.c.). An additional model for 1915 has a 6 h.p. single-cylinder engine.

In Aid of the Relief Fund.

Quite a novel idea has been hit upon by a sidecarist in connection with the Stratford-on-Avon annual "Mop Fair" this week. The sidecarist in question has an up-to-date 6 h.p. Enfield sidecar outfit, and he is giving sixpenny rides to all and sundry, the proceeds going to the Prince of Wales's Relief Fund. We believe the idea is being extended by local motor cyclists in consequence of the "trade" being done. No doubt this useful scheme will pay, for one hears dozens of people remark, "I would like to try one of those sidecars, they look so comfortable."



LANCASHIRE MOTOR CYCLE DESPATCH RIDERS.

E. F. Baxter (twin Rex) and L. Mogridge (Douglas), who were among the first to volunteer for active service, and are attached to the Royal Engineers

THE COLOSSAL COLONIAL TEST.

By H. MORTIMER BATTEN.

WHEN early in the summer this journal suggested that a Colonial trial be held this autumn for the benefit of Overseas riders, and for the purpose of giving manufacturers who consider their machines capable of hard usage an opportunity of proving their capabilities, the suggestion was enthusiastically supported not only by Colonials but by all readers who realised the fact that a machine that would stand Colonial use would stand British use with a few yards to spare. The cry was not for a heavy and cumbersome mount made solely for the Colonies, for there was proof enough that a properly designed touring machine was quite adequate for foreign demands, but an attempt to induce manufacturers to redesign certain fittings which, though all right for our broad highways, are apt to give way when submitted to the severe strain of Colonial roads.

The trial has, of course, fallen through, but in its place we have a Colonial test under way of far vaster proportions than anyone could have planned, a test which stuns the imagination by its magnitude, and which will leave an indelible stamp upon the motor cycle industry of the future.

Little did one then think that the motor cycles of Great Britain would be shipped across the Channel by the thousand to take part in a contest of such significance, a test of such severity.

One cannot help looking back upon the events of our routine calendar—the Six Day, the Scottish Reliability, even the T.T.—as mere games in comparison with the great event of to-day, and yet in their turn they were all-important, for they were the foundations in the building of a machine which is playing an important part in the life or death struggle of nations. Were it not for these trials the motor cycles of Britain would not have attained that standard of perfection that has placed them first on the list as instruments of war.

Those who have played a part during recent years in the perfecting of the motor cycle cannot help feeling a thrill of pride when they contemplate the important part that these machines are playing in the crisis, and one waits with interest for the results that the war will doubtless produce upon the motor cycle industry and upon the design and construction of machines. So long as the war lasts the leading manufacturers will consider the demands of the War Office, and the effect will reach further than any trial that could possibly have been organised, because it will produce a type of machine eminently suited for the demands of warfare. This, I cannot doubt, will be a machine of Overseas type—or, at any rate, one that is well suited to the demands of the Colonial rider—while it will fulfil the demands of the British tourist.

When the British manufacturer has been brought to realise a flaw in his productions he is usually not long in stopping it up, but in the past there has been nothing to bring the flaws of motor cycle construction before the general eye of the public but the recognised reliability tests. The Overseas motor cyclist has cried aloud, but he has been too far away for his cries to be heard. Had not something momentous happened, one can foresee that motor cycle design would have followed quite a different trend.

The Influence of War.

There is no question that the war will be influential for good so far as motor cyclists and the industry are concerned. The present demands of the War Office are great and will continue to be great so long as the war lasts, for a considerable wastage of machines is bound to take place. When the war is over, and the young manhood of the country returns, the demand for touring mounts will return also, while motor cyclists who have been out on active service will have formed a fair idea as to the most desirable type of mount for real hard usage. It is in this manner that the war will leave its stamp upon the motor cycling industry; it may be regarded in much the same light as a gigantic competition, and the surviving competitors will clamour for machines of the type that have proved their worth, while non-competitors who have been compelled to remain at home will follow their example.

Some idea as to the wastage that takes place at the front can be gathered from the fact that many of the despatch riders are already using their third and fourth machines, while out of the ten machines attached to a certain battalion only two survived the fighting at Mons. The others were put out of action, mainly by shrapnel fire, and were left on the field of battle amidst other wreckage. A breakdown of any sort may mean that the despatch rider is compelled to leave his mount, and any alteration in the formation of the fighting columns may lead to its total loss.

It is well to be optimistic where we can, and there is no reason to deplore the fact that all trials are suspended for the time being. A test of greater importance than any we have known is under way, and from amidst the oppressions of war we can afford to look forward with happy anticipation for the results this test will produce.

1915 MODELS AND "THE MOTOR CYCLE."

ANNUAL BUYERS' GUIDE ON NOV. 19th. EQUIPMENT NUMBER ON DEC. 10th.

New models are now occupying the attention of manufacturers, and the pages of "The Motor Cycle" during the next month or two will be particularly interesting to motor cyclists and prospective riders. The earliest descriptions of new model motor cycles regularly appear in these columns; the accounts are penned by technical writers in interesting yet non-technical language, whilst sketches of mechanical details and photographs are a feature.

On November 19th a special Buyers' Guide issue of "The Motor Cycle" will be published, giving the specifications of all the leading 1915 models. This annual feature will prove more valuable this year than ever before in view of the manufacturers' decision not to hold a Show.

Accessories, Tyres, Clothing and Equipment Generally will be dealt with in a special issue on December 10th.

TALES FROM THE FRONT.

WE recently had an interesting conversation with Corporal F. A. Enders, R.E., who is home on convalescent furlough. He was attached to a cavalry division, and left England with several other motor cyclist despatch riders, among whom may be mentioned Howard Newman and Lovegrove, Ivy and Scott riders respectively, both of whom were mounted on B.S.A.'s. The party was split up at headquarters, Newman, who is doing well, going to the First Army Corps. Other well-known riders he encountered were Featherstonhaugh, and Roberts, one of the Humber mechanics. Enders was mounted on a 3½ h.p. P. and M., a machine which he considered to be eminently suitable for

Corporal F. A. Enders, R.E.

the work on account of its extreme reliability and capability for standing the terrible racket it had to undergo. The distances covered by despatch riders are not excessive, and usually amount to twenty or thirty miles at a stretch, but the work is continuous, and often Enders was on duty for twenty-four hours at a time, and he said that there were three things the motor cyclist had to make a point of getting—petrol, food, and oil. As his work was with the cavalry, he was right up in the firing line, and in the pursuit, after the battle of the Marne, they were always more or less under fire from the German rear guard artillery. Enders told us it was great sport rounding up the Germans after the battle, and he was enjoying life pretty well when he was struck by a glancing shot on the foot, but what really put him out of action was being kicked by an unpatriotic artillery horse on the ankle and in the stomach, which caused severe internal injury. He had to travel three days lying on straw in a cattle truck, and then came a gloriously comfortable voyage on a hospital ship to the English coast, followed by a spell in a hospital in Glasgow, miles away from his people, who live in London. Talking of his work, he said that by far the worst experiences he had to undergo were at night, when he was forced to ride without a lamp. The noise of the engine makes it impossible to hear a challenge of a sentry, and several times he was shot at. One of our men, he assured us, was shot clean through the head by a French sentry, to whom, in the dark, the British and German uniforms look very much alike. Once he saw the sentry just in time, and bringing his machine to a standstill found a long French bayonet three inches off his chest.

Steady Driving Necessary.

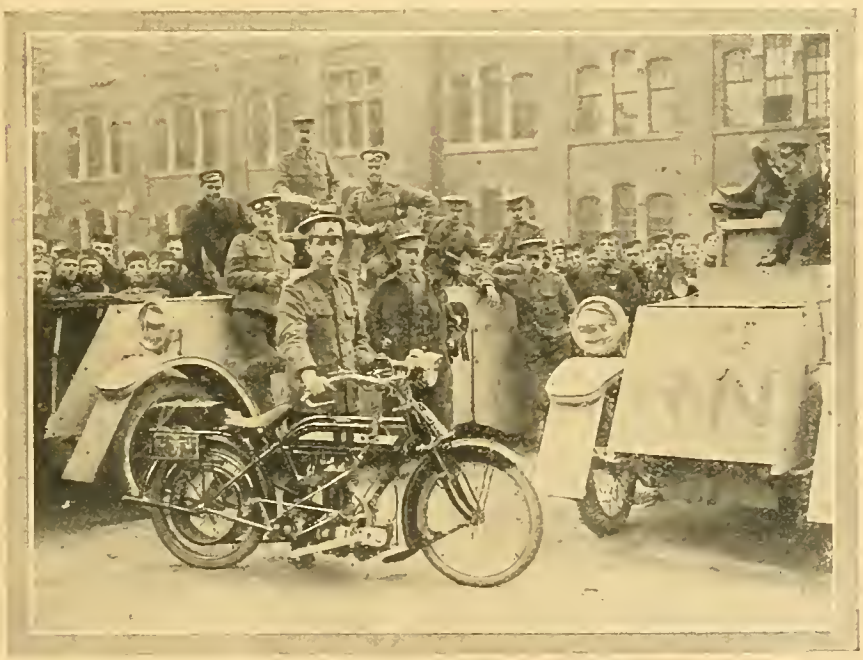
Enders laid special stress upon the importance of driving steadily, so as to get there and save the machine as much as possible, and only of sprinting when real necessity for such an action occurred. Fortunately for him, he speaks good French, and was in consequence able to get on much better than most of our other despatch riders. He is looking forward to the time when he will have to report himself at Chatham, and be off to the Front again.

PENALTY FOR BEING LOYAL.

M. Galopin, one of the leading lights of the technical department of the Fabrice Nationale, has, it is rumoured, been sent to Germany as a prisoner of war for refusing to manufacture arms for the enemy. M. Galopin has often come over to England in connection with the Motor Car and Motor Cycle Shows.

DESPATCH RIDER'S GOOD WORK.

Cyril Mocatta, who was one of the last Englishmen to leave Maubeuge, was heartily cheered by the French soldiers in the trenches as he rode by on his motor cycle. He was recently commended by General Bulfin on the smart way in which he had got his despatches through.



RETIREMENT OF BRAVE ANTWERP DEFENDERS THROUGH BELGIUM.

A motor cyclist scout attached to the Royal Naval Brigade, who has done good service between Antwerp and Ghent, photographed at ———. Observe the armoured cars.

This photograph has been passed by the Censor, who will not allow the name of the place to be mentioned.

Terrible Experience of Motor Cyclists.

How two British Despatch Riders were Captured and Attempted to Escape.

SERGT.-MAJOR MACKAY, of the Army Motor Transport (Army Service Corps), tells a most dramatic story in the *Daily Mail* of the 13th inst. of the manner in which he and the Hon. Geoffrey Pearson (son of Lord Cowdray) were captured by the Germans when acting as motor cyclists with the motor transport.

They were riding fast along a straight road, with open country on either side, when they suddenly met with a perfect hailstorm of bullets, but dashed through into safety. However, a little further on they rode into a group of German cavalry about fifty—who took them prisoners, and, when they found that they were English, treated them with the utmost brutality, spitting at them, knocking them about, and prodding them with bayonets. The Germans then made Mackay and Pearson mount their machines and accompany them, but the motor cyclists, having no intention of allowing their machines to fall into the hands of the enemy, turned off the oil, with the result that the engines presently seized and became immovable. The Germans were very suspicious, and asked the riders why, being motor cyclists, they could not repair the machines, but they declared that the machines were worn out with hard wear and could not be repaired. So they were left by the roadside.

British Treatment.

"The Germans," to use Sergt.-Maj. Mackay's own words, "treated us shamefully. They gave us nothing to eat and taunted and jeered at us at every opportunity. That night we spent in the open, lying on the roadside between two men. We had no overcoats and it was most bitterly cold. I think I have never been so cold in my life as I was that night.

. . . . .

"The Germans took us on with them in their advance against the French. Outside Meaux, near a village called Varredes, they made us go into the trenches with them. We had a terrible experience there. We were thrust in the line with the rest under a terrific fire from the French guns and infantry. The French shrapnel was awful. The Germans fell like flies, and their bodies began to pile up in the trenches.

"I had a good opportunity of seeing the German soldier under fire, and I must say he is plucky enough. . . . The officers simply drive their men on, laying about them on all sides with the flat of their swords."

A Dash for Liberty.

By this time the motor cyclists had had enough of the Germans and their continual abuse and decided to make a dash for liberty. They managed to crawl out of the trenches and into some long grass without being noticed, but when about 200 or 300 yards away the Germans caught sight of the runaways and immediately opened fire on them.

"By instinct," says Mackay, "I flung myself flat on my face and noticed that Geoffrey did the same. Seeing that we did not move, the Germans took no further notice of us, and I lay there for three hours without moving. Then, by very cautious reconnoitring, I ascertained that the trenches were empty and the Germans had gone. I turned to Geoffrey, who had lain immobile from the moment that we dropped. What I had feared at seeing him lie so still was true. He was dead, shot through the back of the head."

Mackay then took refuge in a loft, where he spent two days without food, four Germans meanwhile occupying the room below him. How he eventually escaped we will let him tell in his own words.

Back to the British.

"When the Germans left the house I came out, got into a house next door, and found a set of peasant clothes which I donned. Then, in order to complete my make up, I got a calf from the village, and, leading it, passed unrecognised right through the German lines into the French. None of the Germans took the faintest notice of me. I have got that peasant suit still, and mean to keep it as a souvenir of my experience.

"I fell in with the French in a wood. I saw cavalry, and thinking they were German hid, but presently discovered they were French. At first the French took me for a spy, but one of their officers, who spoke English well, soon recognised me and passed me through to the British. A week later I returned to Varredes and found the body of poor Geoffrey Pearson lying where I left it. I buried him there with the assistance of some peasants and planted a cross with the name and date on the grave, the position of which I carefully noted so that it can be easily found later on.

. . . . .

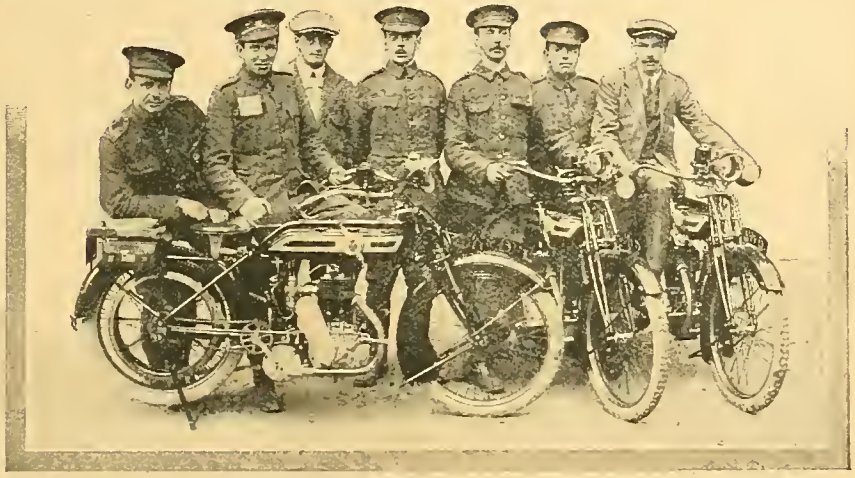
"He is the only Englishman buried in this part of the battlefield. His is a noble burying place. In every direction as far as the eye can see are the simple graves of those who fell in battle, little graves like his marked by a blood-stained *képi*, a handful of flowers or a little flag, in the case of the French, or long mounds of brown earth surmounted by a rough cross, in the case of the Germans."

SCENE NEAR THE FIGHTING LINE IN FRANCE.

British motor cycle despatch riders making a halt at Columnieux and mingling with French soldiers and officers. One of the motor cyclists (a Douglas rider) has a German eagle as a war trophy; the other, who is seen mounted on a Triumph, had a damaged finger, but pluckily continued his work.

Experiences of Other Despatch Riders.

ONE day last week we heard that Corporal I. Bethwaite, R.E., a well-known motor cyclist of Barrow-in-Furness, who has done good work in various competitions in Cumberland and the adjoining counties, was lying wounded in a hospital on the outskirts of London. We found Bethwaite pretty well, quite cheery, and full of praise for the excellent treatment he was receiving. He told us he had been in France since August 8th, when he landed with his 1913 Rover at a western port and proceeded up country to the firing line. Three other motor cyclists were with him, two on Triumphs and one on a Douglas, and when he left them both men and machines were doing good work. The officers were delighted with the motor cycle riders and never ceased to praise their pluck, usefulness, and endurance. Bethwaite's happy career temporarily ended at the battle of the Aisne. He had been given an important despatch to deliver and was travelling at a good speed along a road which was exposed to a heavy shell fire from the enemy.

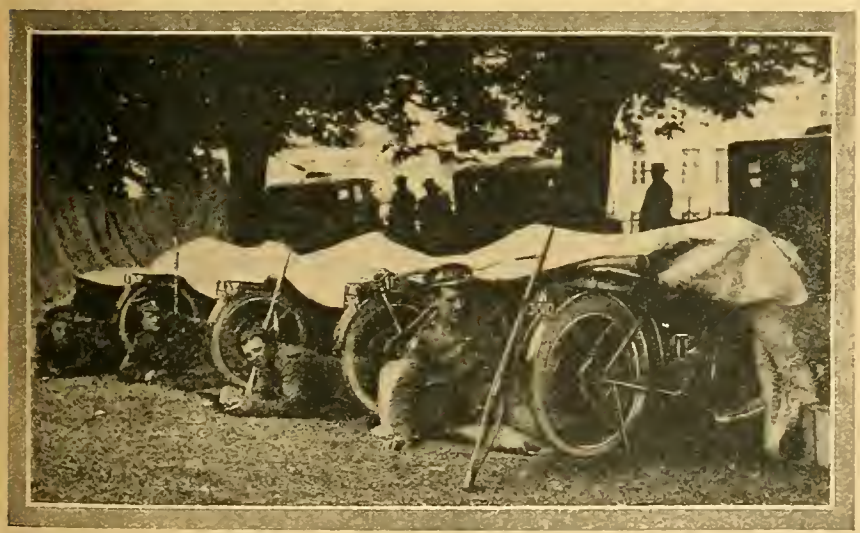


Seven motor cyclists attached to the motor cycle section of the 1st County of London Yeomanry. The machines depicted in the photograph are standard 3½ h.p. Rovers, with three-speed hub gears.

Dodging Huge Holes in the Road.

Great holes blown out by the "Black Marias" were seen at frequent intervals, and suddenly one shell landed a hundred yards or so in front of him and exploded. Two great chasms had then to be dodged, and as he was executing this manœuvre the ground gave way and he fell heavily, striking his head as he did so. He lay dazed for an hour, and then, pulling himself together, he set out to walk the rest of the way—2½ miles—and safely delivered the despatch. The officer whom he had to see was much impressed by his pluck and made him rest for an hour or two and was loth to let him go at the end of that period, but go back he would and walked to the machine, patched it up well enough to get back to headquarters, and finished his day's work. He did his best to carry on, but eventually he had to give in and go into hospital. The story which has been published of the poor motor cyclist who was shot several times when trying to mount his machine when hard pressed by Uhlans, who came up to him and before he expired turned his own petrol on him and set fire to it, Bethwaite thoroughly believes to be true. He himself had been tackled several times by these German lancers, but managed to get away from them, while he told us that the German motor cyclists were no match for our own men.

He got very wily in dodging the shells, and on one road which he had to traverse there was a hill, the crest of which was much exposed, so he used to charge an almost vertical bank, slide down the other side, and ride for a time under cover. Once a fragment of shell cut the leather off the top of his boot. He had to get food and rest as best he could, and once had to go three days without either. His Rover mount with its Kempshall tyres and Dunlop belt behaved splendidly.



BRITISH MOTOR CYCLIST DESPATCH RIDERS AT THE FRONT.

The machines are all P. and M.'s, and are covered with tarpaulin, the space between providing sleeping accommodation for the men. The picture was taken in France near the firing line.

IN SOUTH AFRICA AND FRANCE.

THE Daily Mail has published two letters from despatch riders which give an idea of the experiences which motor cyclists have to undergo in foreign countries, while the second letter is just the jolly, whole-hearted expression of the excellent spirit prevailing among the young men who gaily give their lives for their country, treat the terrible risks they run as a joke, and count them as "all in the day's work"!

In the Jungle.

From a motor cycle despatch rider in British East Africa:

"The other night, when it was just getting dark, the captain had to send someone to the next camp, and I was asked to go. It was twenty-three miles away and there is only one road or track to it running right through jungle all the way. Off I went on the most exciting ride I have ever undertaken.

"I was fully armed with a service rifle and revolver, hunting knife, water-bottle, haversack, and ammunition. All that was on my back, including a bandolier, the whole lot weighing about 50 lb. The first thing I ran into was a pack of baboons, some of them as tall as 5ft. They ran in front of my light for about a mile. The brutes would not shift; you ought to have heard them bark. I rode behind one big brute within three yards of him. I would not have got into his clutches for all the money in the world. However, they at last turned off into the bush.

"The stray game that were hanging about that road—well, it is impossible to mention. I swore I would shoot some

Experiences of Despatch Riders.—

the next morning. I saw two fine leopards. One brute did not attempt to move until I was within three yards of him. I suppose he thought it wiser to get out of the road of the bright light and the roar of the engine. He opened his mouth and snarled, then sprang to one side, and I did not half go when I had passed him in case he took it into his head to follow me.

"Everyone was up ready when I got there. They had heard me coming. I delivered my message to the captain. Then he asked me into his tent and gave me something to eat and drink. I told him about the leopards I had seen, and he was very interested and said that just before I came in two of their sentries had been driven away from their posts by lions.

"When I was lying out under my blanket that night we could hear their roaring about a quarter of a mile away, and despite the wild beasts I slept as sound as if I were in my old bed at home."

The Major's Horse.

The following is a letter from a motor cyclist despatch rider in France :

"Dear Old Horse,—Yours of the 2nd inst. to hand—and very nice too. Having nothing to do for the moment I sit down on the ruddy battlefield and reply.

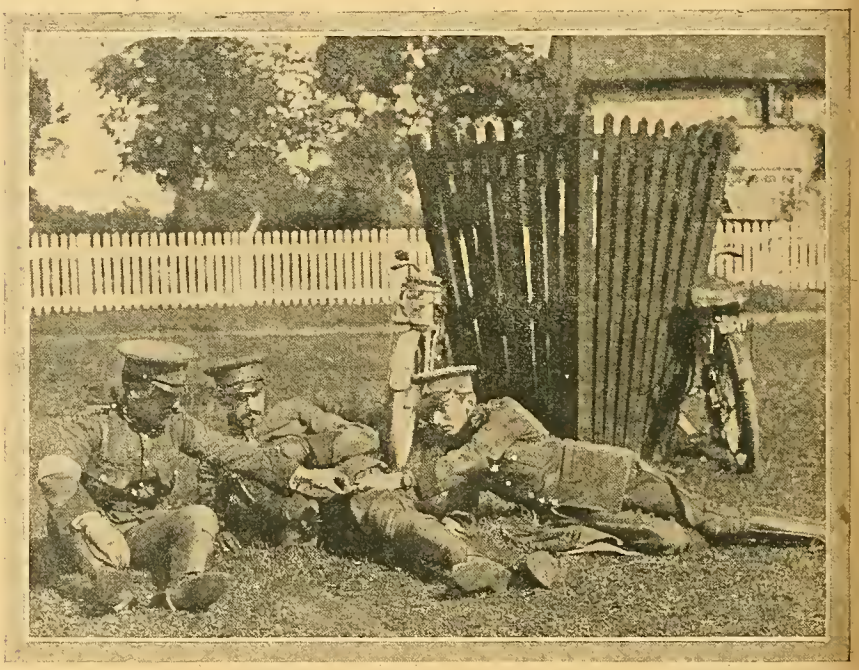
"All goes well—am now fed, washed, and slept. Have been scrapping for ten days and shell-dodging literally and truly by inches—don't care a twopenny damn for shrapnel and a fourpenny one for high explosives. This show is bound to do well; they are such a bully crowd of boys and they'll beat anything and everybody in time—much less half-hearted, half-starved Germans.

"I've had some tough times in this outfit, I can tell you. Last week was a peach, sleeping out in the rain with nothing but an overcoat. Quartered in a hay-loft now though—dry as a bone and no shells in the roof at present. Mo-biking most all night—reminds me of Lynn trips sometimes—except the absence of old beer and the shell holes one has to dodge and the fat sentries and the jolly barricades. Ran into one and smashed a new bike up one night. Life is one continual procession of new 'triumphs' nowadays. Defy you to do a bike in in a fortnight.

"Saw —— —— the other day—on a 9 h.p.—deadly dull, only hears guns fired every now and then. Curse that. Went to a major the other day. Had to shout to make him hear on account of flaming shells aforementioned. Called for his horse. 'Sorry, sir,' says the orderly. 'Just been shot, sir.' Funny that—what? Rifle fire good fun, but aforementioned shells give me cold feet.

". . . Writing this in the dark; can't write more for the moment, and will write again soon. Love to all the bhoys and good luck. We'll have a bust when this lot is over. Will drink tea without milk with you when I get back. —Your old pal, ——."

Lance-Corporal J. Conchar, R.E., on his P. & M., a machine which is doing excellent service in his work. He regards it as being pre-eminently the machine for despatch riders.



Three motor cyclists who were employed as despatch riders on the staff of the Duke of Connaught at the 1904 manœuvres.

The excellent work of the British motor cycle despatch riders has called forth the warmest praise from the allied commanders, who have been enabled through their services to maintain constant communication along the enormous front, which extends about two hundred and forty miles, from the Somme to the Moselle and along the frontier of Alsace-Lorraine.

MOTOR CYCLIST DESPATCH RIDERS TEN YEARS AGO.

The employment of motor cyclists as despatch riders for Army use is no new thing. The present use is rather a development and a perfecting of quite an old plan, and as long as ten years ago trials were made in this direction. The accompanying photograph was taken at the manœuvres in 1904, when the riders depicted were used to convey messages to and from the Duke of Connaught's staff, and did very well, allowance being made that machines were not quite so reliable in those days as in the present year of grace.

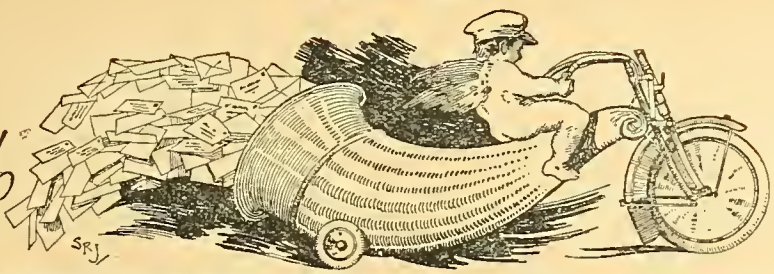
MORE RUSSIAN GOVERNMENT ORDERS.

The latest order placed by the Russian Government was for 350 Rover motor cycles exactly to standard specification, viz., with Sturmey-Archer gears, B. and B. carburetters, and Dunlop tyres. All are to be finished "service" colour, and must be ready to leave for Archangel with the other consignments from the different British makers. The Rover works are at full pressure and working over week-ends to cope with this urgent order.

Among the consignment of motor cycles, which will be leaving for Russia in the near future, for the use of the Army, there will be four hundred Rudge-Multis, finished, like all the others, a khaki colour. A. J. MacDonagh and J. C. Coultas are the two mechanics nominated to accompany the machines to Russia and take charge of them.

The Rudge Co. thoughtfully arranged for their attendants to receive a course of lessons on the Russian language immediately their mechanics had been selected. The pair are now busy mastering the difficulties of the Russian tongue.

Triumph machines for Russia will number three hundred. This was the most that the Triumph Cycle Co., Ltd., could prepare in the time limit, the Triumph works being busy with orders from all over the world. T. V. Harrison is to accompany the machines to Russia.



The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Owners' Experiences Wanted.

Sir,—May I ask if any of your readers in or about Crewe own the following makes and models of sidecars: Supreme, model No. 2; canoelet, model S3 or 4, or L3 or 4; Mills-Fulford, Corvette model. I cannot decide which I like best, and thought that perhaps some of your readers would not mind giving me their experience and also letting me see their machines if I called on them some time. H. LOMAS.

[Although we know that motor cyclists are always ready to assist others of the fraternity, we think our correspondent is asking rather much.—ED.]

"The Motor Cycle" for the Front.

Sir,—In the name of sixteen despatch riders attached to the 3rd Army, I beg you to forward a copy of your most valued and interesting publication.

We are absolutely in ignorance of things motorish, save the many trials we have here—reliability and many other.

Many of us have friends at home prominent in the pastime, and would like to know the happenings.

(Sergt.) M. H. THOMPSON.

British Expeditionary Force.

[Naturally, we have gladly fallen in with Sergeant M. H. Thompson's suggestion, and henceforward a batch of copies of *The Motor Cycle* will be posted to his base regularly. Since the outbreak of war copies of this journal have been sent weekly for the use of the Navy, and an official order has been received by our publishers for *The Motor Cycle* to be sent to France regularly for the use of the Mechanical Transport Section. Journals specially ordered are the only ones which reach the Expeditionary Force safely.—ED.]

Weights, Measures, and Coinage.

Sir,—One of the effects of the present war will undoubtedly be a large increase in our export trade, and we are of opinion that now is a very opportune time for us to consider the revision of our obsolete system of weights, measures, and coinage. It would greatly assist us in obtaining and securing new markets if we were to adopt the metric system or something similar. The motor and allied trades have for a considerable time worked on the millimetre system. There are, of course, some trades which could not immediately adopt this method, but we do think it would be to our advantage if for all export business we were to quote and invoice goods to foreigners in inches with multiples and decimals thereof, instead of as at present in yards, feet, and inches.

As regards weights, what could be more simple than to copy the American system, and to employ the 1 lb., the 1,000 lb. and decimals of a 1 lb., and thus obviate the complicated use of tons, cwts., qrs., lbs., and ounces?

Further, as regards coinage for the purpose of quotations and invoices, we could easily adopt the decimal system without necessarily altering our actual coinage. For instance, our present sovereign divides into ten florins, and if each florin be divided into one hundred cents it would be infinitely clearer to our foreign customers than the present method of £ s. d. One farthing is $\frac{1}{96}$th of a florin, and if we use the so-called cent as $\frac{1}{100}$th of a florin, the difference is so small that it could not possibly make any difference.

It only requires a moment's thought fully to appreciate the immense advantages of a method somewhat on the above lines. We have only roughly outlined the system, but doubtless some of your readers will be able to make some valuable suggestions of improvement. One way, perhaps, of dealing with the matter energetically would be to select a committee from the trade to formulate some system suitable to all concerned, and then place the whole matter before our Board of Trade with a view to its adoption. We shall be interested to have your readers' views on this important matter.

COMPONENTS, LTD.
HENRY JELLEY, Sales Manager.

Compressed Air Engines.

Sir,—Perhaps one of your readers would be good enough to inform me, through the medium of your excellent paper, why there is no compressed-air-driven motor cycle on the market at the present time, and if there is any likelihood of one being manufactured in the near future. Since we now have in our Navy submarines of 1,750 h.p., with a range of over two thousand miles, I often wonder why the idea cannot be applied on a smaller scale to motor cycles.

I have already seen a very neat little air-driven engine of ½ h.p., and it seems to me that if a strong high-pressure cylinder were substituted in place of the ordinary petrol tank there would be few other changes required. The advantages of a 2 h.p. motor cycle, capable of going even only twenty-five miles on one charge, are too numerous to detail here, but must be obvious to any motor cyclist who has experienced magneto, carburetter, and other troubles, which would be conspicuous by their absence in a bicycle such as I suggest. COMPRESSED AIR.

[Our correspondent appears to be confusing the torpedo compressed-air engine with the Diesel heavy fuel type or petrol-driven submarine engine.—ED.]

A Suggestion to Prize Winners.

Sir,—Will you kindly give me the publicity of your columns for making a suggestion to the prize-winners in the past motor cycling season. Many of the prizes have not yet been bought, for most clubs present them at a social function in the late autumn.

If we prize-winners combined to forego the actual prizes, and the value of them was sent instead to the Prince of Wales's National Fund, a very considerable sum would be raised for that purpose.

I feel certain that many of us would willingly accept a "scrap of paper" worded somewhat as follows: "The —— M.C.C. This certificate is awarded to —— in lieu of a —— won by him in the —— trial on ——, the value of the said prize having been sent instead, at his request, to the Prince of Wales's National War Fund."

This is a matter in which only the winners themselves can take the initiative. I appeal to my fellow prize-winners of this year to co-operate with me by writing at once to those clubs under whose auspices they have won prizes this year (exclusive, of course, of challenge cups), and ask them to do this. As a further development I would suggest that the clubs should all combine to pay the amounts thus raised into the National Fund in one lump sum. Perhaps the three unions would be willing to act as receivers for this purpose.

The only obvious objection I can see to the scheme, as a whole, is the loss of custom to the jewellers who usually provide the prizes. But this custom is spread over so many firms that the loss to any one firm would be negligible.

May I ask club executives to give this idea a chance of "catching on" before taking further steps towards the provision of prizes?

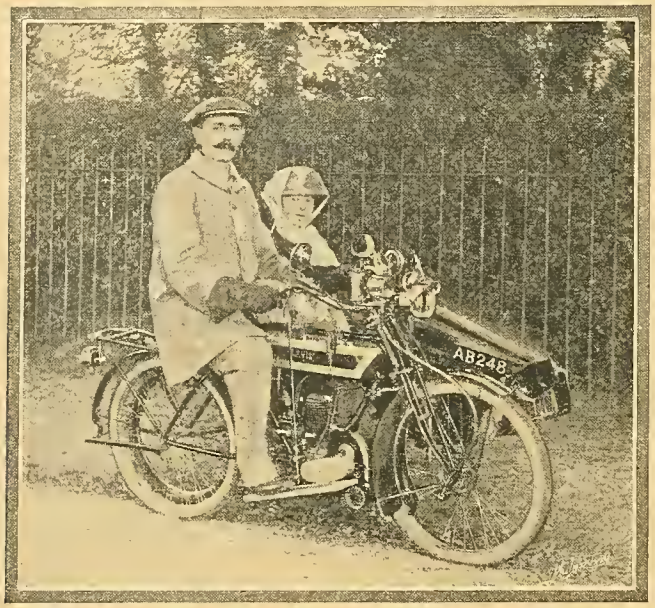
But the initiative lies with us winners. I have done my part—a poor one—a matter of only four medals. But if others will back it up, the whole idea will be very well worth doing.

(Rev.) P. W. BISCHOFF.

Lightweight Sidecars.

Sir,—I am enclosing you a photograph of my 2½ h.p. two-stroke, Albion two-speed, Levis motor cycle and light wicker sidecar, which I have now had a little over eighteen months. I have covered over 9,000 miles, and trouble is, and has been, practically nil. My petrol consumption solo is one hundred and thirty-five miles per gallon, and with sidecar about ninety, as, of course, it means more low gear on hills, but I can get up anything in reason. A few weeks ago I rode from Worcester to Weston-super-Mare with one stop for refreshments; in addition to my wife and myself we had a fair amount of luggage on the carrier, and climbed all hills. My average speed with sidecar is twenty miles per hour.

FRANK EVANS.



Mr. and Mrs. Frank Evans on their Levis sidecar outfit.

What are Ideal Handle-bars?

Sir,—I will venture to say that "Aysgarth" has never ridden in the T.T. race, nor can he claim to have ridden a thousand miles a week with *each* type of handle-bar. The semi-T.T. is the most uncomfortable of the lot, as anyone who has had *long* experience of the *three* types will confirm; for long rides, the touring bars are better than semi-T.T., but you must have a well padded springy saddle. The full T.T. is the best, with footrests; the saddle is not so important, as you do not rely on it to take the bumps, your legs being more adaptable to them than your spine.

Tank gripping is force of habit, and those who do it will find it more comfortable with knee grips; if the tank were not there I do not think you would find it any more difficult for cornering.

ALLEN S. JONES.

The Standardisation of Controls.

Sir,—*Re* your leading article on standardisation of controls. It is all very well to keep on crying out for uniformity, but who is to decide which is the best way for the levers to work. We all have our pet theory, and as long as two methods are marketed, so long will there be two sets of riders favouring opposite plans. Suppose you give the manufacturers a lead, stating definitely which is the better way. For my part I prefer opening inwards, because the levers are out of the way when the machine is wheeled backwards.

CL 806.

[Levers opening inwards are the kind favoured by *The Motor Cycle*.—Ed.]

Sir,—I was much interested to note your leader on this subject. I agree with the writer in thinking that the matter is one of very great importance, and I should like to be allowed to point out that the Engineering Standards Committee already have a sub-committee at work on the question of the standardisation of controls of motor cars, although a great deal remains to be done before any general agreement can be arrived at.

It would appear to me that the standardisation of controls of motor cycles would be a very much simpler matter than that of cars, and I would like to urge that any makers who are interested, and who would be willing at least to consider the question of standardising their controls, should communicate with the Secretary of the Engineering Standards Committee, Mr. Leslie Robertson, 28, Victoria Street, S.W.

BASIL H. JOY, M.I.Mech.E., M.I.A.E.

Sir,—*Re* your leaderette in the issue of *The Motor Cycle* for the 8th inst. The *necessity* of standardisation of controls cannot be over-estimated. For a considerable time I have been riding a machine fitted with one of our best carburetters. On the 8th inst. I was mounted on another machine, the controls of which operated opposite to those on my usual mount. All went well until I arrived at a most awkward hidden turn. Of course, as it usually *does* happen, a cart was in the middle of the road, just round the bend. "Force of habit" here prevailed, and instead of pulling up I made a terrific forward leap. Sheer luck only prevented what might have been a serious "smash up." As it was, I emerged without a scratch.

I thought it rather curious that, half an hour later, on opening *The Motor Cycle*, the first thing I should see was your leaderette. It seems a pity something cannot be done. The various makers of carburetters cannot say the matter has not been brought to their notice. I am quite sure the majority of riders favour standardisation, and, after all, they should be first considered.

UNIFORMITY.

Sir,—I quite agree with you regarding carburetter controls. I had one which opened from left to right, but I bought another on the day of leaving for my holidays which, unfortunately, opened from right to left, with the result that in an emergency I pulled the throttle wide open when I intended to close it, and had a nasty accident which nearly cost two lives. I was two weeks in hospital and my passenger nine, and neither will be quite well for some time.

E. TAVERNER.

Motor cyclist scouts attached to the Royal Devonshire Yeomanry stationed at St. Osyth Priory, Essex. The photograph was taken in front of the Norman gateway On the left is F. Weber (3½ h.p. Humber) and on the right W. N. Jubb (3½ h.p. Triumph).

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

An Air Release Wanted.

I have a twin vertical cylinder 2¼ × 3¼ Werner motor cycle. I have had the cylinders rebored and new pistons fitted, and now seem to get a great deal of compression in the crank case, which forces all the lubricating oil out of every little joint and causes the engine to overheat and stop within about two miles, there being no oil in the crank case, in spite of the quantity I inject.—P.K.

The remedy for your trouble is to have an efficient air release valve fitted to the crank case. This should be preferably of the non-return principle, and not a simple pipe.

Result of a Retarded Spark.

I am riding one of the 1914 3½ h.p. Douglas machines, and have run up against a rather knotty problem. The symptoms are that the exhaust pipes leading from both cylinders get cherry red hot after the machine has only run a very few miles. Everything is in order, and the engine clean. The funny part about the whole affair is that the heating does not materially affect the running. The presence of the mysterious ailment was only noticed by me the other evening after the machine had been taken down and I was out on a trial run.—W.M.M.

From what you tell us we should be inclined to think that the overheating of the exhaust pipes was due to a retarded spark. As you say it has only taken place since the engine was taken down, possibly the spark was inadvertently timed to take place too late.

Building a Two-stroke Engine.

I am desirous of building a light two-stroke petrol engine of 3½-4 h.p., air-cooled, as illustrated in *The Motor Cycle*, July 23rd, 1914, page 104. Could you tell me where I could obtain working drawings of this kind of engine and the probable cost?—C.G.

The design which you mention, illustrated in *The Motor Cycle*, is merely a rough design to illustrate the principle of the two-stroke engine, and, though it is approximately to scale, it may not be taken as a working design. You would find it considerably cheaper to buy a complete engine from a well-known two-stroke firm, but if you still desire to build one we should advise you to confine your attention to something rather smaller than a 3½ h.p., as the larger type has not yet been perfected and at present requires low compression with consequent bad fuel economy. It is possible that some two-stroke firms would supply you with working drawings, but we are rather doubtful on this point, and fancy that a consulting engineer or a competent draughtsman would have to be employed as designing for the public is outside our province.

Tyre Sizes.

Could you let me have your opinion as to the size of tyres for a 4½ h.p. Precision-engined sidecar combination, combined chain and belt drive? The specification includes 2¼in. tyres, but will these be reliable and satisfactory? What do you think of 2⅜in. size, or would 2½in. be much better? The reason I ask is that I have three very good covers and tubes on hand, 26in. × 2¼in., and I wondered whether to fit this size or sell these for what I can get and go in for 2½in. straight-away.—H.L.

Fit 2¼in. tyres if you can, failing this use the 2⅜in. size. The largest cover you can use will minimise tyre troubles and add greatly to your comfort. The 2½in. tyres require to be fitted to their own rims in most cases, but the 2⅜in. size fits the 2¼in. rim.

Loss by Fire.

I cannot solve the following points with my legal adviser with regard to garaging my motor cycle and sidecar, so should be greatly obliged if you can favour me with the information. (1.) I pay £4 per year rent for part use of a coach house, and in the event of fire should the owner of the house be liable for the value of my machine? (2.) Should the owner of the property insure the property to include the machines, or should the machines be insured separately by the owners of the machines? (3.) The adjoining property belonging to the same landlord is at present used as a military guard room. In the event of fire, in what position does the landlord or do I myself stand if the military accidentally set the place on fire through smoking or any other reason, and our machines are burned?—H.M.P.

As far as we can see the answer to (1) is: No. The owner of the house would not be liable for your machine. (2.) The motor cycle should be insured separately. (3.) If the place were set on fire accidentally, and neither the machines nor the building was insured, you would have to stand the loss yourself.

THE POPULAR SIDECAR IN THE ANTIPODES.

A Clyno team of four who obtained the greatest number of marks in the class for twin-cylinder machines in the North Canterbury (New Zealand) M.C.C. Reliability Trial. Rain, blizzards, and sand were among the conditions encountered in this severe trial.

Belt Slip.

I should be much obliged by an answer to the following queries: (1.) What is the best way of preventing or minimising slip in wet weather of a rubber belt? Are the preparations on the market for nsing on belt any good? (2.) Is benzole more difficult to start on than petrol if one injects a little first, and does it give as much power, seeing that they say the explosion is softer?—A.A.P.

(1.) The best thing you can do is to use a belt of the proper size and to have it reasonably tight; also have the pulleys of the correct angle. The preparations you refer to are for leather belts. (2.) It is, perhaps, slightly more difficult to start on benzole in cold weather (at other times there is no difference), but it is a satisfactory fuel if bought pure, and gives ample power.

A Repair Bill Query.

Some time ago I took my motor cycle, which was not running satisfactorily, to a garage to be overhauled. After the people there had finished I had a run on their trial ground, and told them the machine did not seem to be running as well as it should, so the mechanic took a large spanner and tightened a nut on the cylinder, and in doing so he cracked the cylinder. Now I have received an account for repairing the cylinder. I should be obliged if you would advise me whether I am responsible in regard to this account. The garage people say they have ample evidence that the cylinder was cracked before the nut was tightened, but this I do not believe.—A.A.

The details you give us are so meagre that it is difficult to give a decisive opinion of your legal position. We should say, however, that the repairer will be able to recover his charge from you for the repair, but if, as you allege, his mechanic carelessly broke the cylinder, we should think that your best plan would be to wait till he sues you, and then counter-claim for the damage to your cylinder, but before doing this you will, of course, have to be in a position to prove that the mechanic did actually break the cylinder through misuse of his tools or through unskilfulness, and with regard to this we note that the repairer states that he is in a position to prove that the cylinder was cracked before the actual breakage occurred. Under the circumstances, we should think that your best plan would be to meet the repairer and settle the matter in an amicable way.

Tuning a Two-stroke.

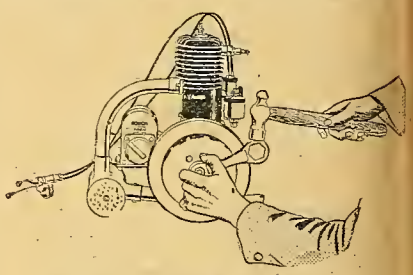
I own a 2½ h.p. Alldays two-stroke machine (Villiers engine) which ran perfectly until quite recently, when it developed the following complaint: It starts very badly, the exhaust being woolly. It sometimes stops altogether, but, as a rule, after running about eighty yards the engine runs perfectly. It also does only about twenty-eight miles per hour all out, as compared with about thirty-nine before it developed its complaint. I have tried everything I can think of, different jets (Amac carburetter), but have returned to a twenty-eight, tested the level, raised and lowered it, tested ignition timing, cleaned out silencer, and thoroughly cleaned the whole engine, but all in vain. The machine will not look at hills now, which it used to climb easily, which looks like bad compression, but the latter is very good. I have taken it to two good mechanics, but they were unable to make any improvement. —D.G.H.

Your trouble may be due to one of several causes, but in all probability you will find that the top piston ring is sticky in the groove. The ring should be removed, and all traces of carbon scraped off, especially at the back of the ring and on the sides of the groove. We feel sure that this will cure your trouble, but if not, see that the exhaust port is quite clear, as this sometimes chokes up with a very hard deposit, which almost resembles cast iron at first glance. Also, make sure that your crankshaft bearings are sound, and that there is no loss of compression from the crank case, as this is a very important point. [The above reply was posted to "D.G.H.," and we have since heard that our diagnosis has proved correct, the trouble being a stuck piston ring. When this was freed the machine ran perfectly.—ED.]

READERS' REPLIES.

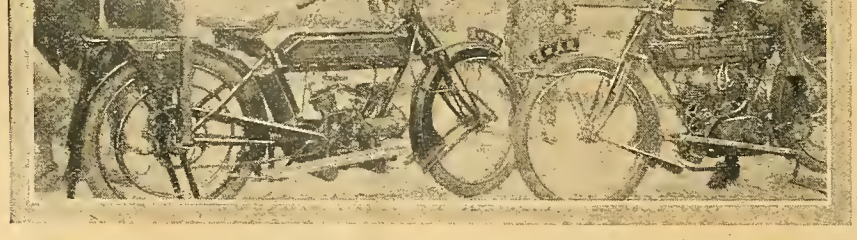
Consumption on Two-stroke.

Referring to your "Questions and Replies" page in your issue of October 1st, I should advise your correspondent "E.A.H." to hammer up very tightly the nut of the outside flywheel on his two-stroke engine. From experience and knowledge of two-strokes, of other than those of our own make, I should say the knock he complains of is due to the flywheel being loose on the taper of the crankshaft. Considerable damage will result if the flywheel is allowed to remain loose.—ARTHUR BUTTERFIELD.



Showing the manner in which the nut securing an outside flywheel should be tightened. After screwing up as tightly as possible by hand, a ring spanner should be used, and "jarred" up dead tight by hammering, care being taken that there is sufficient thread on the end of the crankshaft remaining within the face of the flywheel boss to allow the wheel to be forced dead tight upon the taper.

Observing the remarks of "E.A.H.," regarding his experience with his 2 h.p. two-stroke, I thought it might be interesting to give my experience with a similar type of machine. I have been running a 2¼ h.p. Radco since Easter, and my experience has been very different as regards petrol consumption. At first I could not get more than eighty to ninety miles per gallon, but after running it for a couple of months I got the "hang of the thing" better, and my mileage per gallon considerably increased, and now I can get one hundred and thirty miles per gallon on average roads. At first I used a 25 jet, but after three or four hundred miles I replaced it with a 24, and I have had this in ever since. I can run on full air and throttle about a quarter open, and it does not four-stroke at all, and after running thirty or forty miles it seems to be just getting into the "stride" and runs better than ever. I have now ridden nearly 2,000 miles, and have several times gone into Devonshire, but have had no pushing up hill to do. The machine is a fixed gear, 6 to 1, and the only thing I find wanting is a two-speed gear, not that I have had any trouble with hills, but when running at thirty to thirty-five miles per hour the r.p.m. are rather high, and I notice considerable vibration. If I had a two-speed, say, 4½ to 1 and 8 or 9 to 1, I think I could go anywhere on it.—TWO-STROKE ENTHUSIAST.



British motor cyclists in China. The machines depicted are a 3 h.p. and a 2¾ h.p. Enfield. Note the registration numbers in Chinese characters.

THE GERMAN MENACE
BEWARE.
MOTOR CYCLISTS beware of purchasing GERMAN TYRES made in the same factory as the fabric of Zeppelin Airships.
BE PATRIOTIC—insist on North British
CLINCHER TYRES
SUPPORT BRITISH WORKPEOPLE.
REMEMBER, CLINCHERS ARE BRITISH & BEST.

THE NORTH BRITISH RUBBER CO., Ltd., 169, Great Portland St., London, W. Factories: Castle Mills, Edinburgh.

In answering this advertisement it is desirable to mention "The Motor Cycle." B23

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. ooo, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

Abingdon.

ABINGDON, 1913, 3½h.p., 3 speeds and clutch, P. and H. lamp set, and horn, splendid order, used solo only; £35.—Elce and Co., 15, Bishopsgate Av, Camomile St., London, E.C. [0491

A.J.S.

A.J.S., 1914, 750 c.c. engine; cancelled order; £65.—Hilton and Son, Foxhall Sq., Blackpool. [X1082

A.J.S. Lightweight, 2-speed, clutch, Palmer cords, lamp, spares; £23.—Monk, Cemetery Works, Hastings. [X1062

A.J.S., 1913, 5h.p., 2-speed, counter-shaft gear, chain drive, clutch and kick starter, accessories; £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0481

2¾h.p. A.J.S., Bosch mag., 26×2 Hutchinson rubber-studded tyres, Druid spring forks, Dunlop belt, B. and B. h.b.c. carburetter, powerful, fast, splendid condition, tools, watch, head light; bargain, £9/15.—Day, 84a, Newark St., London Hospital, E. [X1158

Alldays.

ALLDAYS-MATCHLESS, 2½h.p., 2-stroke, Sturmey 3-speed gear, clutch, free engine, Dunlops, done 200 miles; £30.—Wallis, Eign St., Hereford. [7922

Ariel.

ARIEL, 3½h.p., 1914, little used; must sell; £34.—Dingley, Lodge Rd., Birmingham. [X1043

THERE'S NO BETTER HOUSE FOR BUYERS THAN HAUCHOPE'S

The selection of machines on offer is always the largest in the kingdom, and comprises all best makes of Motor Cycles, Light Cars, and Sidecars both for Pleasure and Business. The prices are the lowest, and all machines are delivered ready for riding and fully guaranteed.

ASK FOR TO-DAY'S LIST. IT INCLUDES

8891.	8	h.p. 1914 **G.W.K.**, complete ...	£110	0
8889.	3½	h.p. 1914 T.T. **PREMIER**	£32	10
8888.	8	h.p. 1914 Grand Prix **MORGAN.** Special machine	£110	0
8887.	2¾	h.p. 1911 2-sp. **DOUGLAS**, lady's	£25	0
8885.	3½	h.p. 1911 2-speed **HUMBER** and Sidecar	£27	10
8884.	2	h.p. 1914 2-speed **CALTHORPE**	£22	10
8882.	3½	h.p. 1913 3-speed **ROVER**	£35	0
8876.	8	h.p. 1913 w.c. **WILLIAMSON** Combination	£57	10
8873.	8	h.p. 1914 w.c. **HUMBERETTE**	£95	0
8871.	6	h.p. 1914 2-speed **ENFIELD** and Sidecar	£65	0
8863.	2¾	h.p. 1912 standard **DOUGLAS**..	£25	0
8861.	7	h.p. 1914 **SWIFT** Cycle Car ...	£115	0
8858.	3½	h.p. 1912 twin **HOBART**	£22	10
8843.	3½	h.p. **MIDGET** Bicar	£20	0
8842.	6	h.p. 1912 **ZENITH-GRADUA** ..	£37	10
8840.	6	h.p. 1914 **ROYAL ENFIELD** and Sidecar	£67	10
8834.	8	h.p. 1914 **HUMBERETTE**	£105	0
8832.	7½	h.p. 1909 **MOTOSACOCHE**	£9	0
8809.	8	h.p. 1913 **ZENITH** and Sidecar	£50	0
8802.	7	h.p. 1914 2-speed **INDIAN,** electric starter	£57	10
8795.	2½	h.p. 1914 2-speed 2-stroke **CONNAUGHT**	£28	10
8784.	3½	h.p. 1909 **BRADBURY**	£16	0
8782.	3½	h.p. 1912 T.T. **TRIUMPH**	£25	0
8776.	6	h.p. 1913 2-speed **ENFIELD** and Sidecar	£52	10
8773.	3½	h.p. 1912 2-sp. **SINGER,** Sidecar	£38	0
8772.	6	h.p. **ROVER** Car	£25	0
8765.	2¼	h.p. 1914 2-stroke **LEVIS**	£25	0
8762.	6	h.p. 1913 3-speed **BAT**	£45	0
8741.	3½	h.p. 1912 **TRUMP-J.A.P.**	£30	0
8737.	6	h.p. 1912 **ZENITH** and Canoelet	£45	0
8718.	3½	h.p. 2-speed **FAFNIR,** Sidecar..	£22	10
8708.	2¾	h.p. 1910 **DOUGLAS**	£17	10
8706.	6	h.p. 1913 2-speed **ENFIELD** and Sidecar	£55	0
8705.	3½	h.p. 1912 F.E. **RUDGE**	£25	0
8702.	2	h.p. 1912 **MOTO-REVE**	£12	10
8682.	6	h.p. 1913 2-speed **V.S.-J.A.P.** and Sidecar	£45	0
8654.	3½	h.p. 1910 standard **TRIUMPH**..	£22	10
8619.	2¾	h.p. 1911 standard **DOUGLAS**..	£20	0
8592.	3½	h.p. 1908 **QUADRANT**	£15	0
8568.	3½	h.p. 1910 **BRADBURY**	£18	10
8561.	3½	h.p. **VINDEC** and Sidecar	£17	10
8554.	8	h.p. 1913 2-speed air-cooled **WILLIAMSON** and Sidecar	£50	0
8551.	2¾	h.p. twin **FAIRY**	£10	10
8529.	5-6	h.p. 4-cylinder **F.N.** and Sidecar	—	
8502.	3½	h.p. 1908 **TRIUMPH**	£20	0
8412.	3½	h.p. 1908 **TRIUMPH**	£18	10
8367.	8	h.p. 1912 3-sp. **CHATER-LEA** and Sidecar	£55	0
8359.	6	h.p. twin **BROWN** and Sidecar	£20	0
8338.	3½	h.p. 1910 **BRADBURY**	£20	0
8336.	2¾	h.p. **F.N.**	£10	10
8335.	3½	h.p. 1909 **TRIUMPH**	£20	0
8323.	3½	h.p. 1912 **LINCOLN-ELK**	£20	0
8320.	3½	h.p. 1911 **ARIEL,** variable gear	£20	0
8306.	3½	h.p. 1907 **TRIUMPH**	£17	10
8277.	6	h.p. 2-speed **N.S.U.** and Sidecar	£25	0
8258.	5-6	h.p. twin **V.S.**	£16	10
8238.	8	h.p. 1913 2-sp. **BAT** and Sidecar	£48	0
8210.	2¾	h.p. **F.N.**	£10	10

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MOTOR CYCLES FOR SALE.

Ariel.

FOR Sale, 3h.p. Ariel, 1912, B. and B., mag., et £8, quick sale.—Rackham, Gilwern, Abergaven [77

ARIEL, 1914, new August, 3½h.p., counter-sh lamp, horn, speedometer; cost £70, accept £6 Baker, Salisbury Rd., Shaftesbury. [7

ARIEL, late 1912, 3½h.p., variable gear, Mi Fulford sidecar, Cowey, etc., little used; c £78/10, price £30.—232, Lancaster Rd., No Kensington. [7

ARIEL, late 1914, 3½h.p., single speed roadster, c pletely equipped, equal to new; £35; owner tained commission; no use for machine.—Alec Wootton Rivers, Rectory, Marlborough. [7

ARIEL, 3½h.p., 1911, free engine, in splendid ord Bosch mag., spring forks, lamp set, and ho complete, and guaranteed in good order; £18.—E and Co., 15, Bishopsgate Av., Camomile St., Lood E.C. [0

Arno.

ARNO, 2¼h.p., used slightly; naval officer called hargain, £18.—173, Gleneldon Rd., Streatham. [X1

Auto-Wheels.

AUTO-WHEEL, 1914, not ridden 50 miles, new dition; £12, or offer.—Ainsworth, Victoria Romford. [7

AUTO-WHEEL, 1914, new, fitted to nearly new Ja lady's tricycle, 2-speed; £30 the combination, sell separately.—Ainsworth, Victoria Rd., Romford. [7

AUTO-WHEELS, 1914, lady's and gentleman's Rover machines, condition as new; 14 g each.—P. J. Evans, John Bright St., Birmingham. [7

AUTO-WHEEL, 1914, as new, fitted to extra str Palmers cycle, with Sturmey-Archer 3-speed h bargain, £17, or near offer.—Shepherd, 133, Kille Rd., Catford, S.E. [7

Bat.

BAT, 8h.p., 2-speed counter-shaft combination, g condition; bargain.—Balmforth, Ormskirk. [X1

BAT, 1912, fixed gear, spring frame model, in perf order; bargain, £23.—The Exeter Motor Cycle Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, T stock Rd., Plymouth. [0

1913 Bat, 6h.p., overhead valve, ball bear engine, J.A.P. automatic carburetter, 3-spe 1½in. belt, semi-T.T. bars, kick starter, accesso Canoelet sidecar to match; £50 lowest.—F. Farr 69, Belmont Hill, Lewisham, S.E. [X1

Bradbury.

BRADBURY, 1911, splendid order throughou £16/10.—Speechley, 45, Church Rd., Acton. [7

1914½ New 4h.p. Bradbury, 3-speed, chain drive, k starter; list price £59; splendid chance, £49/ —Alexander's, 115, Lothian Rd., Edinburgh. [7

1914 Brand New 6h.p. Bradbury, 3-speed, side combination; list price £92/16, a real snap, £ —Alexander's, 115, Lothian Rd., Edinburgh. [7

BRADBURY and Sidecar, 1912, 4h.p., 2-speed, f engine, lamp, speedometer, horn, splendid con tion; bargain, £30, or offer.—Cassell, 67, Vicar Rd., Plumstead. [7

BRADBURY 6h.p. Twin, not done 600 miles, coa built sidecar, speedometer, Cowey, lamps, ho spares; £65; any trial; free delivery.—Overdale, Po Rd., Ashton-on-Ribble. [X1

BRADBURY Combination, 1914, 6h.p. twin, 3-sp counter-shaft gear, Palatine tyre on rear wh Model de Luxe sidecar, with wind screen, done 1,2 miles only, spare Palmer cord tyre and tube, Lu horn, Cowey speedometer, Millers lamp, D.A. light outfit, all as new; £78; owner gone in for car.—B gourd, Belgrave Motor Works, Guernsey. [78

Brough.

T.T. Brough, 500 c.c., horizontal-twin, 1914, just fit with latest engine August, absolutely perfe £38/10.—W. S. Life, The Cliffe, Southport. [05

BROUGHS.—Immediate delivery from stock of 500 c.c. horizontal twin 2-speed overhead va models.—The West Lancashire Motor Co., Southpor [05

B.S.A

B.S.A., 1913, 2-speed, free engine, splendid conditio £37.—Bainbridge, Alexandra Rd., Penrith. [X1

B.S.A., late 1914, 4h.p., 3-speed counter-shaft, n condition; price £53.—Gaylard, Ashley Dairy, W ton-on-Thames. [78

1914 4h.p. B.S.A., 3-speed, chain drive, brand ne list price £63; end of season price, £53/10 Alexander's, 115, Lothian Rd., Edinburgh. [78

MOTOR Cycle, B.S.A., 4h.p. model H, 1914, 3-spe chain drive, kick starter, as catalogue, lamps, ho complete, No. 2 sidecar, recently cost £80, all as ne owner called abroad; £65 combination, cycle only £55 Pullan, Cirencester. [X10

MOTOR CYCLES FOR SALE.

B.S.A.

B.S.A., 1912, excellent condition, all accessories, ready to be ridden away; seen any time; £26.—Bromley Motor Works, Masons Hill, Bromley, Kent. [7720

B.S.A., 1913½, 2-speed, chain drive, 3½h.p., Lucas lamp, horn, all spares, cane sidecar, new last June; bargain, £45, cost £76.—Hudson, 69, High St., Bridlington. [X0988

1914 3½h.p. B.S.A., chain-cum-belt, kick starter, 3 speeds with coachbuilt sidecar, lamps, horn, spares, tyres in good condition; £63.—F. R. Aynscough, 54, Beaufort St., Nelson. [7956

Calcott.

CALCOTT, 1912, 2½h.p., new tyres, just thoroughly overhauled by makers, lamp, horn, etc.; £16/10.—Dove, Wragby, Lincolnshire. [X9507

2¾h.p. Calcott, 3-speed, new tyres and belt, speedometer, horn, watch, mirror, lamp, all in splendid condition; £18 cash.—58, Spilsby Rd., Boston. [X0978

Calthorpe.

CALTHORPE Junior, 1914, 2h.p., 2 speeds, perfect condition; £20.—Gray's Garage, Watford. [X1084

CALTHORPE Junior, 2h.p., 2-speed, 1914; £22; little used, climb any hill.—89, London Rd., Newark. [7930

CALTHORPE Junior, almost new, perfect condition; B180; £20.—Seen after six, 14, Mall Rd., Hammersmith, W. [X0801

1914 Calthorpe Junior, 2-speed, brand new; 25 gn. model, for 21 gns.—Alexander's, 115, Lothian Rd., Edinburgh. [7853

CALTHORPE Junior, 2in. tyres, lamp, horn, spares, run 300 miles; £23.—Write first, F. C. Pells, 74, Solent Rd., Hampstead, N.W. [X0225

CALTHORPE Junior, 2 speeds, F.E., watch, lamp, horn, all complete; bought new in July; £17/10.—J. Hill, Boreham St., Sussex. [7677

2h.p. 2-speed Lightweight Calthorpe, not ridden 1,000 miles, and in condition good as new; £22/10.—Wauchope's, 9 Shoe Lane, London. [X1023

CALTHORPE Junior, 2h.p., 2-speed, bought new September, 1914, cost £26/10, sell £22; owner on service.—Avery, Priory Rd., Chilton, Bristol. [X0995

1912 3½h.p. Calthorpe-Precision, B. and B., adjustable tappets, F. and H., new tyre, long exhaust, splendid condition; £19, very near offer.—F.J.P., 83, London Rd., Bromley, Kent. [7802

Campion.

CAMPION, 1913, 6h.p. twin, 2-speed counter-shaft, chain drive, F.R.S., Druids, Bosch; £40; ideal sidecar machine.—Morgan and Maxwell, 80, High Rd., Streatham. [X1107

Centaur.

1912 2h.p. Centaur Lightweight, new condition; bargain, £14.—Wright, newsagent, Arlesey, Beds. [7803

CENTAUR, 3½h.p., B. and B., coil and battery, in good running order; £8/8, or offer.—Rattlidge, 18, Hythe Rd., Brighton. [7823

Chater-Lea

£12/10.—Chater-Lea, 4h.p., new mag., carburetter, and tank, Druids, low.—23, Victoria Rd., Redhill. [7863

1914 3½h.p. Chater-Lea Condor, F.E., Bosch, B. and B., Druids, Dunlops, horn, spares; £26.—H. Kelsey, Bell Green, Coventry. [X1053

2¾h.p. 2-speed Chater-Lea 2-stroke Motor Cycles for immediate delivery from stock, £36; exchange or easy terms at Wauchope's, 9, Shoe Lane, London. [X1119

CHATER-LEA 1913 8h.p. Sidecar Combinaiton, 3 speeds, chain drive, cane sidecar, splendid order; trial and inspection invited; £56.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0599

Clyno.

CLYNO, 6h.p., 2 speeds, kick starter, coach sidecar, good condition; £36.—Norris, Underriver, Sevenoaks. [7862

CLYNO Lightweight, June, 1914, perfect order, ready for road; £34, nearest offer.—Gee, Chapel Sq., Foleshill. [X1046

CLYNO, 6h.p., 2-speed, kick starter, 1911 model, perfect condition; £22, bargain.—87, Highland Rd., Coventry. [X1134

CLYNO, 6h.p., 1912¾, smart torpedo sidecar, accessories, handsome bargain, £35 secures.—2, Kilmorie Rd., Forest Hill. [X0983

CLYNO, 1914 2-stroke, single-speed, brand new; list £30, accept £25.—P. J. Evans, John Bright St., Birmingham. [7886

1914 2-stroke Clyno, new July 15th, not done 300 miles; sacrifice owing to war, £21.—Cranstone, 41, Mill Lane, Reading. [X0799

CLYNO, 1912, 6h.p., coachbuilt sidecar, good condition, perfect running; 40 gns.—Jones, Millfields Rd., Ettingshall, Wolverhampton. [X1038

1912¾ Clyno, coachbuilt sidecar, 2-speed, new tyres, lamp, horn, spares; expert examination; bargain; offers wanted.—Samuel Chinn, St. Vivian, Warwick Rd., Kenilworth. [X1012

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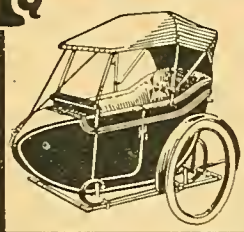

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2 h.p. MOTO-REVE, magneto	£9 0
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6 h.p. CLYNO Combination, speedometer	£28 10
6 h.p. EXCELSIOR Big Single, 2 speeds ..	£35 0
6 h.p. CLYNO Combination, 1912	£35 0
3½ h.p. HUMBER and Sidecar, 2 speeds ..	£27 10
6 h.p. REX and Sidecar, free engine	£16 10
6 h.p. REX Sidette, 1913 model	£39 10
3½ h.p. PREMIER, 1914, 3-sp. model, with new £11 Sidecar, only run 100 miles ..	£49 10
3½ h.p. PREMIER, 2-speed, with £11 new coach-built Sidecar	£32 10
3½ h.p. PREMIER, 3-speed model	£32 10
3½ h.p. HUMBER, 1911, 2-speed model ..	£18 10
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MOTOR CYCLES FOR SALE.

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1912 Clyno and Coachbuilt Sidecar, 2-speed, kick starter, engine and gears have been thoroughly overhauled by Clyno, tyres as new; £36.—Stevens, 248, Gooch St., Birmingham. [7916

CLYNO Combination (late 1913 model), 3-speed, spare wheel, 3in. tyres all round, new Pedley on back wheel, Xl'all large pan seat, 2 head lamps, horn, Watford speedometer, mirror, watch, spare covers and tube, etc., overhauled at works just before holidays, in perfect order; £65, or near offer.—Chapman, 50, Madeira Rd., Streatham, S.W. [7812

Connaught.

1914 Connaught, in perfect condition; any trial; £27.—Robinson, Egerton Hall, Malpas, Cheshire. [X1070

CONNAUGHT 2-stroke, 1914, 2-speed counter-shaft model, nearly new; bargain, £28, or exchange combination.—Peat, 127, Trentham St., Southfields, S.W. [7845

Douglas.

1911 2-speed Douglas; £23.—Cross, Jeweller, Rotherham. [X1076

DOUGLAS, 1911, recently overhauled; £17/10, or offer.—35, North Parade, Derby. [X1080

DOUGLAS, 1913 model O, 2-speed, little used, perfect order; £35.—115, Great Portland St. [7953

DOUGLAS, 1913, 2-speed, all accessories; only £30.—Smith, Longworth, Headington, Oxford. [X1083

DOUGLAS; all models supplied, cash or easy terms.—Turpins, 22 and 29, Preston Rd., Brighton. [0509

DOUGLAS, 1914, models U, V, and W, in stock; trade supplied; special discount.—Ginger Motors, Banbury. [X0340

DOUGLAS, as new, 2-speed, and free engine, lamp, horn, speedometer; £33/10.—Hole, 129, Park Lane, Carshalton. [7860

DOUGLAS, 1913 model R, 2 speeds, clutch, and kick start, perfect order; £37.—Laurence Hardy, Ravenslaw, Alnwick. [X0918

DOUGLAS, model U, not run 20 miles, new only 2 weeks ago; sacrifice £38.—3, Beulah Mount, Woodhouse, Leeds. [7792

2¾h.p. Lady's Douglas, open frame, 2-speed gear, and free engine; £25, bargain.—Wauchope's, 9, Shoe Lane, London. [X1025

LADY'S Douglas, 2-speed, kick starter, clutch; bargain, £39; approval.—Anchencairn, Worcester St., Gloucester. [X1093

DOUGLAS, all models for immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6610

DOUGLAS, 1914 model W, done 1,000 miles, lamp, horn, etc., good condition; £43.—Anderson, Bank, Tow Law, Durham. [X0923

NEW 1914 Douglas, model W, P. and H. lamp set, watch, horn, etc., ridden 300 miles; £42.—Ball, Madeley, Peterborough. [7874

DOUGLAS, 1913, T.T., 2-speed, lamp, horn, speedometer, tools, etc.; offers, £32.—Underwood, 10, Duncan Ter., Islington, N. [7919

DOUGLAS, 1913½, little used through illness, magnificent new condition, accessories, spares; bargain, £29.—81, St. Kilda Rd., Ealing. [7799

DOUGLAS, 1914, T.T. model, complete set accessories; bargain, £36.—Cass's Motor Mart, 5, Warren St., W. Museum 623. [7976

1914 Douglas, model U, 2¾h.p., new in July, complete with lamp and horn, condition as new; £39.—Robinsons, Green St., Cambridge. [6865

£12 and 12 payments of £1/15 for 2-speed 2¾h.p. 1913 Douglas, guaranteed perfect; any trial.—Colmore Depot, 31, Colmore Row, Birmingham. [X0973

DOUGLAS, 3½h.p., B, all accessories, 12 gn. Southwell sidecar, wind screen, luggage grid; £60, offers, or sell separate.—Wells, Marehalls, Cuckfield, Sussex. [X0986

DOUGLAS Agents in England.—Models A and B in stock; delivery of any 2¾h.p. models instantly. Trade supplied.—T.A.: Bicycles. Tel.: 388. Robinsons, Green St., Cambridge. [6864

Enfield

ROYAL Enfield 2¾h.p. Twin, 1914, not ridden 100 miles, absolutely as new; accept £37/10.—Whitehead, 53, Vicar Lane, Leeds. [7808

ENFIELD 1914 6h.p. Combination, all accessories, perfect condition; £70, or near offer.—Gunn, 30, Willow Rd., Bournville, Birmingham. [X1073

ENFIELD 1913 Combination, 6h.p., 2 speeds, and accessories, excellent condition; £52.—P. J. Evans, John Bright St., Birmingham. [7889

ENFIELD 1914 6h.p. Combination, hood, screen, lamp, horn, speedometer; cost £95, great sacrifice, £65.—Marks, 58, Foster St., Lincoln. [X1099

ENFIELD Combination, coachbuilt or Canoelet sidecar, perfect; £60, cash or deferred payments on above.—Colmore Depot, 49, John Bright St., Birmingham. [X0993

6h.p. 1914 Enfield Combination Motor Cycle and Sidecar, in grand condition, fitted up complete with coachbuilt sidecar, speedometer, horn, lamp, rear light, etc., £65, bargain; exchange entertained.—Wauchope's, 9, Shoe Lane, Fleet St., London. [X1020

MOTOR CYCLES FOR SALE.

Enfield.

ENFIELD, 1913, 3h.p., free engine, 2-speed, perfect condition, lamp, horn, speedometer; £32, or exchange good 2-stroke.—H. R. Wheatley, Adwalton, Bradford. [X0921

ENFIELD, 6h.p., 1913, 2-speed, and coachbuilt sidecar, lamp set, tools, rear lamp, etc., perfect condition; bargain, £45.—Cass's Motor Mart, 5, Warren St., W. Museum 623. [7975

1914 6h.p. Royal Enfield and coachbuilt sidecar, late model, run 1,600 miles, hood, screen, 3 Lucas lamps, speedometer, spare cover and tube; splendid bargain, £60.—Lawes, Aldershot. [7869

ENFIELD 1914 6h.p. Combination, perfect condition, Miller lamps, head, side, rear, speedometer, horn, new Palmers back, front; cost £92 April, accept £60.—65, Sedgmoor Place, Camberwell, S.E. [7915

ENFIELD Combination, 1914, brand new, 6h.p., 2-speed; list price £84, sacrifice £76.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0569

Excelsior.

LATE 1912 Excelsior Motor Cycle and sidecar, 7h.p., good condition.—J. White, 38, Croft Rd., Smithills, Bolton. [X1033

Fafnir.

3½h.p. Fafnir, Chater-Lea, spring forks, Bosch, B. and B., recently overhauled and enamelled, perfect running order; bargain, £15, or near offer.—J. Marshall, Ashford Hill, Newbury. (D) [X0977

F.N.

F.N., 4½h.p., 4-cyl., central induction, very good condition; £12.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0593

2¼h.p. F.N., late 1910 motor cycle, 2-speed, free engine, splendid condition, tyres nearly new; £14.—E. Sheen, Gloucester Rd., Cheltenham. [7881

Gaby.

GABY Lightweight Motor Cycles, 2½h.p. 2-stroke model; 22 gns. Trade not supplied.—Particulars, 37, County Buildings, Corporation St., Birmingham. [X1101

Hazlewood.

1914 5-6h.p. Hazlewood, 3 speeds, new Whit. week, and only ridden 500 miles; cost £68/5; sacrifice for £58.—125, London Rd., Manchester. [0562

HAZLEWOOD 1913 and 1914 5-6h.p. models can be converted into 1915 3-speed gear box type.—Apply for further particulars to the makers, Hazlewoods, Ltd., Coventry. [X0384

Henderson.

1914 9h.p. Henderson, lamp and horn, excellent; £50.—Morriss, 139, Finchley Rd., N.W. [X0971

HENDERSON Combination, 2-speed model, perfect condition; accept lightweight in part payment.—Earl, 5, Heath St., Hampstead. [X1164

Humber.

HUMBER, 1912, 2h.p., absolutely perfect throughout; £15.—1, King St., Acton. [7688

HUMBER, 1912¾, 3½h.p., 2 speeds, overhauled; nearest £28.—Hirst, Park View, Holmfirth. [X1072

1913 Humber, twin, 2¾h.p., very lively, done 1,000; £25, or offers.—Pulford, Brinkley, Southwell. [7535

2¾h.p. Humber, chain drive, new carburetter and handle-bars, good tyres, runs well; £5.—Payne, 94, High St., Godalming. [7822

1911 3½h.p. Humber, 2 speeds, free, sidecar, B. and B., Bosch, speedometer, spares, perfect; £28.—91, High St., Walthamstow. [7882

HUMBER, 2¾h.p., T.T. twin, in splendid condition throughout, smart, fast, and reliable; great bargain, £25.—Crypto, 14, Mortimer St., W. [X0335

HUMBER, 1914, 3½h.p., free engine, kick starter, Armstrong 3-speed, accessories, perfect order; £40, cost £54/10.—Rev. Collins, Southwell, Notts. [X1055

3½h.p. 2-speed Free Engine 1912 Humber and coachbuilt special sidecar, in perfect order and beautiful condition; bargain, £28/10; guaranteed faultless.—Fearn, Drapery Stores, Alfreton. [7939

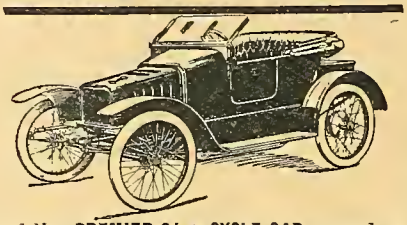
HUMBER, 1912½, 3½h.p., 2 speeds, and 10 gn. sidecar, new 2½ Stelastic and Palmer tyres, spare tube, tyre, valve, 2 horns, 2 lamps, etc., condition perfect; £30.—Fowler, 57, Burbeary Rd., Lockwood, Huddersfield. [X0803

HUMBER, 1911, 3½h.p., 2-speed, handle start, reed cane sidecar, all in really good condition, luggage grid, petrol tin carrier, all spares, ready for road; seen any time; cash, £29.—227, George Rd., Erdington, Birmingham. [X1098

3½h.p. Humber Combination, just overhauled, rebushed, new piston, new gears, etc., fitted by makers, storm apron, heavy Kempshall, Whittle, Mangin lamp, horn, spares, etc.; £32, or very near offer; buying twin.—T. Owen Smith, Felstead. [7816

HUMBER Motor Cycles, special clearance lines, brand new and fully guaranteed.—1914 twin, 3-speed, £37; one 1913 ditto, £32; one 1913 2¾h.p., single speed, £27; one 2h.p., single-speed, £22; all guaranteed new.—P. J. Evans, John Bright St., Birmingham. [7897

ONE SPECIAL BARGAIN!



Brand New **PREMIER 8 h.p. CYCLE CAR,** 2 speeds and reverse, complete with hood and screen. Maker's price, £115 10s. **Our Price, £75.** One only.

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WILLIAMSON 1914 Combination, hood and screen, brand new, all accessories **£88**
ENFIELD 1914 shop-soiled Combination, coach-built Sidecar **£80**
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NEW HUDSON 1914 3-speed Combination, every possible accessory, not done 200 miles **£84**
REX 1914 6 h.p. Combination; cost £85; had very little use; bargain **£60**
BAT, 1914, 8 h.p., 3 speeds, Speedwell coach-built Sidecar, perfect condition **£60**

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WILLIAMSON, 1913, 8 h.p., 2 speeds, water-cooled, Sidecar with hood and screen **£65**
REX, 6 h.p., 1914 model, 3 speeds, chain drive, Portland Sidecar, Special Bargain **£52**
TRIUMPH, 1909, 3½ h.p., Tourist model, excellent condition **£17**
RUDGE, 1913, 3½ h.p., Multi, and Burbury Sidecar, excellent condition **£65**
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ROVER, 3½ h.p., vertical engine, Rudge bars, magneto **£11**
REX, 6 h.p., 1914, 2-speed model, complete with sporting Sidecar **£53**
FORWARD, 2¾ h.p., Twin, Binks carb., excellent lightweight **£16**
REX, 1911, 6 h.p. model, 2 speeds, free engine, handle starting, Amac carb., Sidecar **£33**
INDIAN, 7 h.p., 1913 model, Indian Red, 3in. tyres, 2 speeds **£48**
REX, 3½ h.p., spring forks, Bosch, B. and B., low built, **£15**
PREMIER, 3½ h.p. model, B. and B. carb., Bosch magneto, 1in. Whittle belt **£18**
G.N., 8 h.p., Cycle Car, 2 speeds, very fast, side by side seating **£48**
V.S., 7-9 h.p., 2 speeds, Bosch, torpedo cane Sidecar, Truffault forks, excellent condition **£26**
ENFIELD, 6 h.p., combination, 2 speeds, J.A.P. engine, splendid order **£50**
PEUGEOT, 7-9 h.p., twin magneto, Chater Sidecar .. **£21**
REX, 5 h.p., T.T. model, torpedo tank, grey finish, excellent condition **£17**
SCOTT, 1914, 3¾ h.p., Montgomery Sidecar, screen .. **£60**
BRADBURY, 1912, 4 h.p., 2 speeds, very good order **£33**
TRIUMPH, 1913, 3½ h.p., fixed gear, excellent order.. **£30**
BAT, 6 h.p., Mabon clutch, spring frame, Sidecar, excellent order, bargain **£32**
REX, 6 h.p., 1912, lamp, etc., 2 speeds, handle start **£39**
HUMBER, 3½ h.p., 1909, 2-speed model **£22**
CLYNO, 1912, 6 h.p., 2-speed, combination, coach-built Sidecar **£40**
N.S.U., 1913, 3½ h.p., 2 speeds, cane Sidecar, excellent order and condition **£34**
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MOTOR CYCLES FOR SALE.

Indian.

FOR Sale, cheap, 5-6h.p. twin Indian; £25.—Ince, Old Crown, Hayes, Middlesex. [X1061

1913 T.T. 7-9h.p. Indian, clutch, excellent; £33/10.—Morriss, 139, Finchley Rd., N.W. [X0970

1914 Indian and Millford Sidecar to match; complete, £65; or exchange Douglas part.—Box 6,761, *The Motor Cycle* Offices, Coventry. [X1077

INDIAN 7h.p. 1914 Coach Combination, excellent condition, with electrical equipment; £65.—P. J. Evans, John Bright St., Birmingham. [7887

INDIAN, 7-9h.p. (1914), and coachbuilt sidecar, F.E., 2-speed, electric lights and horn, perfect condition; owner on active service; sacrifice £65.—Apply, Littlewood, 38, Pindersfield Rd., Wakefield. [7946

INDIAN, Hendee Special, self starter, model 1914, brand new; list price £80, sacrifice £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0603

INDIAN, 7h.p. racer, 1912, and new Watsonian featherweight sidecar, kick starter, the property of an officer ordered abroad, has had very little use, and is in excellent mechanical condition; trial willingly; £40.—Kennedy, Bacombe, Wendover. [7844

1914 7-9h.p. Hendee Special Model Indian sidecar combination, electric starter and lighting, fully equipped with speedometer, tools, etc., Mills-Fulford de Luxe body, splendid condition, very little used; cost nearly £100, bargain at £65.—M R., 21a, Store St., W.C. [4829

1913½ Indian (red), 7-9h.p., 2-speed, free engine, kick starter, spring frame, 28×3 Kempshall tyres, tools, mirror, watch, and Pillion seat, also sidecar with extra folding seat, underslung Indian chassis, guaranteed perfect bargain, £48.—17, Ford Sq., Mile End, London. [X1139

1913 (November) 7h.p. Indian, engine and gears perfect, enamel and plate, absolutely perfect condition throughout, machine ridden 2,000 miles, tyres excellent, back new Kempshall, front Indian studded, horn and tools; £49.—King, Sunnyside, Staplesford, Cambs. [X1095

FOR Sale, 1914 Indian, 7h.p., 2-speed gear, kick starter, electric horn and lamps, speedometer, runs about 600 miles, good condition; trial run given at any time by appointment; price £55, or offers entertained, as owner is buying a car, and must sell at once.—T. Benson, Kingswood Court, near Epsom. Tel.: 212 Burgh Heath. [7820

Ivy.

1913 3½h.p. T.T. Ivy, Precision, complete, first-class condition, lamp, horn; £27.—Hopkins, Dawlish. [7839

James.

JAMES, 4½b.p., late 1913 model, chain driven, 3-speed counter-shaft gear, perfect; £35 only.—Moss, Wem. [X1089

JAMES, 4¼h.p. single, 1913½, 2-speed, kick start, chain, completely overhauled, as new; sacrifice £26, accessories.—Feiru, Rose Cottage, Windermere. [X1087

JAMES, 1914, 4¼h.p., big single, and Canoelet sidecar, 3-speed, list price 73 gns., new, special price 65 gns.; new 3½h.p. 3-speed twin, 54 gns.; also James 2-stroke, 35 gns., for immediate delivery.—Stevens (James specialist) Gooch St., Birmingham. [0432

J.A.P.

J.A.P., 1913, 3½h.p., 3-speed, free engine, heavy 26×2½ Kempshall tyres, condition equal to new; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0592

4h.p. J.A.P. and sidecar, B.H.K. clutch, Hellesen, nearly new tyres and belt, all accessories, splendid running order; £16/10.—Burge, Hairdresser, Whitchurch, Salop. [X1115

J.A.P., 1913, 6h.p., Mabon clutch, new cane torpedo sidecar, skew 26×2½in. tyres, drop top tube, splendid order; a real bargain, £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0552

J.E.S.

SPECIALLY Built J.E.S. Motorcyclette, with direct drive, Amac carburetter, h.b.c., large saddle, many extras, low frame, suit elderly gentleman; owing to war for sale absolutely new at cut price.—Millards, Cycles, Guernsey. [7827

Kerry.

KERRY-ABINGDON, 3½b.p., Armstrong V.L., kick starter, Hutchinson tyres, first-class condition, coachbuilt sidecar; bargain, £29.—Newman, Hollies, Acock's Green. [X1066

Lea-Francis.

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

Levis.

HARRY WALKER'S for Levis's. More business as usual. The £25 Popular supreme.—Muswell Hill, N. [7721

£12 deposit and 12 payments of £1/15 for 2½h.p., slightly used £38/10 Levis; any trial.—Colmore Depot, Birmingham. [X0975

2¼h.p. 2-stroke Levis, 1914 model, in splendid condition; £25; first cheque secures.—Wauchope's, 9, Shoe Lane, Fleet St., London. [X1024

MOTOR CYCLES FOR SALE.

Levis.

LEVIS, 1914, Baby model, 2¼h.p., brand new; £28 cash, list price £33/10.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0479

Lincoln Elk.

3½h.p. Lincoln-Elk, Bosch mag., B. and B., in good condition; £14/10.—Apply, 79, Moss St., Derby. [X0924

LINCOLN-ELK, 3½h.p., 1913¾, N.S.U. 2-speed, h.b.c., Harcourt radiators, little used; £32.—Inchbrae, Easterhouse, Glasgow. [7798

Little Giant.

LITTLE Giant, 2h.p., 2-speed, 25 gns.—Longman Bros. and Aitken, wholesale and retail agents, 1, King St., Acton. Tel.: Chiswick 1578. [7689

M. and M.

M. and M., 2-stroke, completely equipped; £28; all British.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X1106

Martin.

MARTIN-J.A.P., 1913, 3½h.p., new January, 1914, 2,000 solo only, Binks, 2-speed free, lately fitted, largest P. and H., spares, full insurance; £30.—D., 15, Parliament Hill, London. [7949

Matchless.

7h.p. Matchless, 3 speeds, with Millford sidecar to match; £90 to clear; quite new.—Cross, Agent, Rotherham. [X1075

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

MATCHLESS 1914 Sidecar Outfit, new, unused; owner enlisted; must sell; 80 gns., or very close offer.—11, Anglesea Rd., Woolwich. [X1056

MATCHLESS, 1913, 3½h.p. twin J.A.P., 3-speed, in excellent condition; £35 complete.—P. J. Evans, John Bright St., Birmingham. [7892

£12/10 deposit and 12 payments of £3/10 secures 3½ h.p. twin-cyl. Matchless-Jap, 6-speed gear, shop-soiled only.—Colmore Depot, Birmingham. [X0976

8h.p. Matchless, 2 speeds, twin belt, coachbuilt sidecar, lamps, speedometer, condition as new; £50, or near offer.—5, Anglesea Rd., Woolwich. [7806

MATCHLESS, 8h.p., 2-speed gear, cane sidecar, just re-enamelled and plated, splendid order; £34.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0551

MATCHLESS, 6h.p. J.A.P., N.S.U. 2-speed gear, art cane sidecar, child's seat, speedometer, 3 lamps, tools, spares, good tyres, recently overhauled; £37/10.—M., 29, Barrow Rd., Streatham, S.W. [7959

Minerva

MINERVA, 2½h.p.; £6.—Moody, 4, Poplar Grove, Hammersmith. [7877

3½h.p. Minerva, mag., climb anything; exchange higher power, or sell £15.—White, Abercarn, Mon. [7801

MINERVA, 3½h.p., B. and B., new tyres, running order; £7.—7, Castles Yard, Folkestone. [X1014

2¾h.p. Minerva, m.o.v., B. and B., h.b.c., mag., low, grand goer, powerful, very reliable; £8/10.—36, Northumberland Av., Manor Park. [X1129

Motosacoche.

LADY'S Motosacoche, 18 gns., no less; ready to ride away.—H., 56, Vauxhall Bridge Rd., S.W. [7833

1913 Motosacoche Lightweight, brand new machine; £25; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0548

1912 Motosacoche Lightweight, free engine, Bosch mag., splendid condition; £11.—4, Northampton St., Cambridge Rd., London, E. [7924

MOTOSACOCHE, 2½h.p., 1911, Bosch mag., F.E., not used once during 1912 or 1913, in perfect order; £12, lowest.—J. Hill, Boreham St., Sussex. [7678

1914 3½h.p. Twin Motosacoche, 2-speed, air-cooled exhaust, brand new; list price £60, going at £48/10.—Alexander's, 115, Lothian Rd., Edinburgh. [7852

New Hudson.

NEW Hudson.—Two 1914 3½h.p. 3-speed models in stock, good condition. Call and inspect.—Morgan and Maxwell, 80, High Rd., Streatham. [X1109

New Ryder.

NEW Ryder. — Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

Norton

1914 3½h.p. Norton, 3-speed, brand new; list price £58, special bargain, £48/10.—Alexander's, 115, Lothian Rd., Edinburgh. [7849

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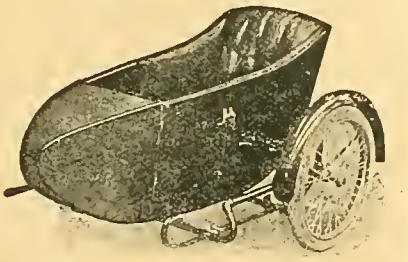

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3½ h.p. 1914	**MOTOSACOCHE,** Enfield gear, fine order	£40
3 h.p.	**EXCELSIOR,** vertical engine, spring forks	£8
2-3 h.p. Twin	**MOTO-REVE,** magneto ignition, Druids	£11
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3½ h.p.	**N.S.U., 2 speeds and free engine,** Bosch magneto	£17
3½ h.p.	**PREMIER, Bowden 2-speed gear,** Bosch	£18
5 h.p.	**VINDEC, 2 speeds,** kick starter, Bosch, sp. forks	£19
3½ h.p. 1909	**REX** de Luxe, **2 speeds,** handle starting ..	£19
3½ h.p.	**TRIUMPH,** ball bearing engine, M.O.V	£19
5 h.p. 1908	**REX** de Luxe, **2 speeds,** handle starting	£19
5 h.p. 1908	**REX, 2 speeds,** kick starter, Bosch, Amac	£19
6 h.p. 1912	**REX** de Luxe, **2 speeds,** handle starting	£25
3½ h.p. 1912	**HUMBER, 2 speeds,** handle starting ..	£28
6 h.p. 1912	**CLYNO** and Clyno Sidecar, **2 speeds,** kick	£33
6 h.p. 1913	**A.J.S.** and A.J.S. £20 Sidecar, **3 speeds** ..	£55
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1914 6 h.p.	**ENFIELD** Combination	What offers?
1914 7 h.p.	American **EXCELSIOR,** 2-sp. .	What offers?
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5-6 h.p. **BLUMFIELD** Engines, complete with inlet pipe, exhaust pipes and silencers, magneto bracket, valve lifter, magneto sprocket, variable pulley, and magneto chain cover, all new and unused	£11 11
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GLORIA, spring wheel, cane body, fit Triumph	£5
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FARLOW, 1914, demonstration wicker model	£5
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EARLIEST deliveries of the famous N.U.T. — The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0575

N.U.T., 1914, 6h.p., 3 speeds and clutch, speedometer, lamp set and horn, coachbuilt torpedo sidecar, complete outfit, in splendid order; £45.—Elce and Co., 15, Bishopsgate Av. Camomile St., London, E.C. [0593

N.U.T., 1914, T.T., 3½h.p. twin, overhead valve, J.A.P. 3-speed gear, mouth old, very fast, large Lucas, new extra heavy 2½in. Bates, spare valves; £55; reason for selling, going abroad with Terriers.—T. Plant, St. Mary, Bedford. [X1100

P. and M.

P. and M., 1913, like new, £45; Canoelet, £9 — Ponzio, Whipps Cross, N.E. [X1027

1914 Phelon and Moore and Millford coachbuilt sidecar; complete, £55. — Cross, Jeweller, Rotherham. [X1078

1913 Phelon-Moore Combination, all tyres new, fully equipped; cost £100, accept £50.—Ware, High St., Redhill. [7826

P. and M., 1913, 2-speed, kick starter, P. and M. sidecar, excellent tyres, lamps, 3,000.—105, High St., Thornton Heath. [7918

1913 Phelon and Moore, with new 13 gn. coach sidecar, all accessories, perfect condition; any trial; 45 gns.—Kay, Bridge St., Gainsborough. [7917

Peugeot.

PEUGEOT, 2¾h.p.; £7/10, or nearest offer; trial run; good going order.—Hayes, 3, Montagu Mews South, George St., Gloucester Place. [7817

Precision.

3¾h.p. Precision, 3-speed, Senspray, Bosch, Whittle, speedometer, lamps, accessories, latest sidecar, all perfect; sacrifice £35.—549, Lea Bridge Rd., Leyton. [7814

Premier.

PREMIER, 3½h.p., free engine, 1912 model, thoroughly sound; £18/10.—P. J. Evans, John Bright St., Birmingham. [7890

PREMIER, 1912½, T.T. roadster, 3-speed, free engine, good condition; what offers? — Williams, 21, Asmuns Hill, Golder's Green, N.W. [X1050

PREMIER Lightweight, 2¼h.p., F.E., new within one month, in perfect order; what offers? list price £42 —Apply, J. G. Gladstone, Alresford, Hants. [7815

PREMIER, 1913, 3½h.p., 2-speed counter-shaft model, excellent condition; £35, bargain; exchange lightweight and cash.—87, Highland Rd., Coventry. [X1136

PREMIER, 1912, 3-speed, clutch, cane sidecar, Cowey speedometer, Whittle belt, Senspray carburetter, lamp, tools; £33.—L. Maxwell, 64, Allison Rd., Hornsey, N. [7832

PREMIER, 3½h.p., 3-speed counter-shaft, brand new; £61, sacrifice £55 for cash.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

2½h.p. Premier, 1914½, 3-speed, free engine, speedometer, lamp, horn, etc., done 1,000 miles, perfect condition; cost £50; equipped; accept £40; owner enlisted.—Weatherhead, Thornbury, Glos. [X0979

Quadrant.

3½-4h.p. Quadrant, powerful, good condition throughout, take sidecar; £7.—15, Curzon St., Leicester. [X1065

Rex.

5-6h.p. Rex, grand machine, excellent condition, accumulator; £7.—Ginns, 27, Flower St., Carlisle. [7876

REX, 3½h.p., sidecar; bargain, £20; would separate; any trial.—Olley, 58a, Larden Rd., Acton. [7857

REX, brand new, 1913, 2-speed twin, and sidecar; £57/10.—Motor Exchange, Westgate, Halifax. [0445

REX 1913 Coach Combination, 6h.p., 2 speeds, just overhauled; £32.—P. J. Evans, John Bright St., Birmingham. [7891

REX Twin, 1913, 6h.p., 2 speeds, and Rex sidecar, splendid condition; £36.—R. J. Rayward, High St., East Grinstead. [7933

£25.—6h.p. Rex twin, art cane sidecar, F.E., Bosch, thoroughly overhauled, re-enamelled.—Roseleigh, Colchester Rd., Leyton. [7878

REX, 6h.p., 2-speed, art cane sidecar, lamps, speedometer, etc., as new; £60.—Colmore Depot, 49, John Bright St., Birmingham. [X0992

REX Sidette, new 1914 6h.p. twin, 2 speeds, coach built body; real bargain, £65.—228, Pentonville Rd., King's Cross, London, N. [7922

REX Sidette, 1914, 2 speeds, coachbuilt, perfect running order, fully equipped; £60, or offers.—Chapman, 35, Belmont Rd., Wallington. [7935

1913 Rex Sidette, lamps, horn, new tyres and tubes all round, perfect condition, all spares; sacrifice £35.—Lieut. Edwardes, R.E., Prescot, Lancs. [X1026

REX 1914 Combination, 3-speed counter-shaft model, coachbuilt sidecar, quiet and powerful; £60, cost £85; take solo mount part.—87, Highland Rd., Coventry. [X1137

MOTOR CYCLES FOR SALE.

Rex.

1913 6h.p. Rex Sidette, 2 speeds, fast, powerful, perfect condition; £50; take 3½h.p. part exchange, Rudge or Triumph preferred.—Wilcox, 2a, Stafford Rd., Wolverhampton. [X1085

REX Combination, 2-speed, belt drive, 1914, brand new; £77/10, sacrifice £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 29, Tavistock Rd., Plymouth. [0604

ONE 1913 4h.p. Rex machine and new sidecar, fitted with Armstrong Tourist Trophy 3-speed, lamps, and speedometer, and horn, etc.; £50, or near offer; going in for larger machine.—Albert C. Bird, 22 and 24, Regent St., Hinckley. [X0920

Rex-Jap.

REX-J.A.P. 1914 8h.p. Sidecar Combination, fine condition; £63, cost £94/10.—Motor Exchange, Westgate, Halifax. [0388

REX-J.A.P., 1913, 8h.p. De Luxe model, 2-speed, heavy 650×65 Kempshall tyres, model A. coachbuilt sidecar (combination cost £90), guaranteed perfect in every respect; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

REX-J.A.P.—We have several second-hand 1912 and 1913 combinations which we have taken in part payment of 1914 models. We are offering same at very low prices. Full list free upon request.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0433

Roc

ROC, 2-speed, handle start, running, but wants tuning up; £10, or nearest.—Bishopbrigg, Crown St., Carlisle. [7875

Rover.

ROVER, 1914, 3-speed model, as new; £43/10.—Dover, Wragby, Lincolnshire. [X9506

ROVER, 3½h.p., 3-speed, free engine, late 1912 splendid condition; £30.—Wallis, Eign St., Hereford. [7921

LATE 1913 Rover and sidecar, 3 speeds, speedometer, lamps, excellent condition; £43, or near offer.—87, Inchmery Rd., Catford. [X1029

ROVER, 1912, 3½h.p., free engine model, in splendid order; £25.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0560

LATE 1913 Rover, 3 speeds, with 1914 Millford Corvette sidecar, splendid condition; exchange for higher power.—Beechcroft, Park Rd., Sutton Coldfield. [X1160

ROVER, 3½h.p. (late 1912), speeded, and sidecar, all accessories, perfect condition; £35, or exchange 3½h.p. T.T. model, good make.—Gray, Eastgate, Barnsley. [7810

ROVER, 3½h.p., 1913, 3-speed, with Rover coachbuilt sidecar, guaranteed in perfect condition; price £55, or near offer.—Harold Petty, 32, King St., Leicester. [X0560

ROVER, 1913¾, Sturmey-Archer, guaranteed mechanically perfect, appearance absolutely as new, little used, lamp, horn, Kempshall; £39.—Wheeler, 10, Clonmel Rd., Teddington. [7948

1912¾ Rover, 3 speeds, all accessories, like new throughout, little used, splendid sidecar machine; £32; or exchange Douglas.—Ivydene, Dukesthorpe Rd., Sydenham, S.E. [7971

Royal Ruby.

ROYAL Ruby, 2-stroke, 1914, ridden only 200 miles; £20.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0605

Rudge.

RUDGE, 1912 model, fine order; best offer over £18.—Speechley, 45, Church Rd., Acton. [7965

RUDGE, late 1912, F.E., perfect condition, very fast; £29.—Campbell, Avenue, Purfleet, Essex. [7905

1913 Rudge Multi, speedometer and horn, excellent; £37/10.—Morriss, 139, Finchley Rd., N.W. [X0972

RUDGE, 3½h.p., clutch, 1913½, Lucas, watch, horn, and sidecar; £32.—128, High St., Harlesden. [7928

NEARLY New 1914 3½h.p. Rudge Multi, speedometer, lamp, mirror, etc.; £42/10.—Cooke, Ruddington, Notts. [X1096

RUDGE, F.E., 1912, in excellent condition, bargain, £24; also sidecar, coachbuilt, torpedo, £4.—190, Broadway, Hendon, N.W. [7950

RUDGE, 1913, Brampton gear and free, exceptional condition; bargain, £31.—Robinson, 10, Dalverton Rd., Aigburth, Liverpool. [X1152

RUDGE, 1912, 3½h.p., clutch model, and sidecar, new Dunlop tyre and belt, good condition; any trial; £30.—Ridgwell, Mildmay Rd., Romford. [X0917

1913 3½h.p. Rudge Multi and sidecar, splendid condition, little used; great opportunity, £40.—Alexander's, 115, Lothian Rd., Edinburgh. [7855

RUDGE, 1913, 3½h.p. T.T. model, very fast machine, new Bates tyre, condition equal to new; £28.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0595

RUDGE Multi, 1913, excellent order, lamp, horn, speedometer, spares; £36/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

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RUDGE, 1911, good condition, Avon and Hutchinson tyres, new inch Dunlop belt, lamp, spares; £20.—Monkswood, Monkhams Lane, Woodford Green, Essex. [X1117

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5h.p. Twin Sarolea and cigar sidecar, B. and B., Bosch, Mahon, variable gear; £18.—42, Aytoun Rd., Stockwell. [7954

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1911 Scott Motor Cycle, in thoroughly good order; £27/10; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0547

SCOTT, 1912, 1914 tank and lubricator, Stewart speedometer, F.R.S., touring and T.T. bars, with Cancelet sidecar, recently overhauled; £42.—B.G.D., 53, Kimberley Rd., Cambridge. [7936

1912 Scott, 1913 Cancelet, luggage grid, speedometer, etc., excellent order; medical reasons for selling; 47 gns.; would entertain modern 3-speed push cycle part exchange, or sell separately.—3, Chase Court Gardens, Enfield. [7843

Singer.

3½h.p. Singer Motor Bicycle for sale, been thoroughly done up, at Singers works now.—Mrs. Vaughan, Figheldean, Salisbury. [7957

1912½ Singer, 2½h.p., new B. and B. variable carburetter, new Pedley belt, P. and H., good climber and condition, fast; £20.—6, Salisbury Rd., Watford. [7861

Sun.

2½h.p. Sun-Villiers, 2-stroke, 2-speed, 1914 model, ridden 4 months, condition excellent; bargain, £26.—45, Falkland Rd., Hornsey. [7973

Sunbeam.

3½h.p. Sunbeam, 3-speed gear; cash or easy payments.—West End Garage, Blackburn. [X0256

SUNBEAM, 2¾h.p., perfect condition; £37 nett.—40, Margaret St., Cavendish Sq., W. [7909

SUNBEAM, 1914, 3½h.p., and Cancelet to match, 3 speeds, and accessories; £65.—P. J. Evans, John Bright St., Birmingham. [7895

SUNBEAM, 2¾h.p., 2-speed, h.b.c. clutch, new Hutchinson tyres, machine in perfect condition, unscratched; any trial; £44.—Can be seen, Sunbeam Depot, 158, Sloane St., S.W. [X1090

T.D.C.

3½h.p. T.D.C., 1914, perfect condition; any trial; £23/10.—Bowers, 36, Norfolk Rd., Seven Kings. [7940

Triumph.

1911 3½h.p. Triumph, recently overhauled, splendid condition, lamp, horn; £22.—Hopkins, Dawlish. [7838

2-SPEED 3½h.p. Triumph and sidecar; £25; exchange 2-speed Douglas.—Taylor, 76, Newland Av., Hull. [X1081

TRIUMPH, 1910, clutch model, fully equipped, speedometer; £20.—Speechley, 45, Church Rd., Acton. [7966

1913 Triumph, free engine; must sell; what offers?—Lyon, 42, St. Paul's Rd., Camden Town, N.W. [7931

1913¾ 3-speed Triumph, with light sidecar, faultless; offers wanted.—Crowte, Copythorne, Brixham. [7929

TRIUMPH, 1913, 3½h.p., free engine, 3-speed, tools, spares, accessories; £38.—Rev. H. E. Horton, Ripon. [X1124

TRIUMPH, 1914, 4h.p., free engine, slightly soiled; £47.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0594

TRIUMPH, late 1912, 3½h.p., free engine, Philipson pulley, lamp, horn, tools, first-class condition; £30; owner going to front.—Highman, 25, Bimport St., Shaftesbury. [7604

1911 Triumph, lamp, tools, spares, fast, good climber, excellent condition; £27.—R. G. Hosking, 3, Bilton Rd., Rugby. [X1052

2¼h.p. Junior Triumph, ridden 600 miles only, condition as new; £36.—Robinsons, Green St., Cambridge. [6866

1910 3½h.p. Triumph, re-enamelled, and thoroughly overhauled, new tyres; bargain, £22.—2, St. Ann's Well Rd., Nottingham. [X1071

TRIUMPH, 1910½, clutch model, Service sidecar, spares, good condition; bargain, £28/10.—72, Atbara Rd., Teddington. [7791

TRIUMPH Junior, 2¼h.p., 2-speed, valveless lightweight, slightly soiled; £37.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0596

TRIUMPHS.—1908, 1910, 1912, and 1914 models in stock. Call and inspect.—Morgan and Maxwell, 80, High Rd., Streatham. [X1110

TRIUMPH, 1907, fine condition; any trial or examination; £17, or offers.—S. Baker, 3; Chesham Cottages, North Bank, Waltham Abbey. [7828

1914 3-speed Triumph, picked engine, only done 1,600 miles, speedometer, lamps, etc., Bramble sidecar; offers wanted.—Godfrey, Sulgrave, Banbury. [X1067

1912¾ Triumph, clutch model, lamp, horn, mascot, spares, good tyres, condition fine; £36/10, nearest.—6,759, *The Motor Cycle* Offices, Coventry. [X1032

MOTOR CYCLES FOR SALE.

Triumph.

1912 Triumph, free engine model, in excellent condition; £33; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0546

TRIUMPH, 1913½, dropped frame, in splendid order throughout, usual accessories; £36, or near.—Bromley Motor Works, Mason's Hill, Bromley. [7657

1912½ 3½h.p. Triumph, F.E. clutch model, P.H. lamp, tyres nearly new, wicker sidecar, in splendid condition, accessories, spares; £32.—Little, Grittleton, Wilts. [X1044

TRIUMPH, 1912, 3½h.p., free engine model, fitted with 1914 silencer, overhauled, and in perfect condition; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0609

1913½ Triumph, 3-speed, free engine, and coachbuilt sidecar, fast, powerful, and in brand new condition, all spares and accessories; £39.—49, Mile End Rd., London, E. [7923

TRIUMPH, 1911¾, free engine clutch, excellent condition, new tyres and tubes, 1914 exhaust, lamp, horn, tools, spares; £27, or near offer.—Bullock, 52, Carnarvon Rd., Blackburn. [X0989

TRIUMPH, 4h.p. type A., bought first week of war, owner gone to front, Lucas lamp and horn; price £50; can be seen at Whiteleys.—Thos. Edinborough, Temple Fortune, Hendon. [7813

TRIUMPH, late 1912, with Mills-Fulford sidecar, fully equipped, recently overhauled, new piston, valves, etc., many 1914 improvements and spares; £38.—Hines, Castle Brewery, Bedford. [7872

TRIUMPH, 1913½, 3-speed, free engine. £15/15 Canoelet sidecar, various accessories; urgent sale, £48, offers.—Garaged Messrs. Grimsell, Dix, Ltd., Uxbridge Rd., Ealing Common, W. [7829

TRIUMPH, 3½h.p., free engine model, new July, 1912, not run 500 miles, excellent condition, unlimited spares; £30, or exchange Morgan runabout, cash adjustment.—Dean, Optician, Keighley. [X1031

TRIUMPH 1913, 3½h.p., free engine, Philipson pulley, decompressor, Senspray carburetter, Lucas lamp set, Watford speedometer; £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0597

TRIUMPH, 3½h.p., late 1909, just been overhauled and re-enamelled, tyres in excellent condition, back nearly new, acetylene lamp and generator, usual tools, etc.; will take £20.—Box L5,014, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0553

TRIUMPH, 3½h.p., late 1912, guaranteed in first-rate order, with nearly new tyres and gas lamp, horn, and tools; owner bought sidecar combination; will take £50 for quick sale.—Wm. Thwaites, Fruit and Potato Merchant, Sandown, Isle of Wight. [7821

1913 Triumph, Sturmey-Archer gear, new this year, with 1914 fittings, lamp, horn, new belt fitted, also No. 10 model Montgomery coachbuilt sidecar, new June, fitted with coverall apron, and side shield to mudguard; would sell either or both cheap for cash; in Coventry.—6,715, *The Motor Cycle* Offices, Coventry. [X0381

TRIUMPH, 1914, 4h.p., 3-speed, large P. and H. black lamp set, belt and tube case, knee grips, double footrests and pedalling gear, only 3 weeks old; cost £70, accept £52/10, bargain; suitable for despatch work.—Cass's Motor Mart, 5, Warren St., Euston Rd., W. 'Phone: Museum 623. [7974

1912¾ Triumph, free engine, clutch model, guaranteed splendid condition, plated rims, 26×2¼ Dunlop rubber-studded tyres, new, also new Dunlop belt, all accessories, watch, mirror, bargain, trial, £33; coachbuilt nearly new sidecar, Carbab fittings, plated rims, quick-fit joints, £5/10.—45, Charles St., Exmouth St., Limehouse, E. [X1140

Trump.

TRUMP-J.A.P., 1913, 6h.p., with spring wheel sidecar, Armstrong gear, Xl'all saddle, F.R.S. lamp, speedometer, spares, excellent condition; £57/10.—5, Douglas Rd., Canonbury, N. [X1011

V.S.

3½h.p. V.S. and sidecar, 2-speed N.S.U. gear, mag., Amac, spring forks, lamps, new belt, tyres and tubes good; £20.—Jones, 1, Garton St., Wandsworth, S.W. [7800

Werner.

2h.p. Werner, B. and B., Bosch, Whittle; £6; going order.—42, Aytoun Rd., Stockwell. [7955

Williamson.

WILLIAMSON 1914 Water-cooled Sidecar Combination, almost as new; £73/10, cost £100.—Motor Exchange, Westgate, Halifax. [0390

WILLIAMSON, 8h.p., with Canoelet sidecar, in new condition; genuine bargain, £62.—Colmore Depot, 49, John Bright St., Birmingham. [X0991

8h.p. Water-cooled Williamson Combination, late 1913, with 1914 improvements, 2-speed gear and free engine clutch, fitted with handsome coachbuilt sidecar, with screen and storm apron complete, speedometer, separate generator lamp, hooter, etc.; £57/10, or exchange.—Wanchope's, 9, Shoe Lane, Fleet St., London. [X1021

Wolf.

WOLF, 2½h.p., new this year; £18, in good condition.—43, Hathaway Rd., Croydon. [7793

2¾h.p. Wolf, J.A.P., grand condition, lamp, tool box, horn, footboards; £23, or offer.—Ainsworth, Victoria Rd., Romford. [7902

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English, French, Belgian, or Russian flags, beautifully made, with special fitting for fixing to number-plate, extra stout pin.
Union Jacks on plain pins, 3in. × 1½in. ..... **5d.**
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ZENITH-GRADUA, 3½h.p., late 1911; lowest £23.—Bambridge, Alexandra Rd., Penrith. [X1144

ZENITH Gradua Motor Cycle, good order; £43.—Lieut. Graham Martin, Brunswick House, Torquay. [X9806

ZENITH, 1913, 6h.p., kick starter, Gradua gear, just overhauled; £38.—P. J. Evans, John Bright St., Birmingham. [7888

ZENITH, 1912, 3½h.p., Gradua gear, all accessories; £28, or with sidecar £32.—P. J. Evans, John Bright St., Birmingham. [7896

ZENITH, 1913, 6h.p., clutch and kick starter, splendid order, accessories; £40.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0492

ZENITH, 6h.p., late model, Gradua gear, fitted with luxurious coachbuilt sidecar, splendid condition; absolute bargain, £45.—Garaged 2, Milner St., Cadogan Sq., S.W. [7873

8h.p. Zenith-Gradua, overhead valves, J.A.P. engine, very fast machine, and in prime condition, fitted with a semi-racing low-built sidecar; the complete turnout £50, or exchange.—Wanchope's, 9, Shoe Lane, Fleet St., London. [X1019

ZENITH, 1914 (March), 8h.p., counter-shaft, special lubrication, large tank, 3in. tyres, Milliford Empress sidecar, F.R.S. lamp, speedometer, spare belt and case, other sundries; £72 cash.—Dix., Ltd., The Garage, Uxbridge Rd., Ealing Common. [7628

ZENITH-GREEN-PRECISION, water-cooled, 3½h.p., Gradua gear, 1913 machine, engine just been overhauled, all parts in good condition, Hutchinson tyres, complete with Powell-Hanmer lamp, horn, and all tools; this machine as represented accept £35, carriage paid, to any address in British Isles.—Dene Motor Cycle Co., Haymarket, Newcastle-on-Tyne. [X1154

Miscellaneous.

4h.p. Chater-Lea-Jap, splendid order, suit sidecar; £15, bargain.—15, Curzon St., Leicester. [X1064

1¾h.p. Motorcycletie, new, complete, less magneto; £12; wanted, Auto-Wheel.—Beckett, Botesdale. [X1045

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WANDSWORTH.—Chater-Lea, 1912-13, 4h.p. J.A.P., Bosch, counter-shaft 2 speeds, kick; 28 gns. Exchanges.

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WANDSWORTH.—Bradbury, 1911, 3½-4h.p., Bosch, fine powerful machine; bargain, £18/18. Exchanges.

WANDSWORTH.—Bradbury, genuine 1912 3½-4h.p., Bosch, re-enamelled, like new; £25. Exchanges.

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WANDSWORTH.—Bat-Jap combination, 8h.p., m.o.v., mag., 2 speeds; clearance, 28 gns. Exchanges.

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EAGLES.—Clyno, 6h.p., 1912½, 2 speeds, chain drive, fine sidecar machine; £35.

EAGLES.—N.S.U., 3¾h.p., 2 speeds, free engine, in good condition, suitable for sidecar; £16/10.

EAGLES.—N.S.U., 3½h.p. Model de Luxe, latest pattern, spring frame, 2 speeds, free engine; £30.

EAGLES.—Alldays Matchless, 3½h.p., late 1912, 2 speeds, free engine, coachbuilt sidecar; £28/10.

EAGLES.—Bat-Jap, 1912-13, 5-6h.p. twin, chain drive, 2 speeds, kick starter, Gloria spring wheel coachbuilt sidecar; £42/10.

EAGLES.—Triumph, 1912, free engine model, with Philipson pulley, new condition; £30.

EAGLES.—N.S.U. 6h.p. twin, 1911, thoroughly overhauled, 2 speeds, 1914 coachbuilt sidecar, perfect condition; £36; any trial.

EAGLES.—Clyno 6h.p. twin, 1912, 2 speeds, chain drive, new torpedo coachbuilt sidecar; £38/10.

EAGLES.—Any of the above can be had on approval, "The Motor Cycle" deposit system.—Eagles and Co., High St., Acton. Tel.: 556 Chiswick. [X1142

BARGAINS in Birmingham.—Ariel, £4/10; 1911 2¼ h.p. twin, £10; two 4h.p. New Hudson combinations, £32 and £35.—53, Colonial Rd., Bordesley Green. [X1054

SEND for motor cycle clearance list. Douglas, Triumph, Rudge, Rover, Singer, Norton, etc., and sidecars.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [0581

THE Motor Auction Sale held fortnightly at Palmer's Garage, Tooting, makes a speciality of motor cycles. About 30 offered at each sale. Next sales Oct. 28th, Nov. 11th, at 2 o'clock. Entries invited. [7867

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [X0314

£3 Deposit and 5/- weekly purchases 2¾h.p. De Dion, £6/15; 3½h.p. Humber tricar, £8/5; 2¾h.p. Bradbury, £6/15; 3h.p. N.S.U., £15; 4h.p. Coronet, £9/15; Clement-Garnard, £6.—Motor Exchange, Westgate, Halifax. [0489

£5 will secure a £20 motor cycle, or £7/10 for a £30 machine, or for £15 one can have a new 4h.p. 3-speed Triumph, balance arranged to suit income. Every machine guaranteed; trial willingly.—Colmore Depot, Birmingham. [X0974

PROMPTEST Delivery of any make of motor cycle on our easiest deferred payment system. Exchanges entertained. Our experience at your disposal. Tuition free. Please favour us with a postcard.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [0533

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5h.p. Riley Tricar, mag., w.c., 2-speed, grand running order; £30, or offer.—Ainsworth, Victoria Rd., Romford. [7901

RILEY Tricar, 9h.p. twin engine, wind screen, plenty spares, perfect condition; selling through death; £35, bargain.—Mrs. Ellis, Arlesey, Beds. [X0189

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WHITE and Poppe 5½h.p. 3-wheeler, w.c., 2-speed, handle start, wheel steering, just enamelled, good, make excellent tradesman's express, suit traveller; £18, nearest cash offer.—29, Lancaster Rd., Hitchin, Herts. [7835

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SIDECAR, complete, good tyre and apron; bargain, £2.—England, Dixon St., Featherstone, Yorks. [X1035

COACHBUILT Sidecar, £3/10, dark green body.—Particulars and photo, Waddell, Heads Nook. [X1016

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WICKER Sidecar, upholstered, good condition; 45/-, offers.—Williams, 36, Cambridge Rd., Gunnersbury, W. [7859

BASTONES.—Special purchase of high-class coachbuilt bodies (brand new); list price £7/15, our price £3/17/6.

BASTONES.—Latest cigar pattern, cane body, £3/15; Williamson good second-hand coachbuilt bodies, £2/19/6; for complete sidecars send for list.—228, Pentonville Rd., King's Cross, London, N. [7978

AERO Cigar Shaped Coachbuilt Sidecars, low, comfortable; cheap to clear. Send for illustrations.—6, Fosbury Mews, Inverness Terrace, Bayswater. [7911

1914 Gloria Sidecar de Luxe, £21/10 model, to suit 7h.p. spring frame Indian, brand new; first cheque £16/10 secures.—Alexander's, 115, Lothian Rd., Edinburgh. [7854

CANOELET, Swan, and Middleton record breaking Sidecars; trade supplied.—Sole wholesale agent London, Rex, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6609

MONTGOMERY 1914 Models less 15% for cash; also several second-hand sidecars at bargain prices.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0607

ANNUAL Sale.—Coachbuilt sidecars, chassis, tradesmen's carriers, at war prices; only a few left; carriage paid.—The Motor Traders Co., 27, Newton St., Birmingham. [7796

CONVERT your old sidecar to coachbuilt; standard bodies from £3/10; cigar shape £3/12/6; old bodies taken in part payment.—Bright and Hayles, Church St., Camberwell. [7986

WELDED Sidecars.—Purcells' art catalogue of welded sidecars is the most detailed list issued; 30 models; trade quoted.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [3760

P.M.C. Sidecars from £5/17/6 to £10/10; write for catalogue fully illustrating the various models and patent P.M.C. quick fit couplings.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0154

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CIGAR Shape Coach Bodies, £3/12/6, very smart design.—Bright and Hayles, 73, Church St., Camberwell. [7987

STANDARD Coach Bodies, with toolbox and side entrance; £3/10.—Bright and Hayles, 73, Church St., Camberwell. [7988

CYCLE CARS.

1912 Morgan Runabout; £65; buying new.—Manchester Warehouse, Weobley, Herefordshire. [X0996

MORGAN, 1914 sporting model, as new, used for few demonstration runs only; offers.—Moss, Wem. [X1088

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A.C. Sociable, fitted with lamps, hood, screen, and several extras, a very smart turnout; price £69; any severe trial given.—Wauchope's, 9, Shoe Lane, London. [X1120

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A.C. Sociable, 1911 model, been little used, engine just been overhauled, tyres and chains and everything in good order; accept £35.—Dene Motor Cycle Co., Haymarket, Newcastle-on-Tyne. [X1157

A.C. Pattern Cycle Car, 4½h.p. De Dion engine, mag., new, wants dash and guards to complete; what offers?—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham. [X1111

MORGAN, 1913 (September), De Luxe model, wind screen, hood, speedometer, lamps, horn, jack, tools, splendid order; £75.—Else and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0608

1913 Cycle Car, 2-seat., 8h.p. Blumfield twin, Bosch mag., Chater-Lea gear box, 3 speeds, F.E., handle starting, very fast, splendid condition; £30; exchange considered.—4, Southwark Park Rd., Bermondsey, London. [7934

A.C. Sociable, climb any hill in Derbyshire, wind screen, side curtains, studded back tyre, powerful head lights, splendid horn, accessories; £40, or late model motor cycle and cash.—Rycraft, Church St., Belper, near Derby. [X1037

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9h.p. Riley, 2-seat., dual ignition, hood, lamps, rebushed, grand condition; £45, or offer.—Ainsworth, Victoria Rd., Romford. [7900

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DE DION Genuine 6h.p. Populaire, 2-seat., splendid order, 3 speeds and reverse, hood, screen; special bargain, £25; lightweight (modern) and cash if desired.—45, Wherstead Rd., Ipswich. [X1063

6h.p. Rover Car, not fast, but will go anywhere, strong and serviceable; any severe trial given; 3 speeds and reverse gear; for immediate sale £25, unprecedented offer.—At Wauchope's, 9, Shoe Lane, Fleet St., London. [X1018

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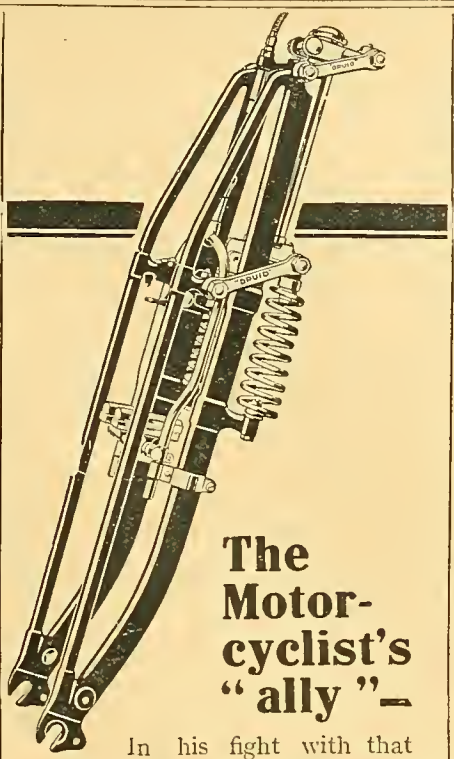

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QUANTITY New Heavy Red Tubes, best English make, just delivered, 26×2 5/-, 2¼ 5/6, 2½ 6/-, complete with Bolt valve; approval against cash; postage 3d. extra.—Pitts, Fordingbridge. [7830

DUNLOP Heavy Studded Tyres (clearance), 1914, latest pattern, 26×2 19/6, 26×2¼ 21/6, 26×2⅜ 23/6, 26×2½ 25/-; also Moseley clearance covers, 26×2¼ 12/6, tubes 4/9.—Midland Cycle Depot, 15, Hales St., Coventry. [X1049

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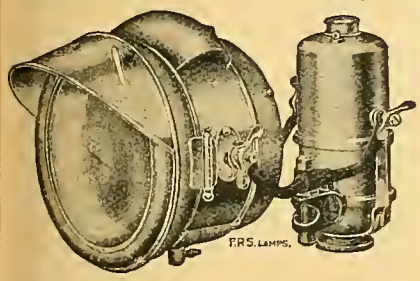

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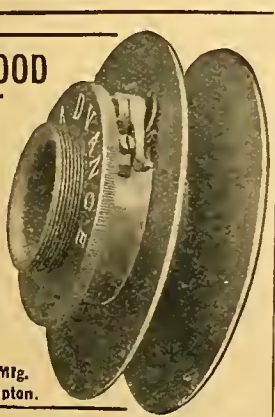

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TRIUMPH, 3-speed, 1913 (solo); lowest price, full particulars.—Holt, Smallshaw, Ashton-under-Lyne. [X1058

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WANTED, good motor cycle in exchange for oak furniture and cash.—21, Westdown Rd., Catford. [7906

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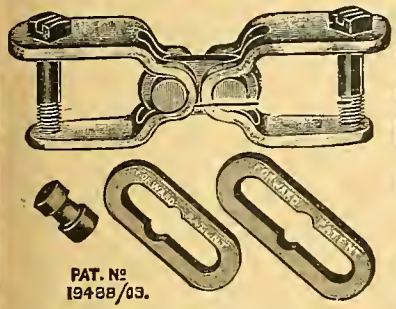

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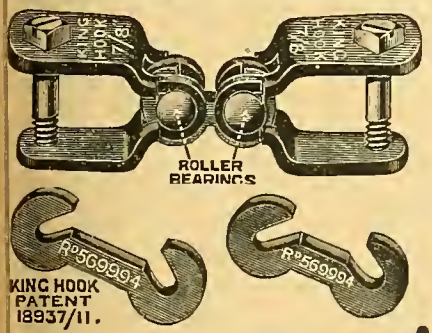

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The BEST fastener at the price.

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WORKS COVER 5 ACRES.

6ft. x 4ft. x 7ft. high	£2	2	6
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Double doors 2/6 extra.

Prices are on rail Staines Station.

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10-12h.p. Humber Car, for powerful speed twin combination, or sell £55.—Offers and particulars, Geo. J. Chandler, Seal, Sevenoaks. [7819

KEEN Exchanges quoted against shop-soiled 1914 Rex-Jap, Williamson, and Sun-Villiere machines.—Motor Exchange, Westgate, Halifax. [0446

EXCHANGE smart cycle car, new condition, for modern combination, or sell £65, great bargain.—Harper, Rosedale, Walton, Felixstowe. [7846

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NEW Coachbuilt Sidecar Body, cost £7, sell £4, or exchange 2-speed suitable for 8h.p. Bat, or accessories.—Winikin, 115, Bradford St., Keighley. [X1079

1914 Scott and coachbuilt sidecar, speedometer, horn, excellent order (any trial), and cash for modern water-cooled cycle car.—Talbot Cycle Stores, Cuckfield, Sussex. [7907

SUITABLE for converting to cycle car, 6h.p. Rexette, water-cooled, F.E. clutch, 2 gears, running order; £15; exchange motor cycle.—Wade Bond, 1, Royal Av., Lowestoft. [X0990

10-12h.p. Humber, 5-seat., hood, screen, speedometer, Stepney, and lamps, all tyres like new, goes splendid and quiet, for a combination or solo mount.—50, Fitzroy Rd., Regent's Park. [7809

EXCHANGE Kerry-Abingdon, 1911-12, 3½h.p., perfect condition, footboards, new tyres, and cash adjustment, for good Douglas.—Evans, The Garage, Friars Rise, Woking. [7880

SALE or exchange sporting 2-seater, 4-cyl. Morse car, 4 speeds, complete, £95; 15-20h.p. Studebaker, late 1912, 4-seat. torpedo body, gate change, beautiful condition, £120; also 2-seat. Ford car, newly painted, slight repair needed to engine, £25.—48, Campbell Rd., Maidstone. [7805

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ANTOINE Cylinders, pistons, and parts; prompt delivery.

CYLINDERS, crank cases welded; quotations free.

COMPRESSION.—Cylinders ground and new piston fitted, 24/-.

OLDEST Engines restored to highest vitality.

COMPLETE Overhauls at lowest possible prices. Full stock of Rex, Triumph, and J.A.P. parts.

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BROKEN Flanges, valve seats, pistons, crank cases, water jackets, welded and machined complete.

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CYLINDERS Re-ground, new pistons fitted, complete with rings, etc.; 22/6.—Oxy-Acetylene Welding, 349, Lillie Rd., Fulham. 'Phone: Hammersmith 1617. [6430

WELDING, broken cylinders, flanges, pistons, crank cases, repaired and machined. Scored cylinders filled in, and re-ground to existing pistons.

CYLINDERS Re-ground, new pistons fitted complete, overhauling, re-bushing.—West Loudon Welding Co., Essex Place, Chiswick. Tel.: 536. [7103

CCCCCCCCO Cylinders Re-bored, new pistons fitted, bear 13 stone on compression.—Gradior Machine Co., Compression Specialists, Stafford. Est. 21 years. [7314

MINERVA Spares, cylinders ground, pistons fitted, re-bushing, parts duplicated. — Ellenborough Motor Works, Ellenborough Rd., Wood Green, N. [8394

PISTON, fitted with top and bottom, step-cut rings, hardened steel gudgeon pin, and your cylinder rebored and ground. 24/-.—C. R. Foster, Kirkstall Rd., Leeds. [0310

TO ENSURE PERFECT RUNNING INSIST ON HAVING

"FORWARD" BRITISH PLUGS.

TYPE D. A first-class plug which can be easily taken apart for cleaning, and, what is more, made perfectly gas-tight again.

No asbestos packing to give trouble.

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from all live agents, or direct.

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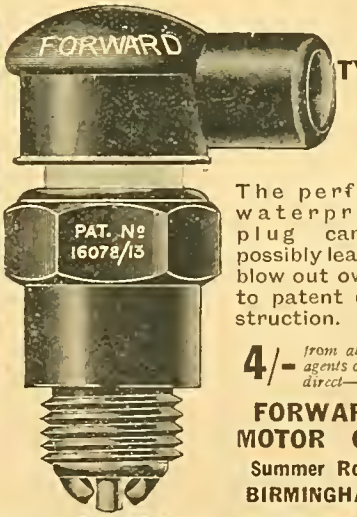

TYPE W.

The perfect waterproof plug cannot possibly leak or blow out owing to patent construction.

4/- *from all live agents or direct—*

FORWARD MOTOR CO.,
Summer Row, BIRMINGHAM.

"ADJUSTABLE All-Steel PIPE-TONGS or WRENCH."

THE ORIGINAL TOOL,

MADE BY THE INVENTOR.

REFUSE all Imitations.

Inventor and Maker: LISTS FREE.

THOS. R. ELLIN, 'Footprint' Works, **Sheffield.**

FIT OUT NOW

in readiness for winter riding

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HOOK FASTENER

as used by the T.T. Winner. Used wherever motor cycles are used. The BEST at any price. Nickel finish. Hardened and tempered hook and flanged pins. Never breaks. **9d.**

THE "LION" FASTENER

introduced to meet the demand for a CHEAP, RELIABLE BELT FASTENER. Black finish. Guaranteed 5,000 mls. **6d.**

The "STANLEY" SPARE LINK

is the best belt length adjuster yet invented. Saves time, trouble, and money. Saves the cost of a new belt. (Note how easily it is slipped in.) **1s.**

THE "STANLEY" SHIELD

protects the belt fastener, prevents wear of the pulley, and conserves power. Specially designed for use with the Philipson Pulley. **8d.**

Send p.c. for booklet, "Belts and Belt Fittings."

Stanley Motor Belt and Fastener Co.,

Inventors of the Original Hook Fastener (Stanley Webb, Manager),

BROMLEY, KENT.

PAY MORE! WHY?

British Made Motor Cycle Tubes with Long Stem Bolt Valve.

26 x 2	26 x 2¼	26 x 2½ or 650 x 65
4/9	5/3	6/-

Butted Tubes 1/6 Each Extra.

GUARANTEED 12 MONTHS

against defective materials or faulty manufacture.

Car Tubes Equally Low.

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26, PARK ROAD, BRADFORD.

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CYLINDERS Reground, fitted with new piston, hardened gudgeon, and step-cut rings, 85 mm., 21/-; overhauls, re-bushing, estimates free.—The Motor Repair Co., Stretford, Manchester. [X1116

UNBREAKABLE Chrome-nickel Valves.—Numerous testimonials prove superiority. Guaranteed one year. Any make, 3/6 each, 6/- pair, free per return.—Capacity Tool Co., Broseley, Shropshire. [X0693

TONGE Welding Works, 174, Oldham Rd., Middleton, Manchester.—Experts in broken cylinders, crank cases, etc. Welding aluminium a speciality. Nothing too difficult. Sound work at moderate charges. [1389

FRAME Alterations.—Triumphs, Rexes, Minervas, or any make cut down and modernised; smartens the appearance, adds pounds to value of machine, and gives 4 to 6 inches lower riding position. Estimates free.—Below.

ENGINE Efficiency.—Cylinders re-ground, new pistons fitted; highest efficiency and skilled workmanship guaranteed; phosphor bronze bushes from 2/6; valves and seatings ground true, 5/- pair; estimates submitted.—Patricroft Motor Co., Patricroft, Manchester. [7943

CYLINDERS, any type, re-ground and light step-ringed pistons fitted, from 12/6; special low prices for engineering work of any description during war period.—Earl's Engineering Works, Heath St., Hampstead. [X1163

COMPRESSION.—Cylinders re-bored and ground, new pistons, rings, and gudgeons, complete, 16/-; overhauling, re-bushing, efficiency guaranteed.—Reliance Motor Engineering Co., Spon Lane, Smethwick, Birmingham. [7282

F.N. Owners Note.—W. Earl, late foreman at the Highbury repair works, is at your disposal for all repairs. Our special engineering plant and the personal attention of a recognised F.N. expert will ensure best results at minimum expense.—Below.

F.N. Spares: special announcement.—We have a large stock of new, also sound second-hand, parts. Enquiries solicited.—Below.

3-SPEED Gears for any model 4-cyl. F.N. Special offer during war period only. We will make liberal allowances for older pattern gears in part exchange for our latest 3 or 2-speed gears. Particulars and quotations gladly on application.—Below.

WE have a few second-hand gears at bargain prices.—Earl's Engineering Works, 5, Heath St., Hampstead. 'Phone: Hampstead 3287. [X1162

LOWEST Prices Quoted for any repairs or complete overhauls to motor cycles, cycle cars, or cars, or work done on the premises and fully guaranteed; cylinders cleaned by oxygen process, 2/6 single, 4/6 twin.—Maudes, 136, Gt. Portland St., W. [7348

MORMAN and Bliss, London Rd., Hounslow.—Reduced prices during war. C.I. pistons, rings, and gudgeons, from 9/6; bushes, 2/-; valves, 3/-. Simplex steel pistons, hollow connecting rods, supplied to order. Special silencers, aluminium ends, steel barrel, and extension pipe, smart, efficient; twins 18/6, singles 14/6. Illustrated list free. [7541

WAR.—To keep our factory going full time we will do your repairs at practically cost. Our well-known high standard of excellence will be maintained. Every job will bear our full guarantee. The sole difference will be the prices, which hold only during the crisis; our ordinary rates will be charged as soon as normal times return. Cylinders re-bored, ground, fitted new pistons, rings, and gudgeon, 15/6; re-bushing, overhauling, welding, frame alterations, etc., all at cost. Send jobs along at once. You will be thoroughly well satisfied in every way.—Tennaot Engineering Co., Pershore St., Birmingham. Official repairers to A.C.U. [X1069

MISCELLANEOUS.

A

WRITE P.C. for 1914 catalogue, 180 pages, 1,000 illustrations; all the latest accessories, lower prices than any other house. The Juno 2-stroke, £26/5, 46/3 month, with 2-speed £33, 58/4 month; the Juno 5-6h.p., for sidecar or tradesman's carrier, £61/15, 106/8 month; Auto-Wheels, £16/16, 30/10 month; flags with number plate clip, 9d.; number plate flag clips, 4d.; fork girders for Auto-Wheels, 5/3 pair; mudguard extensions with stays, 1/-; Auto-Wheel shock absorbers, 7/6; sidecar lamp brackets, 8 patterns, from 1/6; silencers, 3/3 to 25/-; valves from 2/6; accessories to value of £4 supplied on monthly payments; engines, any make, cash or monthly payments; sidecar wheel shields, 1/6; sidecar rear lamps, 3/6, 5/6, 8/9, 10/6, 11/6; wheels, 26×2¼, with Villiers free engine hub, 105/-; leather helmets, 4/3; portable vulcaniser, 15/-; belt rim brakes, 8/-; decompressors, 8 patterns, from 5/-; lathes, £5/10; counter-shaft gears, 105/-; pannier seats, 10/6; kick starters, 14/9; Philipson pulley controls, 15/-; Fitall gears, 105/-; Unito couplers, 21/-; oilskin suits, 11/10; tanks or pulleys made, any size or pattern; handle-bars, 7 patterns, from 5/-; knee grips, 4/-; sidecar bodies from 25/-; sidecar aprons, 6/-; spring shackles, 7/6 set of 4; Mangin mirrors, 5/-; any make of machine or sidecar bought, sold, or supplied on monthly payments; belting and tyres all makes; head lamps, 20 patterns, from 8/6 to 60/-; belt rims, 5/6; side wings, 2/6 pair; Stewart speed indicators, 50/-; Watford, 63/-; Jones, 63/-; post horns, 9/6; sidecar gongs, 6/9; motor cycle horses from 32/6.—M.C. Department., Metropolitan Machinists' Co., Ltd., 248, Bishopsgate, London, E.C. 'Phone: Central 12857. [6615

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cost only 13/6. Beldam Retreads last longer than many ordinary covers because of the high quality of Beldam Material and Workmanship.

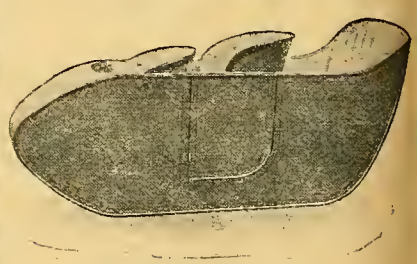
Send us your old covers and we will quote you cost of retreading by return. If you do not need our Services now, send for Retreading List. It contains full particulars of prices for Retreads and Repairs.

The Beldam Tyre Co., Ltd.,

Brentford, - - - Middlesex.

Royal Leicester Sidecars.

Three-seater car No. 87.



Write for Specification and Prices.

Makers of every kind of Sidecar Bodies and Chassis.

Special designs carried out expeditiously.

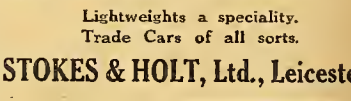
Lightweights a speciality.

Trade Cars of all sorts.

STOKES & HOLT, Ltd., Leicester.

PETROL and OIL TANKS

We specialise in highest grade tanks of every description, best workmanship and material, satisfaction guaranteed.



Every tank tested under pressure before leaving our works. **PRICE, FROM 15/-.** Ask for booklet, post free, **Trade Enquiries Specially Invited.**

A. GREEN & Co., 56-60, Chapel Street, Salford, MANCHESTER.

Telephone: 2191 Central.

THE MOTOR CYCLE
ESTABLISHED IN 1903
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Telephone: 2848 *City (five lines.)* ADDRESS: 20, TUDOR STREET, LONDON, E.C. *Telegrams:* "*Cyclist, Fleet, London.*"

An index to advertisements will be found on the page facing the back cover.

Despatch Riders and their Weapons.

SINCE the outbreak of war, we have from time to time urged the desirability of rifle practice and made suggestions which have been largely taken up by motor cycle clubs, but one or two cases of which we have heard lately, brought home to us the fact that it is even more necessary for motor cyclists to practise with the revolver. In the first place revolver shooting is in itself much more difficult than rifle shooting, and, consequently, more practice is required before a man can be called proficient, and in the second it is much more likely to be useful to motor cyclist despatch riders, who are always armed with the smaller weapon.

The recoil of the service revolver is quite considerable, and throws a great strain upon the user's wrist, especially if not held correctly, as, owing to its shape, the barrel tends to fly upwards when it is fired, and beginners nearly always fire very high in consequence.

We have lately met with two despatch riders invalided home from the Front, one of whom accidentally put a bullet into his own leg by mishandling his revolver, and the other exaggerated the case by stating that he hardly knew from which end the bullet emerged. We should have imagined that a motor cyclist, accustomed as he must be to machinery, would have had but little difficulty in mastering the mechanism of a simple weapon like a revolver in five minutes, but our point is that both these men would have benefited immensely by instruction and practice.

Several hundred motor cyclists are still on the waiting list, and hoping to be called upon to serve their country as despatch riders, and these men would be far more serviceable if they could spend some of their time in the interval practising the use of a revolver. A suitable range does not present the same difficulties that a rifle range does: twenty-five yards is sufficiently long, and it should be an easy matter to fit out a range in every town. We suggest that the War Office should take this in hand, and provide a few revolvers to give men on the waiting list an opportunity of accustoming themselves to the weapon which they will have to use when the time comes, and thus become a danger to the enemy rather than to themselves. If it could be arranged that shooting practice from the saddle and at full speed should also be obtained, so much the better.

Christmas Gifts for Motor Cyclists at the Front.

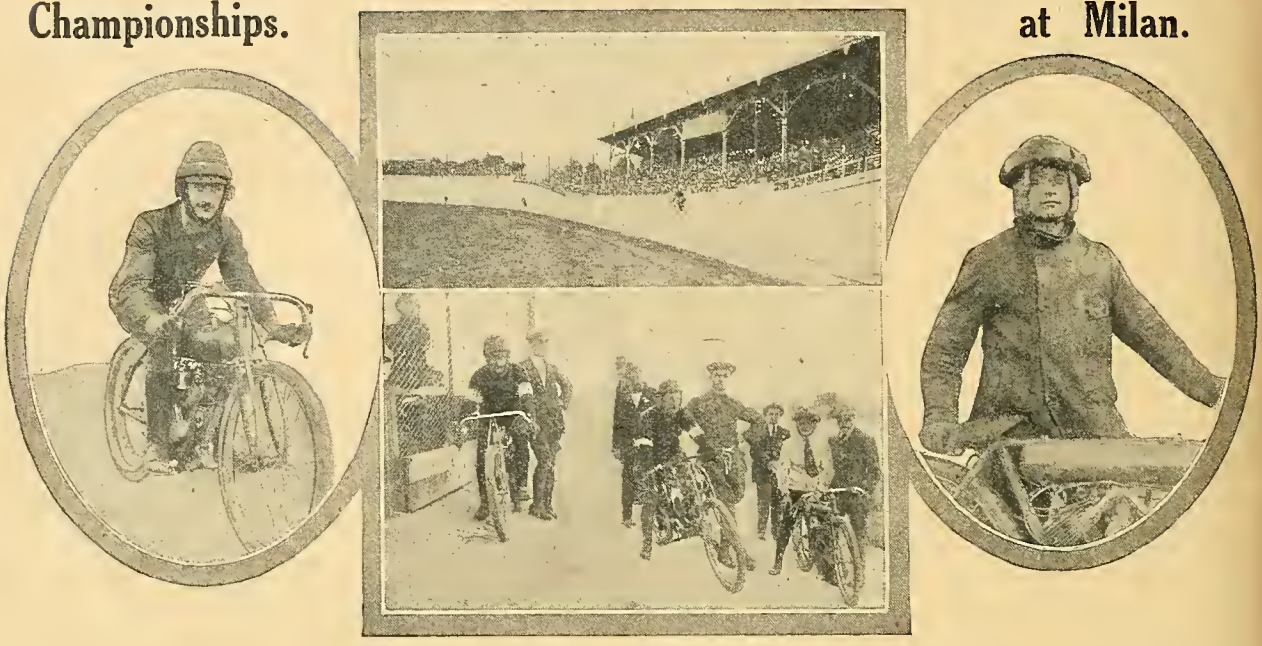
THIS week we announce a "Shilling Fund" with the object of purchasing useful Christmas presents for motor cyclists on active service at the front. It needs no further words of ours to lay stress on the value and utility of the motor cyclist in his important work as a despatch rider; his worth is now known to everyone, for commanding officers have time and again emphasised the useful service rendered by the despatch rider. Various funds have been opened to buy tobacco, cigarettes, plum puddings, and the like for our men at the front, and the Christmas gift scheme is nobly led by H.R.H. Princess Mary.

The fund opened by *The Motor Cycle* will be devoted to the purchase of small but useful articles such as gloves, mufflers, handle-bar muffs, warm socks, and abdominal belts, but of this more anon. The Rev. P. W. Bischoff's suggestion, published in the last issue, to allocate prize money to the Relief Fund was a happy one, and we think that those readers who have won awards in competitions during the past year would willingly forego the whole or part of the prizes, so that some of the purchase money may be used as we have outlined.

Busy factories, influential clubs, and readers in general will, we feel sure, welcome this opportunity of showing their appreciation of motor cyclists' work at the front, and send donations of a shilling upwards.

Italian Track Championships.

Interesting Racing at Milan.



THE ITALIAN TRACK CHAMPIONSHIPS AT MILAN.

(1) Carlo Maffeis, the winner of the 500 c.c. class.

(2) A view of the track showing the final of the 350 c.c. class in progress. (4) A lady motor cyclist in the 500 c.c. final. Left to right: Carlo Maffeis (Moto Reve) the winner, Alfredo Belfanti (A.B.C.) second, and Miss Vittorina Sambri (Borgo).

(3) Merlo, winner of the 1,000 c.c. class.

THE Italian Motor Cycling Track Championships were held this month at the Milan saucer track, one lap equal to 401 yards. Though the entries were not numerous, they included the best Italian riders, and all the events were very interesting and closely contested.

350 c.c. Class.

Four entries. After two heats, three rode in the final (10 km.). Result:

1, B. Badino (Douglas), in 7m. 5⅗s.; fastest lap in 14⅕s. (speed 57.8 m.p.h.)

2, M. Maffeis (Motosacoche).

3, Bernardinelli (Douglas).

500 c.c. Class.

Eight entries. After four heats and three semi-finals, three rode in the final (10 km.), with the following result:

1, Carlo Maffeis (Moto-Rêve), in 6m. 7⅖s.

2, Belfanti (A.B.C.), in 6m. 14⅖s.

3, Miss Vitt. Sambri (Borgo).

This was the most interesting event of the day, and the final was most exciting. Maffeis on the inside got away first, closely followed by the Italian lady rider, Miss Sambri, and Belfanti (A.B.C.) lying third. Maffeis soon gained nearly half a lap advantage, but Belfanti, who in his heat had clearly demonstrated that his machine was very fast by covering the fastest lap in 12⅖s., which is the record up to the present and represents a speed of 66.15 m.p.h., was gathering speed at every lap, and fast approaching Maffeis, but to do this he had to pass Miss Sambri, who, unable to hold her machine, kept swinging towards the outside of the track. Once they bumped together, and a fall was most cleverly avoided by Belfanti, who, however, had to pull up. Once again he tried to pass, but could not get through for the above mentioned reason, till at last Miss Sambri's machine shed the belt, and this caused her to retire. It was, however, too late for Belfanti to catch up Maffeis, and he had to be content to finish half a lap behind, both riders being heartily cheered. This is the first appearance of an A.B.C. machine in Italy, and the makers and agents may well be pleased with its performance.

1,000 c.c. Class.

Two heats and a final of 10 km. Four entries.

1, Merlo (Frera), in 6m. 33⅕s.; fastest lap in 13s. (speed 63.1 m.p.h.)

2, Carughi (Frera).

3, Rava (Borgo).

This also promised a very interesting event, as Merlo, who had been beaten in his heat by Rava, got away in front, and Rava was doing his best to get up to him when he shed a belt, and before he could get going again Merlo was too far away.

Maffeis and Merlo are now champions for their respective classes for the third consecutive year.

THURSDAY, NOVEMBER 19th.

THE MOTOR CYCLE ANNUAL BUYERS' GUIDE OF 1915 MODELS.

ENLARGED ISSUE. NUMEROUS ILLUSTRATIONS.

OCCASIONAL COMMENTS BY IXION

A Piston Ring Tip.

The bore of an ordinary circular push bicycle trouser-clip is exactly 60 mm. [What on earth——?—Ed.] Therefore it is just the tool for compressing the piston rings of whichever two pistons are first "entered" in replacing the *monobloc* casting of a four-cylinder cycle car. If you have the type fitted with a spring lock, it is very handy when you are decarbonising a Morris-Oxford engine and other small projectiles of similar dimensions.

Pressed Steel for Sidecar Frames.

The pressed steel frame for sidecars has already been dealt with in these pages, and certainly this year's trials have proved beyond dispute that more attention must be paid to the design of sidecar frames. Not long ago a car designer experimented with a steel pressing which included not only the frame, but the lower halves of the crank case, gear box, and silencer. His idea suggests that it might be possible to construct a pressed steel sidecar frame, one edge of which could compose the lower half of the bicycle frame as well, so obviating all connectional difficulties.

Drip-feed Oiling.

A North-countryman sends me an exceedingly interesting letter on the subject of drip-feed oiling. He has ridden a first-class engine for some years past, and this year the maker whom he favours adopted drip-oiling. Whereas in previous years he had normally obtained about 9,000 miles from his connecting rod bushes with pump oiling, this year he has failed to make these bushes last more than 3,000 miles under drip oiling. He admits that several conclusions are possible, but the one he favours is that the cooling effect of a full charge of oil, suddenly injected *en bloc* every eight or ten miles, makes for longevity of the bearings. His impression is that the steady drip of the more modern system robs our grossly overworked big-ends of this cooling flood, and that they consequently give up the ghost much earlier. I have heard similar opinions from other users, and I have had two experiences which point in the same direction myself. But I rather resent the deduction. He implies that we must prefer a bad lubrication system in order to maintain bearings grossly inadequate for their duties. The ideal surely is that we should perfect bearings and lubrication system alike. It is probably true that the drip-feed is not suited to engines which have no margin of safety in their connecting rod bearings; and riders of such badly designed engines should try opening the regulator, and using their drip as a plain pump feed after replacing the first set of bearings. *Pour moi*, I shall stick to the drip, and see that I do not use it on an engine with microscopic bushes.

Metal Clips for Ignition Wiring.

Three times this year I have been hung up with chafed high tension wires, due to the cable being damaged by the fitter forcing it into a metal clip on the lower top tube of the frame. In each case the trouble occurred with a brand new machine of good make. Of course, the little *contretemps* did not worry me, but I can see that it might be very tiresome for a raw novice; except by the "finger" test, of which many are nervous, spark testing was far easier in the old accumulator days than it is now. Even if these wires are properly fitted, there is always danger of the cable being injured when it has to be removed from these pinched metal clips, and I think the time has come for the trade to abandon them. Insulated clips are cheap to make and easy to fit. Why should not the magneto makers supply one with each cable?

Cleanable Sparking Plugs.

I am rather surprised that so few designers fasten on the idea of a "cleanable" sparking plug. The mounting of electrodes and the material of the insulators are now almost above criticism; in the early days we suffered from cracked porcelains and broken wires, but to-day plug trouble is practically confined to sooting. It is a very tricky job to clean a plug which has a rigid cement joint between its metal socket and its insulator. The butt of the fixed insulator is irregularly shaped, is buried deep inside the socketed metal head, and is largely screened by the substantial electrodes. One washes the head in petrol, scrapes it with a knife, scrubs it with a stiff brush, but the bulk of the layer of carbon still defies removal. Even if one goes to the trouble of teasing out the end of an old piece of Bowden wire into a tiny brush, it is impossible to remove the black deposit; indeed, one may almost say that the inaccessible fastnesses of the plug have been "stove enamelled with burnt oil," and the worst of it is that the errant current will prefer a path along the carbon deposits to leaping any great resistance at the point, while any surviving carbon layers serve as a field of attraction for fresh deposits, so that a plug, once sooted, rapidly soots up again.

Threequarter Inch Belt Fasteners.

Until the modern light machines came into vogue, I had hardly used a ¾in. belt for several years past, though in the old days I covered many thousands of miles on ¾in. and ⅝in. belts with the plain hook fastener. I find that some manufacturers fail to grasp the special problem presented by the modern plate fastener in conjunction with a ¾in. belt on a light-weight machine. Supposing the width of the end plate be half an inch, its edges can only clear the pulley by ⅛in. on either side at the very best. If the frame be

Occasional Comments.—

even a trifle out of truth, or apt to whip, if the rear belt rim be mounted a shade out of truth or become strained, if the fastener be carelessly fitted on the skew, if the back wheel be not adjusted absolutely plumb in the rear forks, the edges of the end plate are bound to foul the pulley flanges. With a really silent engine, a fastidious owner would soon spot the periodic tinkling noise, and look into matters; but many owners are novices, and the miniature engine is, on an average, less silent than its bigger sisters; the small two-stroke, in particular, is apt to produce a loud burr reminiscent of a Gnome engine. So the fasteners often foul—have I not heard them often when miniature machines pass me on the road? The unfortunate owners suffer from belt troubles, and their pulleys get damaged. The designers of belt fasteners would do well to produce ¾in. fasteners with very tough and *narrow* end plates. Moreover, the designers of lightweights should pay very special attention to the trussing and alignment of their frames, to the mounting of their rear belt rims, and—I even dare to make the suggestion that a one-position fixing of the rear wheel may prove to be desirable. Duffer owners will always get their rear wheels out of truth when slotted fork ends and draw bolts give them an opportunity.

Twin Belt Drive.

I have had an interesting letter anent a form of transmission which many folk deem obsolete—the twin belt drive. My correspondent lives in a heavy district, and uses the twin belt drive on a 1913 8 h.p. Matchless-Jap with sidecar. He says that a pair of Dunlop ⅞in. belts run 10,000 miles without giving any real trouble, and that the back tyres last over 4,000 miles apiece. His sole difficulty has consisted in rapid wear of the bearing on the low gear side of the V.S. hub, and he has now traced this defect to the wheel being out of truth. It hardly seems possible that this drive should regain prominence, but it is unquestionably far smoother than the popular combined or chain drives, and if it proves so reliable and economical with a 1,000 c.c. engine and heavy load, its merits may well deserve further consideration. Of course, it is assisted by a big engine pulley in his case, though he does not state the diameter of his pulley. I wonder whether the twin belt may prove to be the sweetest drive for a single cylinder sidecar outfit. The twin can stand the comparative harshness of the combined and chain drives, so noticeable in slow running or picking up on single cylinders; but in my opinion the single cylinder leaves something to be desired with the more rigid transmissions.

The Scott Sparking Plugs.

During the last week or two I have been amusing myself with a Scott machine, amongst others. The Scott Co. advise their clients to use none but an American plug, known as the "Reliance," which possesses several unusual features. It has a porcelain insulator, which is certainly less durable than steatite. It has a metal dome end, after the fashion of the "Reflex" plug, and through a central hole, drilled in the head of this dome, projects a wee thin wire of platinum-iridium alloy, which never breaks, never becomes incandescent, and does not burn away. But its genuinely interesting feature is that the joint between metal socket and porcelain insulator is a screwed joint, devoid of cement, so that the plug can be taken to pieces and thoroughly cleaned. To do the plug justice, it seldom soots up, for the metal dome largely prevents oil from penetrating through to the surface of the porcelain insulator beneath; but if it does soot, its pristine whiteness can be restored in a minute or two, for the whole business end of the porcelain can be exposed and polished absolutely clean. This is a most excellent feature, especially as the screwed joint is tight enough to prevent compression leakages, and oil stains, due to "blowing through," are not experienced. Furthermore, the plug has a rational provision for adjusting the sparking gap. I have no doubt that the leading British plug experts will rend me in pieces for my crude praise of a foreign article; but I reiterate that the average motor cyclist wants a "cleanable" plug, and I see no reason why his request should be met with a negative. Cyclecarists say the same, only more so, for it is likely that they suffer more from oiled-up plugs than motor cyclists do.

ILLUMINATED ROAD SIGNS FOR MOTORISTS.

THE A.A. and M.U. has already erected many thousands of road signs along the main roads of the United Kingdom. A new A.A. departure is the provision of illuminated signs for guiding motorists at night.

The illustration shows an illuminated road sign fixed over the A.A. roadside telephone box at London Colney. Coming from Coventry through the village, the box is seen at the junction of the forked roads. The left road leads to London, while the right road is simply a by-road into the village, though at night it might easily be taken for the main road.

This illuminated sign, which has been erected and will be maintained at the expense of the Association, should remove all danger of motorists getting into difficulties at this point when driving towards London after dark.

An A.A. illuminated sign recently erected at London Colney

REVS: A Sermon for Speedmen.

("I will remedy this gear ere long."—*Shakespeare.*)

NO doubt, like Oliver Twist, you ask for more. This being so, the chief thing to guard against is the exploitation of a high gear somewhere in the attractive neighbourhood of four or even three to one. Several years back the writer made the experiment of lowering the gear on a 7 h.p. single-speed twin from 4 to 1 down to 4¼ to 1 (this machine had 28in. wheels), and obtained exactly the same road speed with a faster average, owing to the increase of power on hills and to more rapid acceleration.

The truth is that with most motor cycles (there are, however, several exceptions as regards gearing high) the power falls off considerably after a certain limit has been reached.

Supposing your engine, a fast one, can turn over at a rate of 4,000 revs. per minute. Probably its greatest power will be given at a speed of about 3,000 r.p.m., or perhaps at a speed of 3,500 r.p.m. Now, with an engine speed of 4,000 r.p.m. and a gear of 4 to 1 we get a 26in. machine travelling at 77.2 miles an hour.

But first get your revs.; I mean, get the engine to turn over at (say) 4,000 r.p.m. whilst indulging in those bursts of speed that never fail to endear you to other "users of the road"—a generic term for motorists; pedestrians, sober or thereabouts, as the case may be; police with the latest in Swiss stop-watches; horsed vehicles (occasionally), poultry, pigs (thank heaven, not porcupines), and dogs (age, sex, and size unlimited). What with your valves ground flat on top, narrow seatings, extra stiff valve springs, a perfect carburetter, and good engine balance, you expect to hold your own against all other brother road hogs.

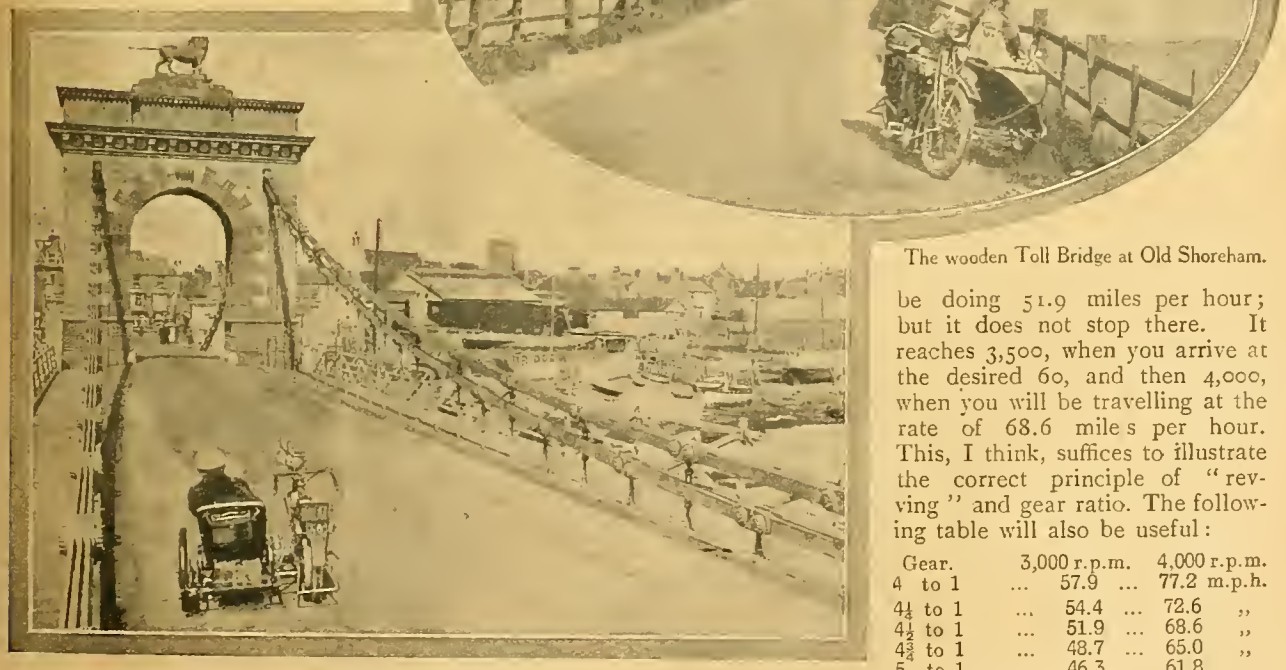
The Advantage of High R.P.M.

Now as regards your gear ratio, what you have to consider—and, in the case of a would-be world's record holder, I suppose, to determine—is the power curve of your engine. At best, you find that on a 4—1 gear your 3½ h.p. Supercylinder will propel the machine at 57.9 miles per hour. In other words, your engine remains at 3,000 r.p.m., and it does this because at higher engine speeds the power begins to fall off, and since the extra resistance is too great in proportion to this falling off in power, you remain at merely 57.9 miles per hour. Your engine may yield at 2,000 r.p.m. (say) 6 b.h.p., at 3,000 9 b.h.p., at 4,000 8 b.h.p. (the figures are only for illustration). On a gear of 4 to 1, therefore, you are not using the extra 1,000 r.p.m. of which your engine is known to be capable. You cannot touch 60. Boldly lower your gear to 4½ to 1 and then make your attempt. This time, when your engine speeds up to 3,000, you will be doing 51.9 miles per hour; but it does not stop there. It reaches 3,500, when you arrive at the desired 60, and then 4,000, when you will be travelling at the rate of 68.6 miles per hour. This, I think, suffices to illustrate the correct principle of "revving" and gear ratio. The following table will also be useful:

Gear.	3,000 r.p.m.	4,000 r.p.m.
4 to 1	... 57.9	... 77.2 m.p.h.
4¼ to 1	... 54.4	... 72.6 ,,
4½ to 1	... 51.9	... 68.6 ,,
4¾ to 1	... 48.7	... 65.0 ,,
5 to 1	... 46.3	... 61.8 ,,

SINGLECYL.

A CONTRAST IN TOLL BRIDGES WITHIN HALF A MILE OF ONE ANOTHER.



The wooden Toll Bridge at Old Shoreham.

Norfolk Toll Bridge, Shoreham.

A Season on a T.T. Douglas.

By ROAD RIDER.

THE reputation of the Douglas resembles that of the British Army—it is known all over the world, and respected by all its rivals. But I have never seen in print an appreciation of the machine from the most interesting standpoint of all, namely, how it is likely to serve an inexperienced owner who has yet to acquire the knowledge which can keep a machine in perfect tune.

My Douglas was delivered last January, and has been treated as a common hack. It has been loaned to all sorts and conditions of men, including novices; indeed, one novice was allowed to cover several hundred miles on it when I was personally busy with other machines; and it has never received any precautionary attentions at all. In other words, it has been ruthlessly handled by myself and clumsily handled by several other people—treatment calculated to bring out any intrinsic weaknesses.

The trouble catalogue for the season includes a broken valve rocker (replaced gratis), two or three chain "snappages," ascribable probably to novice drivers abruptly throwing the full engine power on to the transmission uphill, and a sooted plug or so.

Maintenance of Power.

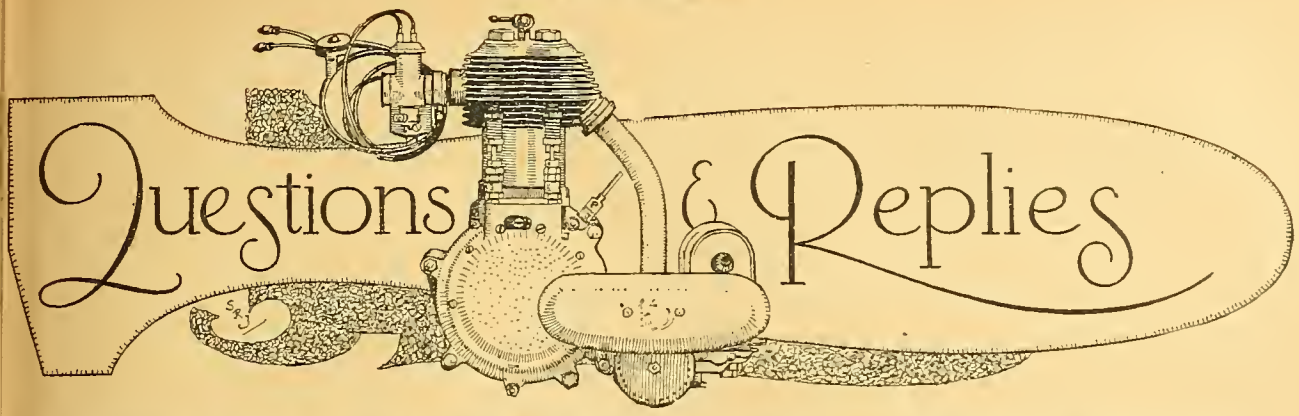
The power and efficiency have been extraordinarily well maintained. It is rather a tiresome job to clean the carbon out of the cylinders, as the engine must be removed from the frame for the purpose, but, thanks to the drip feed lubricator, I have not found it necessary to tackle this job until the engine has done 3,000 miles. Indeed, at the present moment the cylinders contain the carbon deposits from 3,500 miles, and the engine is running well; they must be moderately heavy, but it neither knocks nor overheats, though the compression is a little weak. The valves *require* grinding in at similar intervals, though a careful owner would touch them up every 2,000 miles. I find that if the engine receives no attention whatsoever for 3,000 miles, the machine can still average thirty miles per hour on average roads, climb gradients up to 1 in 5, and cover 110 miles on a gallon of petrol. This is power maintenance of a very high order, and after reliability, power maintenance is the chief merit from a private owner's standpoint.

On the Question of Economy.

The machine is, further, extremely economical to run. The life of the belt is 5,000 miles, thanks to the two-step drive; and, during that life, there should not be more than three belt stoppages, including "stretch" and fastener troubles. The studs on the back tyre provide an effective non-skid for 2,000 miles, and the tread is trustworthy for a further 2,000 miles after the studs have gone, when the tyres should be changed over. On roads free from flints a single pair of tyres last from 5,000 to 7,000 miles. The chain begins to be dubious after 3,000 miles, though it would last longer with uniformly skilful driving. The petrol consumption averages from 100 to 125 m.p.g. in fast touring work, though it would be much less with the size of jet desirable for a Six Days Trial. Starting is always childishly easy; the machine invariably paddles off from cold in a couple of yards without petrol injections. None of the fittings have broken or shaken loose, or given any trouble. Such fragile items as valve cotters and springs possess extraordinary durability.

To sum up, the machine would have realised the absolute ideal of a light handy machine for rough usage by a duffer, were it not for the broken valve rocker, which has been the single blot on a very fine record. The rocker broke when the machine was out on loan, and, as the part showed no flaw, I am inclined to think that a valve jammed up through expansion of the stem when the engine was being overdriven with the guide half choked by filth. It is impossible to praise the outfit too enthusiastically.

Mr. Dennet Huggett, with the pedal bicycle and twin-cylinder Clyno motor bicycle which he won in the Robbialac enamelling competitions of 1909 and 1913 respectively.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Rear Lights on Sidecars.

I have purchased a 6 h.p. Royal Enfield motor cycle and sidecar. Do I require a rear light?—E.C.

All sidecar combinations are required by law to exhibit a red rear light.

Band Brakes.

Can you advise me of any remedy for a band brake (external) which to all appearances is adjusted properly, but does not grip as it ought to? I have tried fullers' earth with little or no effect. I have examined the Raybestos lining, and find that it is in sound condition.—H.S.

We are afraid that there is probably something wrong with the design of the brake. If the diameter of the drum is too small and the width too little you will not get the stopping power you ought to have.

Attacked by a Dog.

Will you kindly inform me whether I can enforce my claim of £5 for medical and hotel expenses and loss of business, consequent upon being laid up for one week? Whilst motor cycling I was attacked by a bull terrier dog which bit my foot, his teeth penetrating the upper part of my boot and injuring my toes so badly that I was bound to have medical advice and stay in an hotel in the town for the night, and was unable to follow my business as a traveller for one week. The owner was with the dog and witnessed the incident, and in conversation promised to pay my doctor. This is not sufficient for me. It is the first occasion the dog has been known to bite anyone, and I should value your advice as to what chance I stand of enforcing my claim in a court of law.—W.W.

To enable you to bring a successful action against the owner of the dog, it would be necessary for you to prove that the animal had previously attacked people, and that the owner had been acquainted with this fact, but as you say that this is the first occasion on which the dog has been known to bite anyone the action would in all probability be dismissed. You would be well advised, therefore, to accept the owner's offer.

Exemption from Taxation.

I have been an owner of a sidecar machine for two seasons, and now I have bought a 2¼ h.p. mount to carry me to and from my work. Shall I have to take out a licence for this machine as well as the other, as I wish to keep the large one for pleasure only and the small one for my work?—P.M.

There is no exemption from the local taxation licence except when the machine is used solely for the purpose of carrying goods and merchandise. If taken out after October 1st the cost will be only one-half to the end of the year, *i.e.*, 10s., and, of course, only one driving licence is required.

Two-strokes.

After seeing your two-stroke number last July, I thought of getting a two-stroke, but am quite at sea with hearing various opinions as to what to do. (1.) Would a single-speed two-stroke pull me up the steep hills round Sheffield, or would it be necessary to have a two-speed? One does not want to have to rush hills to get up. (2.) I have heard that two-strokes consume much more petrol than four-strokes. How would a 2½ h.p. compare with a 2¾ h.p. Douglas for consumption? (3.) Would a two-stroke stand a good long run, say, of 150 miles in a day, or would it get very hot? One reason I wanted, if possible, a two-stroke is that one has not to bother with valves, etc., not that it puzzles me, but purely on account of having a mount over which I do not have to spend much time beyond my cleaning the cylinder.—W.G.W.

(1.) We should strongly advise a two-speed gear for use in the neighbourhood of Sheffield on a low-powered machine. (2.) The consumption of petrol on a two-stroke used to be very excessive, but this has been much improved, and it is now possible to get a very good mileage per gallon. The consumption would be about the same. (3.) Any good two-stroke machine would easily accomplish a run of 150 miles in a day. It should not be hotter after that distance than after a run of five miles or so.

Licences.

I hold a licence to keep a motor car (£4 4s. tax). I have now sold the car and bought a 7 h.p. Indian cycle. Will my licence to keep a car cover me this year for the cycle, or must I take out a new licence for the motor cycle?—C.B.

In this case the greater includes the less, so that no extra licence is necessary for you this year.

Choking.

My machine (a 5 h.p. automatic valve twin) will take only quarter throttle. Both inlet valves are free in guides, and I use a No. 32 jet. Directly I open throttle it stops. What do you suggest I should do in the matter?—J.W.H.

It looks as if you have too large a jet, and when you open the throttle the extra flow of petrol causes too strong a mixture, which causes the engine to choke. We should advise you to try a No. 30 jet, and open the throttle gradually, opening the extra air at the same time. It is possible that your inlet valve springs are too weak or the lift too great. 3/32in. or 1/8in. is about the required amount and more might cause the trouble.

Petrol Consumption.

I have a 7 h.p. twin sidecar combination. I can only get forty miles to the gallon, solo or with sidecar, over good roads. (1.) Do you consider this a reasonable mileage? (2.) Do you advise security bolts for front and back tyres and how many? (3.) What can you recommend for side-slip for solo and sidecar work, as I find the machine slips badly on grease when ridden solo?—TWIN.

(1.) As you are using a big engine you must not be astonished at the fairly high consumption, especially if you travel fast. It should, however, be about fifty miles to the gallon. Give the engine plenty of air. (2.) One security bolt in each wheel should suffice. (3.) We should recommend you to get a good ribbed or studded tyre or a combination rubber and steel-studded tyre

Starting Difficulties.

I have recently been puzzled by the behaviour of my 1914 2¾ h.p. twin. (1.) When the carburetter is flooded very slightly for a start petrol drips out of the base of the jet chamber and air extension pipe for a considerable time while the machine is standing. I have overhauled the carburetter, tightened all screws, and checked the petrol level in the float chamber. (2.) Often in starting, the engine back fires and a flame blows out of the carburetter air extension pipe, and in several cases the carburetter has caught fire. I have checked the valve and magneto timing, and find it according to the manufacturers' setting. The valves work freely in their guides, and close correctly, the space between bottom of valves and tappet being the thickness of a visiting card. The carburetter jet has not been altered, and it is as delivered by the manufacturers. (3.) On starting, the machine misses violently for about 500 yards till it gets warmed up, and then runs perfectly regularly, and gives no trouble while running. I have, as I said, examined the carburetter thoroughly and covered all air leaks in inlet pipe, etc., with insulating tape. Both plugs spark properly.—B.P.

(1.) The trouble is possibly due to the needle valve of the carburetter requiring to be ground in or to grit on the seating. (2.) The blow back is probably caused by the inlet valve sticking in the guide, or through too weak a valve spring being fitted. (3.) This trouble also points to the strength of the valve spring being inefficient or to the valve sticking in the guide.

Mending a Cracked Piston.

I have bought a second-hand Douglas 2¾ h.p. motor cycle (1910) from a friend. It wants a lot of overhauling, and a couple of questions arise which I should like you to answer. (1.) The frame is designed for 1¾in. tyres. I have been recommended to use 2in. tyres. If I adopt 2in. tyres there would only be ⅛in. clearance each side of the tyres in the forks. Is this sufficient? If not, what do you consider is desirable clearance? (2.) There is a crack in one piston. I think I can repair it by drilling a small hole at end of crack and plugging it with copper to prevent further cracking. A small, thin strap would be riveted to the concave side of the piston. Do you approve of this patching, or recommend a new piston? —Douglas.

(1.) We are afraid there is not sufficient clearance for 2in. tyres, which is a great pity. About three-eighths to half an inch is the minimum clearance advisable. (2.) The suggested method of stopping the crack in the piston is a reasonable one, but it would be better to have a new piston. As a matter of fact, all you need do, if you care to risk using a damaged piston, is to drill a small hole at the end of the crack. We should not advise anything else.

Gear Changing.

I have just bought a 2 h.p. Junior O.K. motor cycle with an Albion two-speed bracket gear. When changing from low gear to high, after starting and getting about twenty yards, it began to jerk forward and then back, and I have to stop and start again; sometimes I have opened the throttle fully, and it has kept on jerking for several yards before the engine has got into an equal beat.—W.B.

The trouble is probably due to your engaging the high gear too early. Your best plan is to accelerate for a few seconds until a good speed has been attained, then raise the exhaust valve and engage the high gear, but not too quickly; if the engine jerks, retard the spark and close the air slightly. The "take up" should then be smooth. In changing down, wait till the speed of the machine has considerably decreased, then move the lever over without touching the exhaust, allowing the engine to accelerate.

Two-strokes.

Could you inform me if, with a two-stroke (seeing the greater number of explosions that occur), there is any greater heat created than from a four-stroke engine? Also, is there any greater consumption of petrol with two-stroke than four-stroke engines?—G.I.

Yes; a two-stroke is liable to get rather hotter than a four-stroke engine, and the two-stroke is rather more extravagant in petrol.

A daring riding feat by Corporal Taylor, who is attached to the West Riding Royal Engineers. The photograph is unfaked and taken whilst the machine was in motion.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"Miss M.B." (Cheshire).—Lady motor cyclists' advice as to the best style of skirt for use when riding standard machines, and from whom patterns are obtainable.

"W.C." (Balham).—7 h.p. Indian and 3½ h.p. model B Douglas. Reliability and petrol and oil consumption, solo and with sidecar.

"J.U." (Penketh).—A strong free engine hub suitable for sidecar work with 8 h.p. Matchless variably-geared machine, kick or hand starter.

J.A.P. ENGINES FOR 1915.

A NEW CYCLE CAR ENGINE.

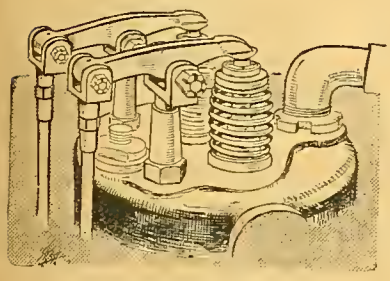


Fig. 1.—Improved valve gear on the new J.A.P.

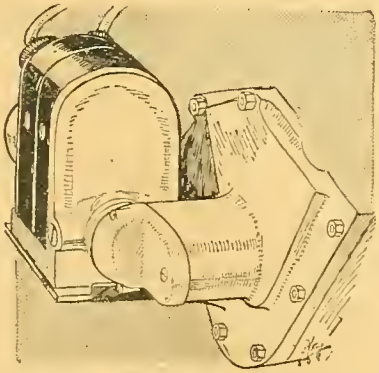


Fig. 2.—The enc'osed magneto drive.

IMPROVED LUBRICATION.

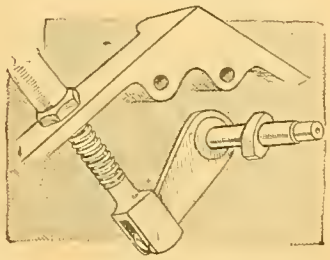


Fig. 3.—New design exhaust lifter on the J.A.P.

THE firm of Messrs. J. A. Prestwich and Co. was one of the first businesses to take up the manufacture of motor cycle engines in this country and to tackle seriously the foreign competition which was prevalent in the early days of the movement. Since that time the firm has gone ahead to a wonderful extent, and the large works recently taken over have been already considerably extended.

The latest production is an 8 h.p. cycle car engine of 1,082 c.c., the bore and stroke of which respectively are 90 mm. × 85 mm. It will be noticed on referring to the accompanying photograph that the crank case is an exceptionally large one. This allows large inside flywheels and does away with the necessity of a heavy clutch flywheel, and this, it is claimed, results in a much better balance. Moreover, the large crank case allows of very much bigger bearings, which have been increased in area 100%.

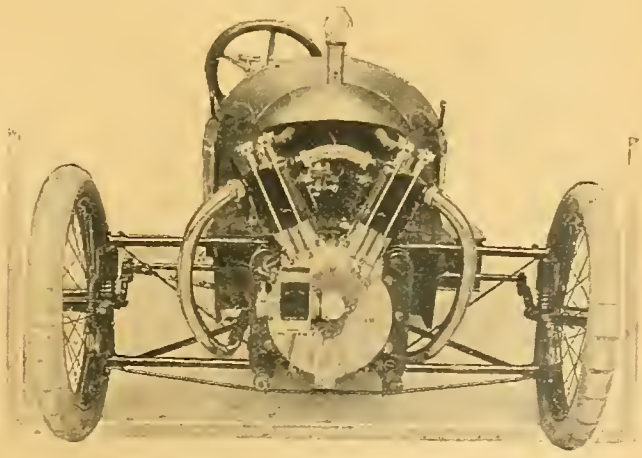
Other improvements are shown in detail: fig. 2 is the carefully enclosed magneto drive, and the interior mechanism of the exhaust valve lifter is shown in fig. 3. Instead of the rack and pinion system employed on last year's models there is now a spindle on which there is a double-face cam, a crank being connected directly to the spindle to which the Bowden wire is attached. The double-face cam works between the two tappet rockers, and is simple and well designed.

Considerable interest is to be attached to the valves, the design of which has been carefully studied. In the valves themselves particular attention has been paid to the question of heating, and they are designed so that the heat is conducted away from the mushroom on to the stem as soon as possible, and, as will be seen in fig. 1, the amount of stem exposed to the air is considerable. A great improvement has been made in the manner in which the spring cup is attached to the stem, and no cotter is utilised. The forks supporting the overhead rockers are screwed into the cylinder head, and are further secured by means of long nuts clearly shown in the illustration. These act as lock nuts and also as supports to the fork stems. The valve ports are all streamline in shape, and the general design of the engine has been given the special attention of Mr. E. B. Ware, an expert motor cyclist whose scientific abilities are not so well known as they deserve to be, and whose aim has been to bring out an engine in which the principal features are smooth, steady running and flexibility.

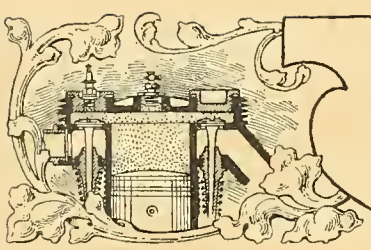
The excellent J.A.P. system of lubrication has been improved. This system, we may reiterate, consists of utilising the crank case compression and destroying the crank case suction by means of a valve. By its means quite a powerful jet of oil is forced through the valve, and the lubricant first issues through the main bearing, part of it passing through a hole in the bearing and part going behind the bush, issuing from a nick between the aluminium and bronze and being carried round to the crank pin and thence to the big end, while another portion of it goes through a pipe to the front cylinder, and yet another pipe conveys the oil to the plain bearing on the "pulley" side of the crank case. This idea of lubricating the front cylinder will be incorporated in all J.A.P. models next year.

The engine, it will be noticed from the accompanying photograph, is fitted to a Morgan chassis which Mr. Ware has got out for his own use on the track. It has been considerably improved in design; for example, the oil and petrol pipes, instead of passing outside the bonnet, come straight under the chassis directly to the carburetter and crank case. The bonnet side has been filled in.

The J.A.P. Works for 1915 will produce the following engines: the 2½ h.p. and 4 h.p. single and the 4 h.p., 5 h.p., and 6 h.p. twins, and the cycle car engine just described.



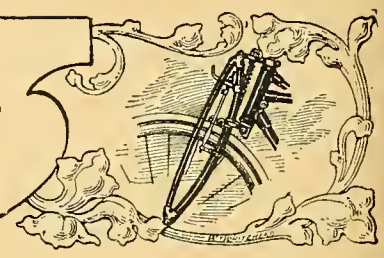
A new J.A.P. water-cooled engine of 1,082 c.c. fitted to a Morgan.



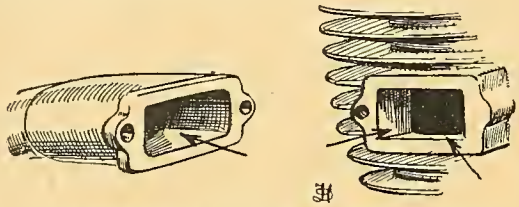
Hints for Beginners.

FIFTH INSTALMENT.

Some Notes on Two-strokes.



ON account of the very few moving parts in a two-stroke engine it becomes one of the simplest forms of explosion motor; especially is this the case when one considers the little single cylinder air-cooled engines which have become so popular of recent days. These engines have the minimum number of moving parts, and many are inclined to forgive them their minor faults on account of their simplicity and smooth torque.



A two-stroke exhaust port showing parts liable to become coated with carbon.

By the novice, however, or even by those accustomed to tuning up four-strokes, there is much to be learned, and many little tips which will prove useful to such as have experienced loss of power and failed to diagnose the cause of the trouble. The three-port two-stroke is so simple that at first sight it would appear that there is nothing whatever to be done but keep the jet clear and the magneto points adjusted, and to give the cylinder head an occasional clean out; yet perhaps these points are less likely to cause trouble than several that are far less obvious.

Crank Case Compression.

First of all, it must be remembered that crank case compression plays an important part in the functioning of nearly all present-day two-strokes. Therefore leakage must be carefully avoided, and there are many points to watch. A bad joint between cylinder and crank case, between the two halves of the crank case, a slack crankshaft bearing or a sticky piston ring, are all sufficient to make an appreciable difference to the power produced by the engine.

Probably the last-mentioned fault is the most common, and in certain extreme instances the writer has known of rings gumming up regularly in 300 or 400 miles. This, of course, causes loss of compression both in the crank case and cylinder, and the top ring is almost invariably the sinner.

When the engine loses power it should be stripped and attended to as follows. (The veriest novice need not be afraid of the job, provided care is used in every operation.)

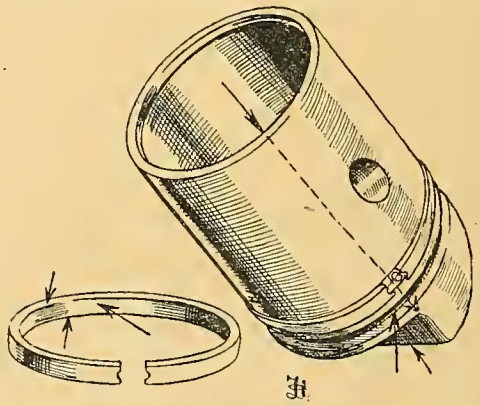
How to Proceed.

First of all, remove the carburetter (and inlet pipe if one is fitted), exhaust pipe, sparking plug, and compression release valve. The release valve should be carefully cleaned and the spring tested. If the spring is too weak to hold the valve firmly on its seat it should be replaced, or, as a temporary expedient, stretched. The cylinder may then be removed after taking off the holding-down nuts. The cylinder head must now be carefully scraped and all carbon deposit removed; a long copper tube of about half-inch diameter will be found very useful for this purpose, and if the cylinder head is tapped with one end, most of the deposit will be loosened. An old wood chisel is also an excellent tool for scraping purposes. When the head is clean, clear out the exhaust port. This often becomes very congested with cakes of hard carbon, every trace of which should be removed and the edges of the port carefully smoothed off.

Next remove the piston by taking out the gudgeon pin. In small engines the pin is usually slightly tapered and driven in, in which case the small end should be tapped with hammer and punch till it is driven out. This operation requires care, as the piston is very fragile. If any additional fixing is employed this must, of course, be removed first.

Next remove the piston rings with a piece (or three pieces) of stiff wire or a fine knitting needle; great care is again required or the rings will be fractured.

The piston head should now be scraped free of carbon and polished with fine emery cloth. The under side of the head is important, as in most two-strokes more deposit will form here than in any other spot. Now carefully scrape the ring grooves and sides and back of the rings with an old knife blade or any other suitable tool. The carbon behind the



A two-stroke piston and ring. The arrows show places which require careful cleaning

rings and in the bottom of the grooves is often hard and smooth so as to take on the appearance of cast iron, but do not be deceived, a few taps with the point of a knife will soon show if any carbon is left and also the depth of it.

Hints for Beginners.—

In replacing the parts a little good oil should be wiped over the gudgeon pin and piston and all joints should be carefully cleaned and lightly smeared with seccotine or gold size. The inlet port joint and the cylinder base are particularly important in this respect. Before replacing the parts, thoroughly wash out the crank case with paraffin till it is quite clean, then test the crankshaft bearings for play. The best way to check this is to try and raise each end of the crankshaft separately. If there is much lift the engine requires new bushes, and this is not a job for the amateur, so it should be returned to the makers or to a competent engineer. If, however, all is well, pour a small amount of oil (about a pumpful) into the crank case, taking care to fill each of the bearing leads. Then the engine may be put together as before, each part being carefully cleaned and oiled before re-assembling. The magneto timing of a single-cylinder two-stroke is particularly simple, but as it has a great effect on the running of the engine it should be carefully carried out.

Remove the chain sprocket from the magneto, leaving it loose on the spindle, then turn the engine till the piston is at its highest possible position. Now place the spark lever in the full retard position and turn the magneto spindle till the platinum points of the contact breaker are just breaking. If necessary get someone to hold the magneto in this position while the sprocket is refixed. A tap on the sprocket will usually hold it in position till the nut is tightened. Then check the timing and make quite sure that the points break when the piston is dead on top and the spark lever fully retarded.

Some Useful Work for Motor Cyclists.

How a Motor Cyclist Corps could be Utilised for Tracing Wounded and Missing Men and Rendering Valuable Assistance.

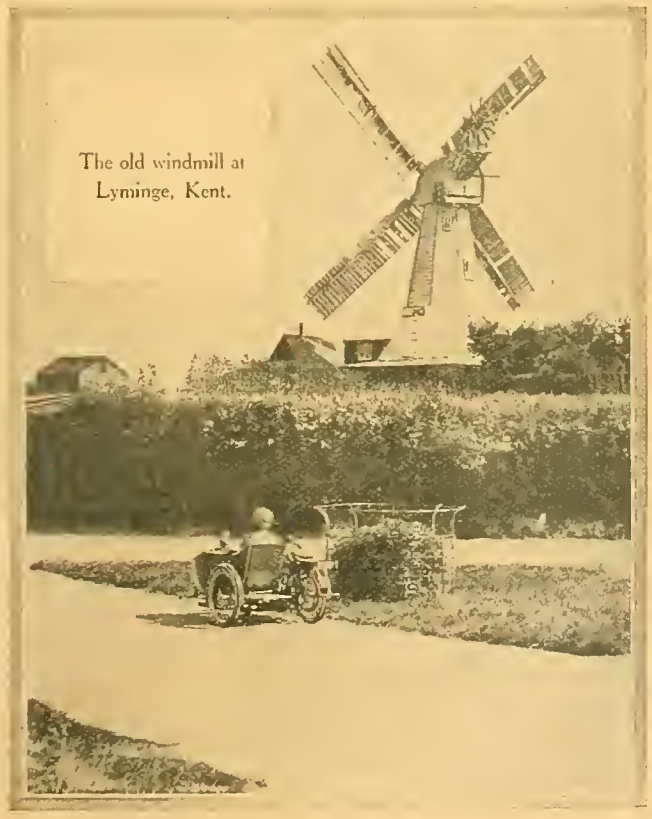
AMONG the various spheres of utility of motor cyclists in connection with the war, one that has not as yet, so far as we are aware, been taken advantage of is the possibility of using motor cyclists in connection with the important work of tracing missing men. Our suggestion is that those organisations which may be responsible for this work might well employ a considerable company of motor cyclists having their headquarters at some convenient point in France, and scouring systematically the whole of those portions of the country where fighting has taken place.

The object of this is two-fold. In the first place, the scheme would lead to the discovery of wounded men being treated kindly but possibly inefficiently at houses and cottages dotted about the countryside. On making such a discovery, the motor cyclist would communicate immediately with his headquarters, with a view to a motor ambulance being sent out to the point indicated and the wounded man carried comfortably to the nearest equipped hospital.

Then, again, there must be very many instances in which the relatives of men posted as missing are being kept in a state of anxiety, which is perhaps even worse than the certainty of loss. Probably quite a considerable number of men who have been killed in action have subsequently been given burial by civilians without any record having been kept or made available at the War Department which would allow of any identification. In some such cases, the precaution may have been taken of preserving the identification plate affixed to each man's uniform, and in others some other information may have been gleaned which would assist in the same direction.

To do useful work in this connection would, of course, imply a good knowledge of the French language, since enquiries would have to be made at all sorts of out-of-the-way places where English would probably not be understood. We suggest, therefore, that those responsible for carrying on the work of the kind we have outlined above would do well to form a corps of motor cyclist volunteers willing to maintain themselves and their machines, and to undertake to make minute investigations over areas assigned to them, and to report to headquarters periodically.

One point more: many a stranded English soldier, despite the well-known resourcefulness of Tommy Atkins, must have great difficulty in finding his way about an unknown country owing to his lack of local geographical knowledge and his inability to speak the language of the countryside. To such a man a motor cyclist who possessed the required information would be a godsend, since he could put the soldier on the right road as well as carry news of him to the authorities, and through them to his friends and relations.



The old windmill at Lyminge, Kent.

DESPATCH RIDERS IN FRANCE.

A Brief Summary of the Daily Life, Routine, and Duties as Experienced by One of their Number.

FOR the benefit of the readers of *The Motor Cycle*, who are, no doubt, more or less interested in the movements of the despatch riders actively engaged with the British Expeditionary Force, I think perhaps some further description of the duties imposed upon this merry little band would be interesting at the present time, especially now that a special commendation from the General Staff has been given us for the good work that is being daily carried out in this direction.

In the first place when landing in France parties of usually half a dozen riders are given positions with various sections of the Army. For instance, the 1st, 2nd, and 3rd, etc., divisions have so many men permanently (that is, "unforeseen circumstances permitting") allotted to them. The Cavalry Division and the various Cavalry Brigades each have their contingent. Usually the riders form part of the staff of a field signal station, which consists of wireless and heliograph installations, etc., and in turn form part of the equipment of each division. The duties of despatch riders consist mainly of forming lines of communication where wireless and other apparatus are not permissible. I think it can be safely said that, except under very special circumstances, motor cyclists are not used for scouting purposes, the noise of the exhaust of the engine obviously being a great drawback, but I can assure readers that the average rider will find enough excitement and thrilling episodes to satisfy his appetite in the daily duties of a despatch rider in France.

A Continuous Reliability Trial.

Regarding the actual riding, I think the best way to express my opinion would be to call it "a continuous reliability trial of the A.C.U. brand," with the exception that trial machines in England receive, naturally, every attention, and are studied and tested and examined in every detail, whereas the machines "out there" receive every neglect. I can assure my readers that care of our machines is a thing that cannot claim our attention in times of warfare. When a military motor cyclist has ridden continuously for, say, twenty-four hours in drenching rain and over "hellish" roads it is not unnatural that all thoughts he may then have in his head are centred upon "number one," and the machine can go to —— to graze. Small wonder is it, then, that the machines with the soundest construction and fewest working parts are the ultimate survivors. If asked my opinion on the ideal machine for warfare I should immediately say, "The simplest and strongest," and I think full credit can be given to the War Office on their choice. Despatch riders must have the best of everything. I have seen practically new machines abandoned through faulty plugs, stretched wires, punctures, and such minor troubles. You ask why? Well, imagine the enemy about a mile away, hot after you, and then ask yourself what you would do under the circumstances.

Coming to the rider; while I have never yet known a man regret the step he took in volunteering, a despatch rider's life is not by any means a bed of roses. Great hardships are experienced, which, of course, are undergone by every soldier, but the great thing is to "keep your pecker up."

Do not let it be thought that speed merchants make the best despatch riders. If anything, they are the worst. A cool head, keen eyes and ears, initiative, and discretion, play a far more important part in the execution of duties than the fact of the speedometer needle maintaining the "forty-five" mark. Remember, a despatch rider differs from the ordinary "Tommy" in the respect that when working he is his own master and has two valuable things to look after—a despatch and his own life—and "blinding" is not a precautionary measure for either. No, the careful plodder always wins.

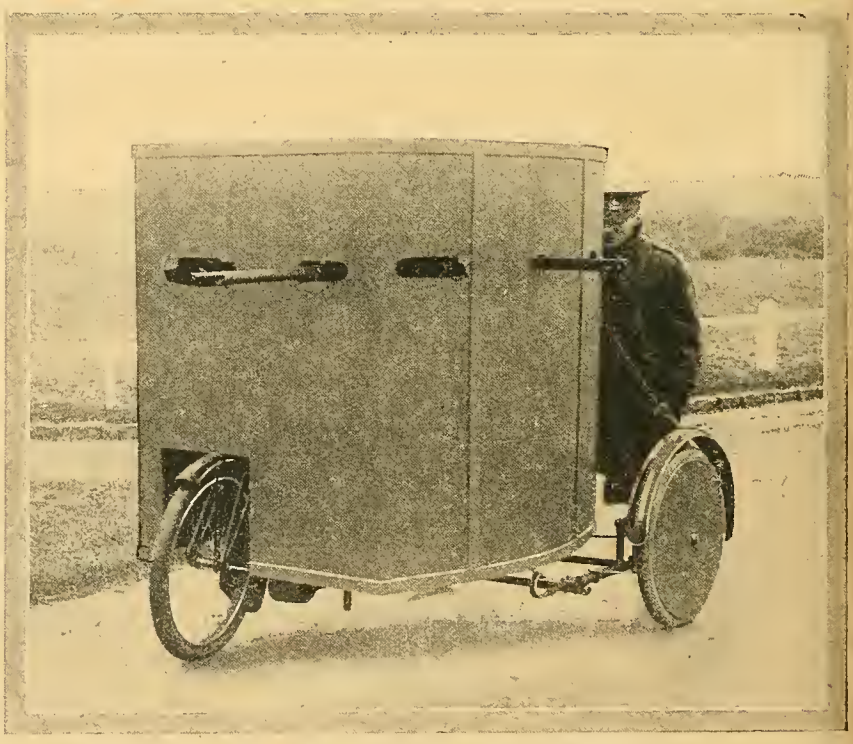
The four items that claimed my principal attention when in France were food, sleep, oil, and petrol, and at times I found it advisable to pay a little more attention to the procuring of the latter two than the former two. On active service the maxim is "get it when the opportunity affords or go without," and the opportunities for securing fuel for the "'bus" were certainly not so frequent as those afforded by the commissariat.

The Difficulty of Hearing Challenges.

I think it is universally agreed that the most unpleasant part of a despatch rider's duties is the night riding, and, unfortunately, there is plenty of it. It is not so much the dangers of your work that worry you. They are apparent both night and day, and become second nature to you, but it is the awful solemnity of the whole thing, the gruesome sights of the day's "business" that you witness, the tension on your mind, which is doubled sometimes by the fact that you have not the faintest idea where you are going and the rude awakenings that you invariably receive from the outpost sentries, who, having their challenge unheeded—which you never hear owing to the noise of the exhaust—simply come out from cover and either stick their bayonet in the way of your progress or level a rifle at your head. But the great point is that you do not know whether the sentry is a German, a Frenchman, or one of your own countrymen until you stop.

But, taking things all round, a despatch rider's time is no worse, and much better than some others' experiences, and there is a great deal of satisfaction to be derived from the fact that you are doing your little bit for your country in the execution of your favourite hobby. For myself, I anticipate being back again in a month.

F. A. ENDERS.



THE ARMOURED SIDECAR HAS ARRIVED!

The above armoured sidecar has been produced by the Golby Sidecar Co., of Coventry. It is the first specimen and made of wood, but it is considered that a design on similar lines with metal body and propelled by a powerful twin-cylinder engine would be able to perform useful work in the war zone.

The Junior Triumph

2¼ h.p. 2-stroke 2-speed Lightweight Motor Cycle is just the mount for the business man residing some distance from town.

It will serve as a connecting link between home and office—convenient, speedy, and safe—and leave the rider quite independent of time table travel.

The Junior Triumph is so easily controlled that it can be ridden in dense traffic with every confidence even by the novice.

It will crawl at 3 m.p.h. and accelerate to 35 m.p.h., mount any hill, and it is particularly immune from skidding on wet and greasy roads.

Being so light—only 125 lb.—it is handled almost as easily as a pedal cycle.

May we send you Catalogue of this, our latest production, post free ?

Triumph Cycle Co., Ltd., Coventry.

London: 4-5, Holborn Viaduct, E.C. Leeds: 53, Vicar Lane. Manchester: 160, Deansgate. Glasgow: 14, Waterloo Street. Agents Everywhere.

TRIUMPH

45 GNS. SOLO.

55 GNS. COMB.

We do not claim that the

QUADRANT

is the lowest-priced machine offered you to-day, but we do claim that

There is no other Motor Cycle of like power and merit that can be purchased at the figure.

That's why we emphasize the price, and — that's why the Quadrant calls for every buyer's careful consideration.

The following are a few details of its specification —

4½ h.p. Armstrong 3-speed Gear and Free Engine — Dunlop Tyres and Belt — Bosch Magneto — Senspray Carburetter — Quadrant Spring Forks.

Truly "there's no query about Quadrants," so we ask you to ask us for latest Folder

QUADRANT WORKS, Lawley St., Birmingham.

London Depot. 78 Great Queen Street, Kingsway

The Wood-Milne

MOTOR CYCLE TYRES

Secure on any surface
Fastest and Strongest
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BRITISH MADE

"GRIPRIB"

"I have fitted other makes of tyres," writes Mr. J. Lee Evans (Rickmansworth), "and 'Wood-Milnes' stand out far above all for non-skidding and for corner work. I am miles an hour faster, and feel safer."

They hold the World's Record for Speed and Endurance

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CLUB NEWS.

Wolverhampton Motor Cycle Auxiliary Defence Force.

The first general meeting was held on the 15th inst., at the Imperial Commercial Temperance Hotel, Wolverhampton, when thirty-six members were enrolled. Arrangements were made for rifle and pistol practice. The hon. sec. is Mr. F. Gould.

Cyclecar Club.

A rally will be held at the Red Lion Hotel, Hatfield, at 2 p.m. on November 21st, followed by a procession through London to Burford Bridge and a rally at Wisley Hut Hotel on the following day.

Waterford and District M.C.C

The reliability trial for the Rudge Cup was re-run on the 8th inst. over a course of fifty-eight miles, starting from the City Hall, Waterford, and running through Mooncoin, Piltown, Carrick, Portlaw, Kilmeaden, Sweep, Waterford, Calloghone, Dunmore, and back to Waterford. Result :

1. J. C. Ruttledge (3½ Rudge sc.) ... 100 marks
2. J. Kirwan (3½ Rudge) ... ... 98½ ,,
3. T. H. Whitney (5-6 Rudge sc.) ... 96½ ,,

The last-named, having tied in the previous trial with W. Brabazon on a similar machine, proved to be the winner. There were thirteen competitors, ten of whom were mounted on Rudges.

(1) (Left) C. Holmes (winner) and (right) A. T. Lee (second and made fastest time) in the Tasmanian A.C open hill-climb. Both rode Rudges

(2) Winners of the Five Mile Open Handicap at Perkolilli, Western Australia. Left to right : (1st) C. A. Savage (3½ h.p. Triumph), (2nd) J. Hekir (Singer), and (3rd) W. Long (2¾ h.p. Douglas).

Motor Cycling Club.

The closing run will take place on the 25th inst., the *venue* being the Chequers Hotel, Horley.

Wolverhampton M.C.C.

A paper was read last week to the members by Mr. Harry Stevens, entitled "How we won the T.T." Mr. Stevens dwelt upon the troubles and difficulties which had to be overcome, and related many amusing experiences. A short discussion then took place, followed by a vote of thanks.

Mersey M.C.C. Map Reading Test.

The re-run of the Mersey (Liverpool) Motor Club's map-reading contest took place recently, starting from Queensferry at 2 p.m. Each of the thirty-five competitors was armed with a Bartholomew No. 12 Cheshire map with the course marked in black instead of the hand-drawn sketches supplied for the original trial. The keenest rivalry was shown, as most of the riders were on the waiting list of Army despatch riders. The course was only forty miles, but covered some very hilly country, and was most suitable for such an event. The first obstacle was a very severe hill at Ifrith, with a watersplash at the foot. Here Matthews (7 Indian) came to a standstill with clutch slip. On Cilcain a large number came to grief, but Jones (Singer cycle car), Azancourt (Rover), and Brown (Indian) made very fine ascents. The main trouble was averaging 20 m.p.h., a large number failing from this cause. Only five turned up at the finish, and of these two were disqualified for leaving the course. The results were as follow :

Best performance of the day, N. Brown (7 Indian)
First solo, G. Azancourt (3½ Rover)
Second solo, V. Horsman (3½ Singer).
First sidecar, N. Brown (7 Indian)

Coventry and Warwickshire M.C.

Fifteen took part in the handicap shooting contest at the Shottery Range, near Stratford-on-Avon, last Saturday afternoon. The proceeds were to be handed over to the Prince of Wales's Relief Fund. The result of the match over a twenty-five yards range was : (1) J. W. Roebuck ; (2) H. Whiteman ; and (3) S. Wright.

A CLUB ROLL OF HONOUR.

The following officials of the Westmorland M.C.C. have joined His Majesty's Forces, besides a number of ordinary members :

J. M. Somervell ..	Public Schools Batt. ..	Private.
T. Inglis Hall	9th Hussars	Trooper.
L. S. Hoggarth ..	4th Border Reg.	Lieutenant (gun team).
G. T. Hogg	10th Border Reg.	Sergeant.
A. J. Moffat	Yeomanry	Trooper.
J. Wright	St. John Ambulance ..	Superintendent.
B. Jefferys	9th Border Reg.	Private.
A. Somervell	Public Schools Batt. ..	Private.
W. Westwood	Royal Engineers	Corporal (despatch rider).
E. Jefferys	9th Border Reg.	Private.

MOTOR CYCLE RACING AT THE ANTIPODES.

Toward the end of August some motor cycle speed trials were held by the Kalgoorlie M.C. on the surface of a dry lake called Perkolilli, which is absolutely flat and very hard. The result of the Five Mile Open Handicap was as follows : 1, C. A. Savage (3½ Triumph) ; 2, J. Helin (3½ Singer) ; 3, W. Long (2¾ Douglas). Time 5m. 14s. A rather novel race was a contest from a standing start for one hundred yards between E. Grey on a pedal cycle and the motor cyclists. Savage was the only man who could beat Grey over this short distance.

The Tasmanian A.C. annual hill-climb resulted in a victory for Rudge machines. C. Holmes (3½ Rudge-Multi) was first, while A. T. Lee (3½ Rudge) was second and made fastest time. Speed about fifty miles per hour.

TIMES TO LIGHT LAMPS

(GREENWICH.)

October	22nd	...	...	5.53
,,	24th	..	.	5.49
,,	26th	...	...	5.45
,,	28th	...	...	5.41

Our Shilling Fund for Despatch Riders

Readers! Show your appreciation of the loyalty of despatch riders at the front by sending a shilling towards *The Motor Cycle* Fund to provide useful Christmas presents.

Practice in Rifle Shooting

Practice in rifle shooting has been taken up most enthusiastically by members of the Coventry and Warwickshire Motor Club. A handicap is arranged every Wednesday evening at the Humber range, and members are becoming really proficient in the handing of a rifle. Scores of 95 out of a possible 100 on a match target at twenty-five and fifty yards range are becoming common

Helping the Wounded.

We understand that a large number of sidecar drivers in Kent in the Greenwich and Shooter's Hill districts are taking out the convalescent wounded for runs, with the greatest benefit to the health of the sufferers.

British and American Motor Cycle Exports.

America's exports of motor cycles during July numbered 501. As a comparison, Great Britain's total for the same month was 2,151—over four times the number.

Motor Cycle Constables.

T. J. Ross, a Triumph competition rider, is serving with the special motor cycling constable force at the head station, Rochester Row, S.W., and refers to the work as being interesting and the motor cycles invaluable. Each rider is provided with a belt and heavy truncheon, and is, for the most part, engaged in night and early morning work within a radius of ten miles

SPECIAL FEATURES

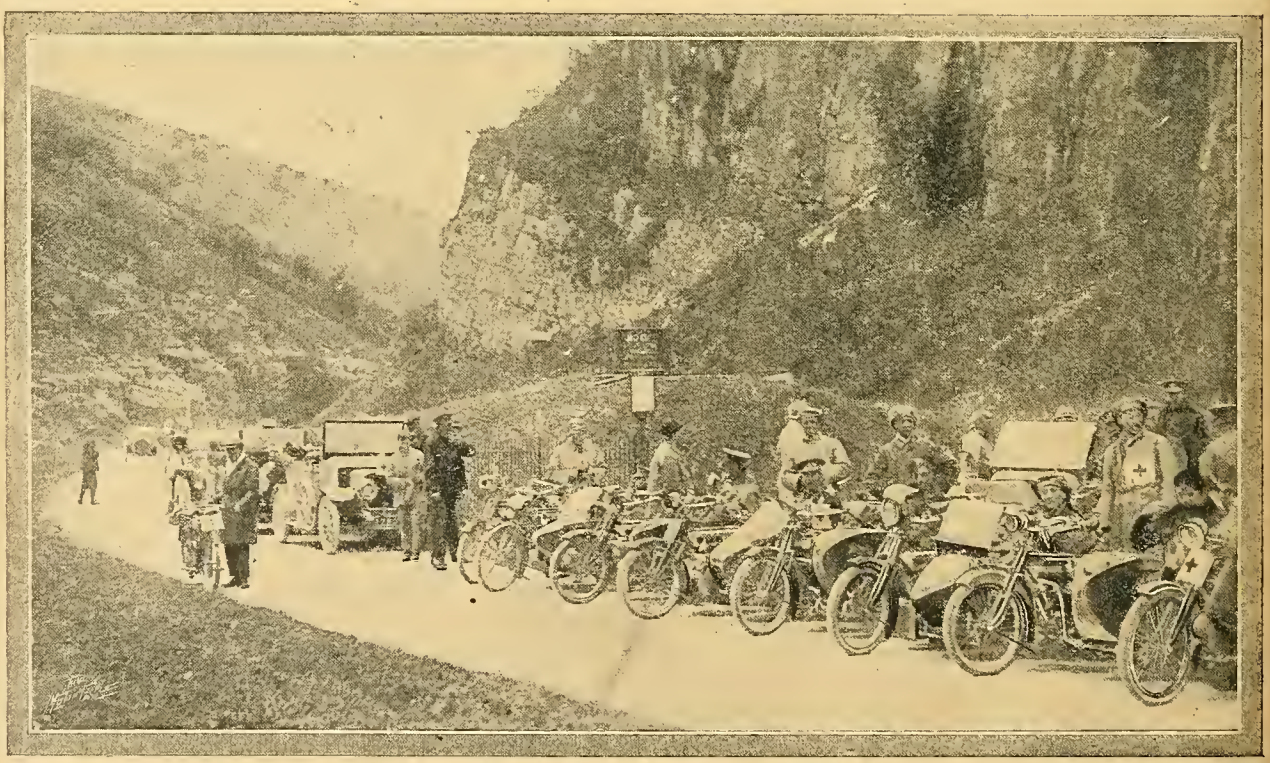
HINTS FOR TWO-STROKE USERS
REVS: A SERMON FOR SPEEDMEN.
XMAS GIFTS FOR DESPATCH RIDERS.

British Motor Cycles Favoured.

American manufactnrers were hot on the scent of the Russian Government order for motor cycles, an enquiry for 900 machines being circulated in the States. We are given to understand, however, that the whole order for over 2,000 motor cycles was finally placed in this country.

More Motor Cyclists for the Front.

Two well-known members of the Woolwich Club, E. Ilsley, a brother-in-law of C. R. Collier, and who has been his sidecar passenger in several recent trials, and W. Howard, have joined the Woolwich detachment of the mechanical transport section A.S.C. Both have been supplied with new Triumph three-speeders.



SIDECAR SAMARITANS IN CHEDDAR GORGE.

Members of the Bristol Motor Cycle Club last week took a party of seventy wounded soldiers from the Bristol Royal Infirmary (Red Cross Hospital) into Cheddar Gorge. The trip proved thoroughly enjoyable.

Our Annual Buyers' Guide.

The annual Buyers' Guide of *The Motor Cycle*—a feature introduced in *The Motor Cycle* of 1906—will appear on November 19th. Its value will be considerably enhanced this year by reason of the decision not to hold a Show.

A New Name Adopted

The Coventry Premier, Ltd., is the new name decided upon at a recent extraordinary meeting of the Premier Cycle Co, Ltd.

A Too Zealous Official.

An officious policeman the other day stopped a special constable motor cyclist, though he was wearing his badge of office, and accused him of exceeding the speed limit in one of the Royal parks.

The Russian Army Representative.

There has been some difficulty in getting the correct name of the sporting Russian officer who has been testing motor cycles on behalf of his Government. His correct name is Captain Vladimir Avelevitch Mgebrov.

A New Cycle Car.

A new cycle car is being introduced by the A.S.L. Manufacturing Co., Ltd., which is to be named the Stafford. The machine will be on true cycle car lines, and will have a twin-cylinder engine of 1,090 c.c. capacity, and a chassis weight of 7 cwt. A machine of this type has been under test by the firm for some time past.

Profits in the Motor Cycle World.

The balance sheets of the different companies interested in the manufacture of motor cycles are now being made public, and practically all of them so far reveal good business and profit.

The most striking of all perhaps is the Rover Co.'s profit and loss account, which shows an available balance of £189,991. A dividend of 40% (the same as last year) is recommended on the ordinary shares, and besides carrying a large amount to reserve, the directors propose to distribute £15,000 bonus among the workpeople and staff, and have further devoted £5,000 to the dependants of workpeople who have gone to the Front.

The Birmingham Small Arms Co., Ltd., balance sheet showed a profit of £190,429 9s. 4d., and the Enfield Cycle Co., Ltd., a profit of £43,614 2s. 7d.

Military Motor Cyclist Fined.

At the Scarborough Police Court on Wednesday, the 14th inst., the magistrates considered it necessary to fine a military motor cyclist for doing his duty. The pretext was that he was driving to the danger of the public. Although the man was riding a Government machine and his captain gave evidence that he was obeying orders, he was fined ten shillings and costs, or more than a week's pay. He was held to be liable under Civil Law, although on active service. Does this mean that a despatch rider carrying urgent messages, which affect the welfare of the nation, may be summoned for exceeding the twenty miles per hour? In view of the present crisis the decision is most astonishing, and though we do not wish to encourage law breaking, we believe that a soldier on active service can only be imprisoned by civil authorities for crime or a debt of over £30. What if the defendant had refused to pay?

Three-speed Indians for 1915.

The 1915 model Indians promise to create some interest when they arrive over here. It will be remembered that we hinted a month or so ago that a 5 h.p. twin on the lines of the T.T. model would form one of the new range, and we are now able to announce that the three new designs for 1915 are 3½ h.p., 5 h.p., and 7 h.p. twin-cylinder mounts, all with three-speed counter-shaft gears.

A Resignation.

Mr. Alec Rotherham has resigned his position as managing director of the Premier Cycle Co., Ltd., Coventry, as from the 31st of this month. Mr. Rotherham's connection with the company has been a long and honourable one, and we regret that he should feel that the time has now come when he should take a rest. At the same time, the traditions of the company will be maintained, as not the least of Mr. Rotherham's achievements was the gathering round him of a most able staff.

The Large Russian Government Order.

In addition to the 1,662 motor cycles, referred to in our last week's issue, which have been ordered from Coventry firms alone for the Russian Army, we are advised that the James Cycle Co., Ltd., have practically completed an order for 260 machines spread over their 4¼ h.p. big single and 3½ h.p. twin models. Two hundred and sixty machines represented the most the James Co. could turn out in the limited time stipulated.

Messrs. Phelon and Moore, too, completed last week their batch of 100 machines, which was exactly half the number of the original order. Owing to the imperative demands of the British War Office, Messrs. Phelon and Moore were obliged to curtail the number of machines called for by the Russian Army. Incidentally, seventy more P. and M machines have just been supplied to the Royal Flying Corps, of which corps P. and M.'s, equipped with Kempshall tyres and Lucas lamps, form part of the standard equipment.

Messrs. Chater-Lea, Ltd., booked an order for their 8 h.p. No. 7 sidecar combination with the Russian War Office which covered all their stock and three weeks' production of the factory. This order was placed only after an extraordinarily severe test.

The two-stroke Clyno, of which a large number were ordered, is the only two-stroke type of machine selected by the Russian Government.

A New 6 h.p. Twin.

A.S.L. motor cycles will in future be known as the Stafford. A new model for 1915 will have a 6 h.p. J.A.P. engine with side valves, a counter-shaft three-speed gear box, and a new design spring fork. Mudguarding is to be a feature of this mount.

An Old Machine under a New Name.

The Metro two-stroke lightweight, several illustrations and drawings of which appeared in our issue of June 25th page 843, has been re-named the Gaby.

Main Contents of this Issue.

Continuing our first descriptions of new models, we illustrate and describe in this issue

A NEW J.A.P. OVERHEAD VALVE CYCLE CAR ENGINE.

THREE 1915 MODEL CALTHORPE LIGHTWEIGHTS, including a new two-stroke and two four-stroke machines.

THE NEW PRECISION JUNIOR ENGINE with vertical valves.

NEW ACCESSORIES BY BENTON AND STONE.

LUCAS DYNAMO LIGHTING SET FOR SIDECARS, which has already been illustrated in *The Motor Cycle*, but of which we are now enabled to publish a technical description and a wiring diagram.

WELL-KNOWN MOTOR CYCLISTS OFF TO THE FRONT AS DESPATCH RIDERS.

Left to right: F. C. North, H. R. Davies, and Albert Milner. All are mounted on three-speed Triumphs. The photograph was taken last week a few minutes before they departed for the front.

MILITARY NOTES.

TEE-TEEING AT THE FRONT.

Sydney A. Rowlandson, the manager of the competition department of the Rudge Co., now in North-east France with the Mechanical Transport Section of the Expeditionary Force, writes as follows: "Have not forgotten Coventry. 69 Company is very Coventry. Our lorry is a Daimler, crew made up so: The Haddons, of Leamington; R. Sykes, who previous to coming out was a Maudslay 'bus driver in Coventry; and S. A. Rowlandson. We have to do all sorts of jobs. They won't let us say where we are or what we are doing. Times not at all bad; up early, at it late, on guard at night sometimes, and all such warlike procedures. Met a Rudge despatch rider, who spoke splendidly of the machine; said he had just beaten a rider of a well-known make in a scrap and won five francs. One thing we are thankful for is, we are having glorious weather."

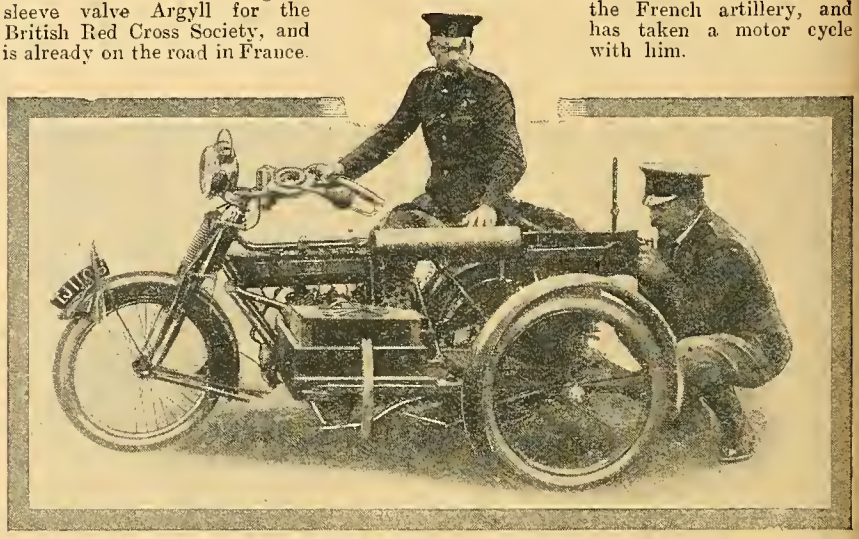
T.T. RIDERS AT THE FRONT.

Eric and Cyril Williams have gone on active service. It may be remembered that Eric Williams won the Junior T.T., and Cyril Williams ran second in the same event. The pair are not related in any way. These well-known riders are mounted on machines of the same make (A.J.S.) as those on which they distinguished themselves in the Junior T.T. Race, and are wearing the armlets which distinguish them as being attached to a signal section. Both riders left for France last week.

B. Alan Hill is driving a 15-30 h.p. sleeve valve Argyll for the British Red Cross Society, and is already on the road in France.

With characteristic enterprise the Rudge Co. has had its instruction booklet, "Rudge Wrinkles," printed in Russian, and a copy will be supplied with each Rudge-multi.

M. Picaud, who is the Clyno and Bradbury agent in Paris, is serving with the French artillery, and has taken a motor cycle with him.



THE SIDECAR IN WARFARE.

A quick-firing gun mounted on the chassis of a 6 h.p. Enfield sidecar combination. It is in use by the South African Defence Force. Incidentally we marvel why large numbers of fleet and mobile sidecars are not fitted up in this way.

MENTIONED IN DESPATCHES.

MR. G. VALENTINE WILLIAMS, writing in *The Daily Mail* early this week, speaks very highly of motor cyclists and their work. Of the motor cyclist corps he says: "Every General Staff officer to whom I have spoken is enthusiastic about the work it is doing, and, as a corps, it certainly has not its equal in any of the armies in the field. All classes are represented among the Army motor cyclists. Most of them are undergraduates or public school boys, many have come from the Officers' Training Corps, many are clerks or shop assistants. All the varied accents of class and county are heard in their speech, from the correctness of Oxford to the homely burr of the West. But the most complete democracy exists among these knights of the road. Cliques and classes seem to have vanished when the blue and white arm-band of the Signalling Corps of the Royal Engineers—the emblem of their branch—was fastened to their sleeve. The life is none too easy," he goes on to say. "The motor cyclist has to shift for himself; he moves too fast and too often to be provided for by the machinery the Army arranges for finding quarters. After presenting his despatch he sets out to find (a) somewhere to wash; (b) something to eat; (c) somewhere to sleep; and (d) where the petrol is kept." In conclusion, Mr. Williams says: "Among them one begins to understand something of the moral ascendancy which, according to the official despatches, 'French's contemptible little army' has succeeded in establishing over the German troops. Yet these boys have not been soldiering long enough to absorb the traditions of the Army. One would like to think that theirs is the spirit of us all."

How the riders are distinguishing themselves in the field may be seen by glancing through the first list of those mentioned in despatches which appeared in the daily papers in the early part of the week. Our attention is naturally first directed to the Royal Engineers. Here we find the names, among the officers, of Major M. G. E. Bowman-Manifold, D.S.O., and Major A. B. R. Hildebrand, who have taken a keen interest in the despatch riders for a period dating from some time before the war; Corporal C. W. Cadman, Corporal D. Humphries, and Lieut. A. Q. Roberts. A. Q. Roberts is the brother of the well-known rider, C. Q. Roberts, who before the war was working with Messrs. Burney and Blackburne. Before leaving for the Front, A. Q. Roberts was being coached for Cambridge. Other despatch riders mentioned are Corporal T. P. Norris and Hugh Trepess. Although there appear to be comparatively few names in the list of motor cyclists mentioned in despatches, there will undoubtedly be more later on. We are also handicapped by the fact that many officers and men of the Royal Flying and Army Service Corps are mounted on motor cycles, and this fact is not mentioned in the official lists.

Eric Williams (A.J.S.), winner of this year's Junior Tourist Trophy Race, who left for the Front last week.

Among the promotions we note that:

Second Lieutenant Allen H. Selwyn has been promoted from the R.E. Special Reserve (Motor Cycle Section) to be a second lieutenant in the A.S.C. (Regulars).

A. Q. Roberts has been promoted to rank of lieutenant and C. Q. Roberts to that of sergeant.

Scarborough M.C. Autumn Trial.

The annual autumn reliability trial was held last week over the course: Scarborough, Pickering, Helmsley, Chop Gate, Ingleby, Greenhow, Castleton, Lealholm, Egton Bridge (lunch), Sleights, Pickering, Scarborough (approximately 120 miles). Hills were observed at Westhouse Bank, Danby End, Limber Hill, Grosmont, and Blue Bank. Fourteen competitors started out of an entry of twenty-two, and nine finished the course. Results:

		Marks lost.
	CLASS I.—Solo Machines.	
1.	H. E. Ellis (2¾ A.J.S.)	0
2.	W. Brown (6 Zenith)	2
	CLASS II.—Sidecars.	
1.	W. E. Grange (6 Bradbury)	0
2.	A. Proctor (4 Triumph)	4
3.	E. Sykes (5-6 A.J.S.)	12

W. E. Grange (6 h.p. Bradbury sidecar) and H. E. Ellis (2¾ h.p. A.J.S.) ready to start from Egton Bridge, the lunch stop.

J. Woodhouse (4 h.p. Triumph sidecar) taking the corner on Limber Bank, a hill which, in all previous contests, has proved a stumbling block.

A MOTOR CYCLE AND CYCLE CAR SHOW AT BRISTOL.

OWING to the Olympia Show not being held as usual, the Bristol M.C.C. have decided to hold an open eighteen-hour trial for motor bicycles (with or without sidecars) and cycle cars on Friday and Saturday, November 27th and 28th, starting at 9 p.m. and finishing at 3 p.m. At the same time, the club will endeavour to obtain the use of a large hall, so that all entrants can arrange to stage their machines a day or two before the trial for the public to see. One of the conditions, however, will be that each machine must be a competing machine in the trial. The machines will, after the trial, be restaged in the condition in which they finish.

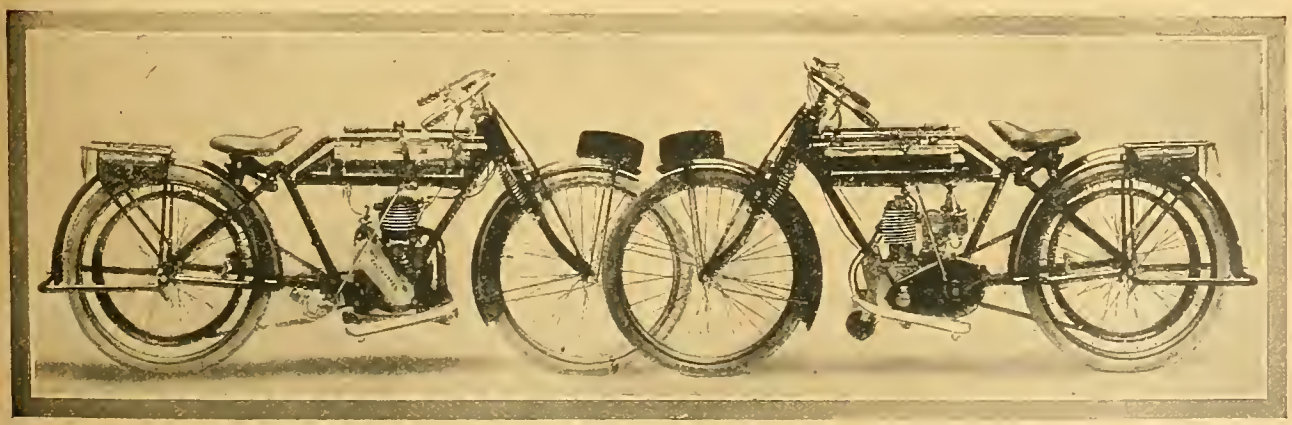
The trial will be in the nature of a 20 m.p.h. reliability trial; distance about 340 miles in hilly country.

The entry fees have been decided upon as £1 for all trade entrants and 5s. for non-trade. Entry forms and all particulars of the trial can be obtained from the secretary of the meeting, Mr. F. F. Cox, 12, Perry Road, Bristol.

Application has been made for a permit from the A.C.U. The surplus, after expenses have been paid, will be handed over to some war fund.

ESSEX MEN FOR THE FRONT.

Messrs. Ernest J. Bass and Ray Abbott, the hon. treasurer and captain respectively of the Essex Motor Club, have joined the Army Service Corps and expect to go to France during the current week. This makes thirty-two members of the club who have joined the forces, and out of a membership of about two hundred the Essex Club officials believe that this must be a record.



TWO 1915 MODEL CALTHORPE MACHINES. The new two-stroke. The 2½ h.p. J.A.P. engined mount. (See next page).

LATEST DESIGNS.

Advance Descriptions and Illustrations of 1915 Model Motor Cycles and Accessories.

THREE NEW CALTHORPE LIGHTWEIGHTS.

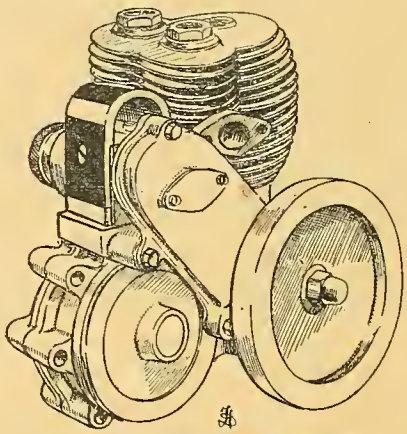
SEVERAL modifications have been made in the little Calthorpe Junior, but the most striking feature is the adoption of the latest type of Precision Junior engine. This engine has been slightly increased in capacity, and, though the main features of combined engine and gear box and cam and gear-shaft in one are still maintained, the cylinder and the valve action are altogether different. The more orthodox type of side-by-side valves, operated by vertical adjustable tappets, have replaced the horizontal valves placed in the head and opened by rocking beams. In spite of this, the fact that the valves lie behind the cylinder instead of at the side forms an interesting feature and renders the inlet and exhaust pipes simple, and in the case of the Calthorpe these are very neatly carried out. The outside flywheel is still retained and the magneto is placed behind the cylinder. Neat footboards are employed and the change-speed gear is still foot-operated as before. The mudguarding is efficient and the Calthorpe Co. has succeeded in turning out a practical businesslike little mount at a reasonable figure.

The stroke remains 60 mm. as before, but the bore has been increased to 65 mm., which brings the capacity up to 199 c.c.

We were glad to note the adoption of girder type Druid forks and 2in. studded tyres. These two points were the subject of criticism in *The Motor Cycle* some few weeks ago. The price remains at twenty-five guineas.

New Two-stroke Model.

An entirely new departure is the marketing of a two-stroke mount of 2½ h.p. complete with counter-shaft two-speed gear and chain-cum-belt drive. The specification includes Druid girder forks, XL'all pan saddle, a new tank, and sight feed lubrication.



The new Precision Junior engine set. The 1915 engine has vertical valves.

The lubricating oil on this machine is kept entirely separate from the petrol. The Calthorpe Co. are of the opinion that the "petroil" mixture will be discontinued generally, as from their tests it is found that much greater efficiency is shown by keeping the two constituents apart. The two-stroke Calthorpe with fixed gear costs but £25 4s., and the two-speed model £28 10s.

The 2½ h.p. Calthorpe-Jap.

Still another new mount for 1915 is a lightweight fitted with a 2½ h.p. J.A.P. engine. This mount follows very much the lines of the two already described, except that it has an Enfield two-speed gear. Chain-cum-belt drive is retained, and other points of the specification are 2in. beaded-edge studded tyres, Druid girder forks, and XL'all pan seat. This machine also has the new design tank and sight feed lubrication. This mount costs £31 10s.

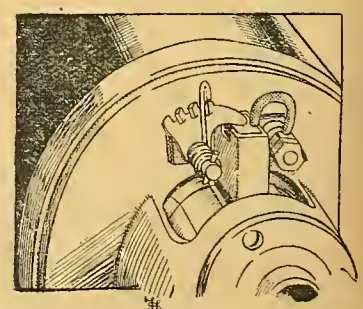
All three new models, we are informed by the Calthorpe Co., have been subjected to exhaustive tests, and will be ready for delivery next month.

COMPLETE ROAD EQUIPMENT.

Instead of the £100 cycle car, which has been called for for so long, we are to have the hundred pound sidecar in 1915. The policy of the Enfield Co., of Redditch, will be to supply a completely equipped 6 h.p. coachbuilt sidecar combination for £100. The equipment will include Lucas dynamo lighting set, Watford speedometer, horn, etc., and will, in fact, be "ready for the road." Buyers will therefore be relieved of the worry of adding accessories after purchase.

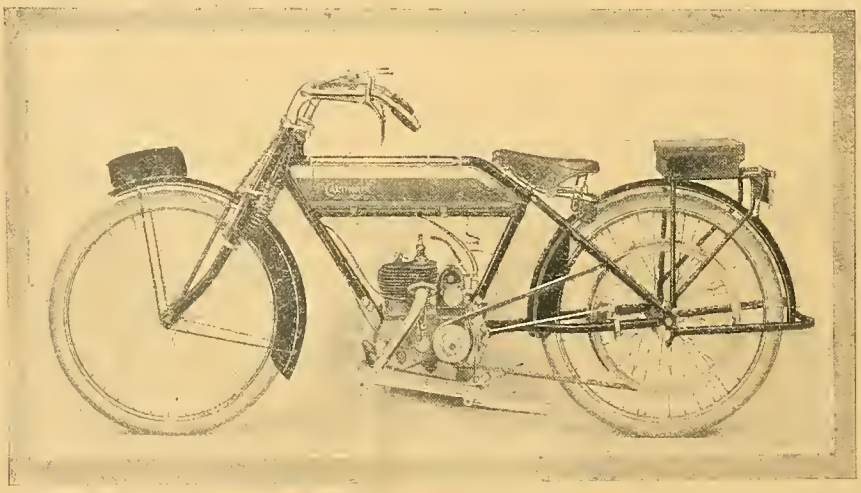
THE LUCAS DYNAMO SET.

IN view of the increasing popularity of dynamo lighting, a few words with regard to the latest Lucas lighting set, which is now ready for the market, may be of general interest.



Neat brush holder with adjustable spring.

We take the dynamo first, as being the current producer, and consequently the most important part. In appearance it is a neat cylindrical device, which is sufficiently small to be carried conveniently on any machine capable of hauling a fully equipped sidecar, and yet



Belt side of the 1915 model Calthorpe Junior.

Latest Designs

large enough to produce a steady current sufficient for the maximum demands to be made upon it.

It is a six volt machine with a full output of five to six ampères, and designed to generate at comparatively low speeds. The full output is, of course, only used when the lamps are lit, and when charging during the daytime it is automatically reduced to four ampères. One of the secrets of the machine's success, besides the simplicity and excellent workmanship, lies in the patented method of electrical control, which provides a constant output at varying driving speeds. The power required to drive the device, even on full charge, is almost negligible, and when switched off there is absolutely no drag.

Strongly Constructed Accumulator.

The battery is intended to be placed under the sidecar seat, and is designed to withstand the most severe vibration, the plates being specially constructed to this end, while the connectors have a thick covering of lead so as to prevent corrosion.

A roller switch is employed, and is so constructed that when the lamps are in use the dynamo is also on charge, so that there is no fear of running down the batteries by carelessness or forgetfulness.

A quickly detachable fuse holder is used, and a supply of fuse wire carried in each set, also a reliable automatic cut-out is fitted to prevent reversal of the current. The whole set, comprising head lamp, side lamp, tail lamp, etc., dynamo batteries, switch, cut-out, and sidecar wiring plug, is thoroughly well made and finished, as might be expected from such a factory, every detail has been most carefully carried out, and the terminals are numbered to simplify attachment.

The switch box is water and dust proof, and the head lamp, with its twenty-four candle power bulb and parabolic reflector, gives a light which is hard to beat for motor cycle work.

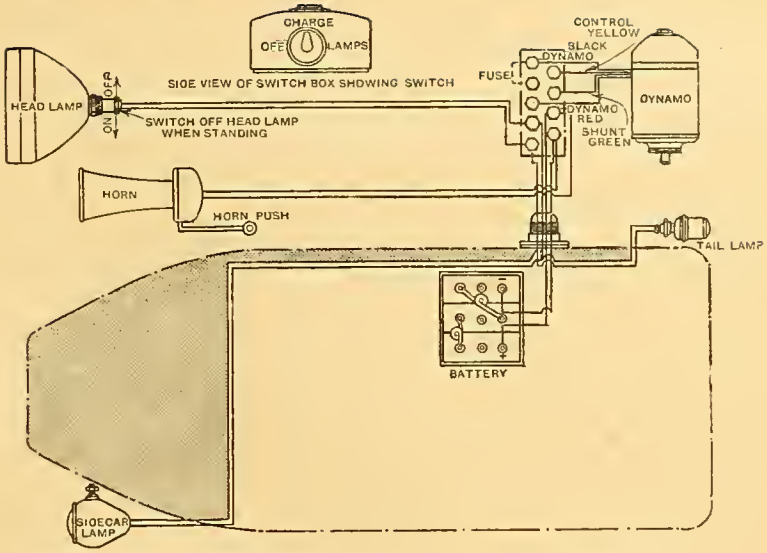
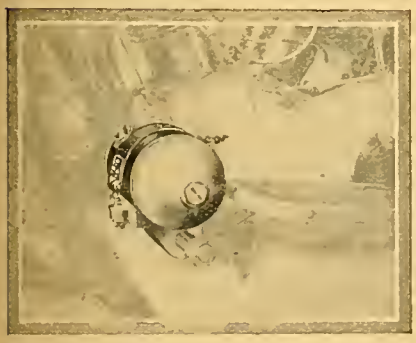
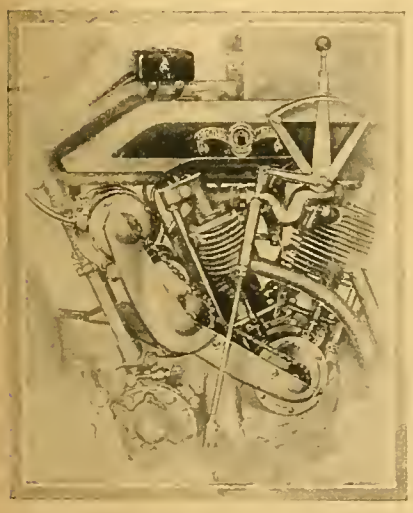


Diagram showing wiring arrangement of Lucas dynamo lighting set for sidecar outfits

ALTERNATIVE POSITIONS FOR FITTING THE LUCAS DYNAMO



At the forward end of the footboard of a 6 h.p. Enfield

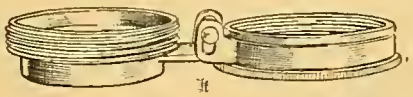


As fitted to a Matchless.

ENOTS ACCESSORIES.

MESSRS. BENTON AND STONE can always be relied on to produce up-to-date fittings for the motor cyclist. A recent visit to their works showed that the war has not kept the firm from going ahead, and their list of novelties is such a long one that only a few of the most interesting items can be mentioned.

The first article shown to us was a neat hinge and screw filler cap, made in such



A hinged screw-down filler cap by Benton and Stone.

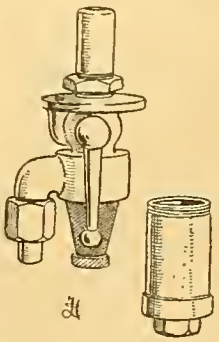
a form that, though it can be quickly opened, its fixing is secure, and the cap cannot come off and be lost.

The drip feed oilers for which the firm are well known have been slightly modified, and the needle for adjustment is now placed on the top, where it is more convenient to reach, while an additional model (described in a recent issue) allows a free flow of oil without altering the normal needle adjustment, for a quarter-turn of a neat little handle has the effect of lifting the valve right off its seating, though it reverts to its previous setting when the handle is returned.

Taps of all sorts and descriptions are manufactured, a very sound line being a form of compression cock seating which renders leakage practically impossible.

A Two-level Petrol Tap.

A very neat little accessory is the combined two-level petrol tap, filter, and drain cock, the design of which is so simple as to be easily followed from the appended sketch. When the tap is in the "on" position, petrol flows downwards to the sump and filter, then back to the petrol pipe, until the level of the spirit sinks to the top of the projecting tube. This gives fair warning that the tank is becoming empty, though a further movement of the tap allows petrol to flow through a hole in the base plate, and thus enables the next garage to be reached in comfort. By removing the sump the device is at once converted to a drain cock.



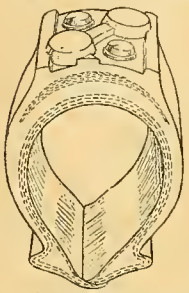
Benton and Stone combined two level petrol tap, filter and drain cock.

A most useful garage accessory which merits the attention of those who clean their own machines consists of a paraffin spray. A container is partly filled with paraffin, and a few strokes of an air pump placed in the top raise sufficient pressure to spray paraffin through a fine nozzle on to the part to be cleaned. A cut-off valve is employed, and the system is found to be most economical and effective.

SOME DUNLOP NOVELTIES.

WHEN one undertakes a trip to the Dunlop Works with the intention of describing new tyres, accessories, etc., one does so knowing that there will be a busy time ahead, and perhaps the chief difficulty is to know where to begin. On the occasion of our last visit this question was somewhat simplified by the fact that the company have made a general reduction in the price of their tyres. This is a point of such importance that it stands first, but still there remain so many novelties that only a selection can be dealt with at the present time.

Tyres are of the first importance, and we are able to illustrate three patterns which are likely to play an important part in future events.



New combination cover introduced by the Dunlop Co.

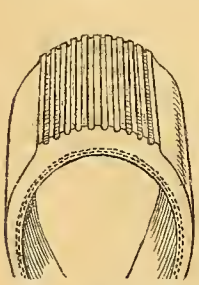
The special 20in. $\times 1\frac{3}{4}$in. tyre manufactured for the Auto-wheel is an interesting piece of work, being made on the most approved motor cycle lines and of stout proportions.

The ribbed tyre for lightweights is, of course, a light and fast tyre, but it is also extremely strong, and the wearing qualities of the rather black rubber are excellent. This type may be obtained for wheels of 24×2in. or $26 \times 1\frac{3}{8}$in. or 2in. or $2\frac{1}{4}$in., and is supplemented by a somewhat similar tyre with a rubber-studded tread.

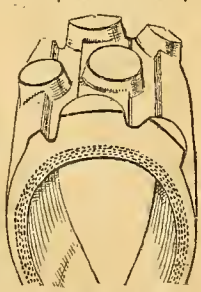
The rubber-studded, heavy type can be obtained through practically every size from 24×2 to 700×65, and is a fine tyre, which will form one of the Dunlop Co.'s strongest lines. As will be seen from our illustration, the section is somewhat peculiar, for it combines a three-rib tread with staggered rows of studs of two different sizes. This tread forms a good non-skid for almost every possible condition of surface, while there is an enormous amount of wear in the tyre, there being a depth of 12 mm. from the top of the stud to the first layer of canvas in the $2\frac{1}{2}$in. sizes.

Steel and Rubber-studded Tread.

A combination tyre on somewhat similar lines, but with steel and rubber studs, and considerably heavier in the tread, forms an excellent tyre for heavy passenger work, and is capable of withstanding the roughest work. Besides this, tyres are made for almost every conceivable use, including racing and sidecar work.

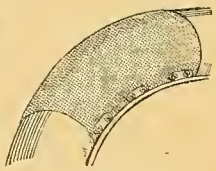


Dunlop lightweight ribbed cover.



Dunlop Standard studded cover.

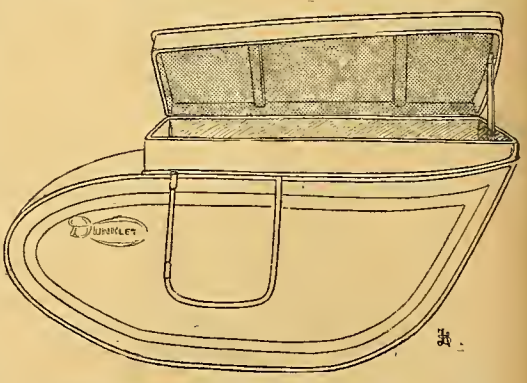
Among the more interesting accessories is a beautifully moulded outside gaiter which tapers to the edges. It is held to the rim by three substantial metal clips on either side, and is such a snug fit that it is practically impossible for grit to get between it and the tread of the tyre. Rolls of "Sure-patch" are supplied, which enable a repair of any size to be carried out, and a neat little automatic solution tube caught our eye at once. It consists of a light metal tube sealed by a steel ball, which is held in place by a spring. When in use, the patch is rubbed over with the ball, which, of course, leaves its seating under pressure and distributes the solution. Repair outfits, the well-known Dunlop belts, and accessories galore are listed, while the name on the article is sufficient guarantee of its quality.



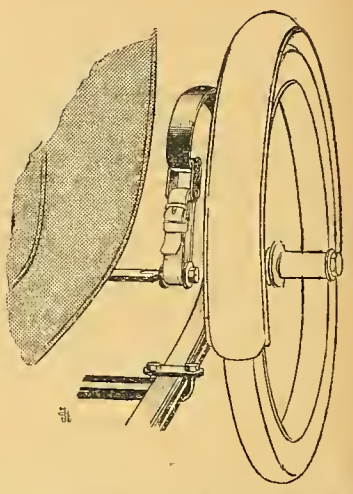
Dunlop moulded outside gaiter.

A SIMPLE SIDECAR CONVERSION.

A SIMPLE solution of the double-purpose sidecar has been evolved by Messrs. Dunkley, of Jamaica Road, Birmingham, and as the standard sidecar is employed, and the conversion a very cheap one, it may attract a large amount of attention. On to the coachbuilt body is fitted a kind of low coaming with a hinged lid; and within, the sidecar body may be protected either by leather flaps or by a special wooden lining box which is attached to the top part. The whole can be very quickly placed in position or removed. The lid has a pivoted prop, which allows it to be left in any desired position for easy access of goods, and the whole is excellently finished. While at the firm's show rooms we inspected an ingenious adaptation of leather springing fitted to a sidecar. Short straps are carried between the spring shackle and the body-supporting bar, and so successful and comfortable has this springing proved that it will be standardised in a slightly modified form on next year's models, and should provide very comfortable riding for the passenger.



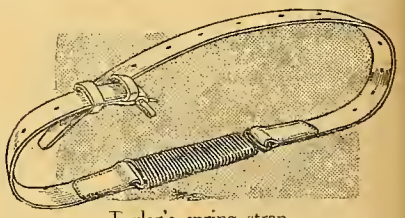
New Dunkley double-purpose sidecar body. The top cover may be removed in a few minutes.



Strap suspension on the Dunkley sidecar.

A SPRING STRAP.

The accompanying illustration shows a spring strap lately provisionally protected by Messrs. H. Taylor and Co., 21a, Store Street, Tottenham Court Road, W.C. The makers state that the objection to existing straps is that they possess little spring and are liable to stretch enormously; and to strap down a solid article such as an oilcan or petrol tank a strap must undergo a certain amount of stretching before a suitable hole is reached; while a new strap, though tight at the beginning, would stretch considerably after a fifty mile run, and the article would be loose, and probably end in being lost. We hope shortly to put one of these straps to a trial and ultimately report upon its behaviour under actual road conditions.

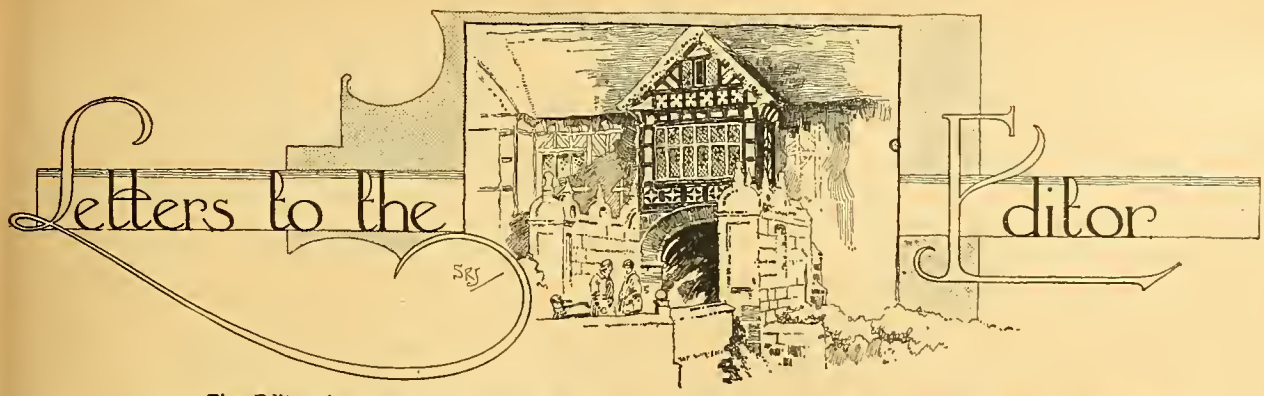


Taylor's spring strap.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance, should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.



The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Compressed Air Engines.

Sir,—If "Compressed Air" will blow up a seven inch motor tyre with a cycle pump to the standard pressure of 80 lb. per square inch he will then have some idea of what compressed air means. As to working a motor cycle with compressed air, the above tyre full would only run a motor of ½ h.p. for about *sixty seconds*. The size of a container for the modern needs of motor cyclists can be seen to be quite impossible for practical use. Petrol has all the elements of compression, expansion, and concentration. It will carry a rider over a hundred miles with a gallon, a form of energy totally undreamt of in the days of steam, with its coal and huge boilers. Petrol will carry a rider the hundred miles in the *dark*, a proof that the modern petrol engine is at least reliable, and, moreover, remarkably cheap. Compressed air is anything but cheap. ALBERT V. HUGHES.

The Difficulty of Hearing Sentries.

Sir,—Your correspondent, F. J. Webb, is guilty of somewhat rash deductions as to "Red Indian's" speed whilst riding in the vicinity of the military. I can heartily commend him to come further North to obtain a perfect cure for his uncalled for conclusions. I have been challenged after dark by a sentry some twenty yards ahead, and standing off the road under the shadow of a high wall. I defy anyone to hear such a challenge, and under the given conditions it was well nigh impossible to see the sentry. I failed to do either, and was, consequently, fired on, fortunately without effect. I pulled up in four yards, and whilst actually dismounting, and being then seven yards from the sentry, was fired on again, this time the bullet passing right through my cap, again, very fortunately, without any further effect.

The authorities, whilst expressing regret, inform me that in future some visible sign will be given to arrest the attention of approaching traffic, an act which, whilst doing much to conduce to safer travelling, should eliminate any more regrettable accidents. P.McGUINNESS.

A Defect of Chain Drive.

Sir,—In your issue of October 8th I notice a very serious accident to a despatch rider in France, caused, "it is thought, by the spring link fastener coming adrift." To my mind, this is the greatest disadvantage in any chain drive where these spring links are used. I am unfortunate enough to be forced to use on my 2¾ h.p. twin a chain fastened by a spring link, and while on holiday I was caused considerable annoyance and trouble through this spring link giving way and causing the chain to snap. I was not thrown off the machine, but had I been going down a hill at the time instead of climbing slowly up a steep road, the consequences might have been serious.

My experience of these spring links coming apart is not a solitary instance, but I have come across others who have shared the same fate, with the accompaniment of shattered gear cases, sprockets, etc. The peculiar part is that the chain makers cannot supply a secure fastener, such as fitted to push cycles. I do not recollect ever meeting anyone who has had trouble with a push cycle chain, yet it is just the opposite with motor cycle chains, and when troubles are whittled down, it comes to the one weak spot—the spring fastening link. A man may be lucky and never have a spring link come adrift in years of riding, but another rider, equally careful in seeing that the spring link is fastened in the correct manner, may meet trouble within a few miles of fitting a new chain.

I am informed that the attitude of chain makers is that "the motor cycle makers specify the chain and fastener—we supply accordingly." If this is the case, then surely the cycle makers should wake up on this point, and assist chain drive to come into its own. I should distinctly like to see my own particular machine entirely chain driven, instead of half belt and half chain, but if another chain means doubling the risk of accident through having another spring link to think about, then I prefer to keep the existing short length of belting, which gives over double the wear of the chain, and has but one disadvantage, that of slipping in wet weather. AS 129.

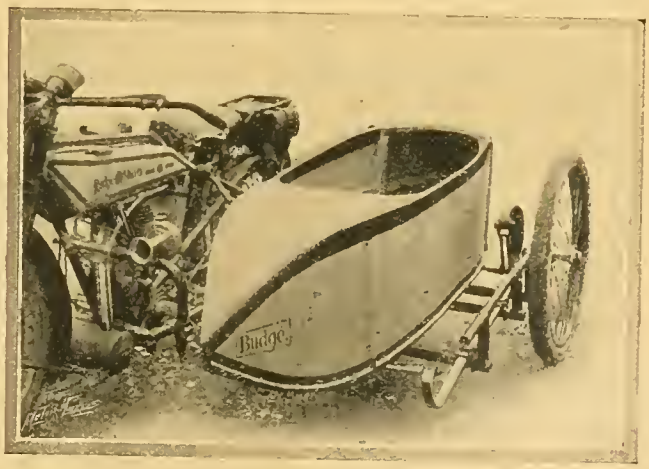
[It is open to any rider to replace the spring fastened link by a bolt and nut, but, personally, we have found the spring link quite satisfactory.—Ed.]

A Double Purpose Sidecar.

Sir,—In your issue of October 8th you illustrated a new double-purpose sidecar made by the Bramble Co.

I enclose a photograph of a body I made in August, which is on the same principle as the one you described. I am having a proper padded detachable seat and back made, and also an apron to cover in the opening entirely. The body is made of three-ply wood, and is very much lighter than my ordinary coachbuilt body.

I think the photograph may possibly be of interest to you, as I use the outfit every day in my business, and you are now booming the motor cycle and sidecarrier for business purposes. R. W. APPLEBY.



A double-purpose sidecar which has been used by R. W. Appleby since August last (see letter).

What are Ideal Handle-bars?

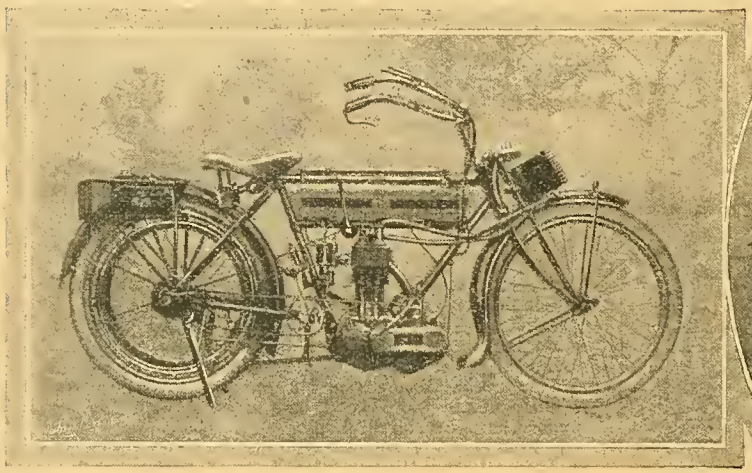
Sir,—Your correspondent "Aysgarth," to judge from his letter, appears to belong to that class of motor cyclist whom the saner members—the "steady and sure riders" whom he affects to despise—have to thank for the existence of police traps, speed limits, and other restrictions upon the reasonable use of the highway. It is unfortunate that a comparatively few motor cyclists, whose chief delight in life is to go "all out" and "corner at speed," should continue to bring odium upon a splendid pastime, as they undoubtedly do. Repressive measures of the strongest kind should be taken with those who indulge in these feats anywhere except on tracks prepared for the purpose. I am a motor cyclist myself, and though not necessarily slow, thank heaven I can call myself

SURE AND STEADY.

A Trapper's Machine.

Sir,—I am enclosing a photograph of my 1913 three-speed Sturmey-Archer free engine Triumph fitted with an exhaust valve cooling cap and radiating tank of my own design and manufacture. The tank holds half a gallon of water and is most efficient, as, push the engine how I will, I have never made the water boil. I note there is a similar outfit advertised for sale at £3 3s., only the tank is fitted at the side instead of the front, which is the correct position, in my opinion.

The country here is virgin sand and heavy forest, with no roads, except the railway line, and most of my friends thought I was mad when I got the machine, but I have succeeded in cutting a narrow path thirty miles long through the forest, and, by laying grass down, I can go over it fairly well, though it is but rarely I can use the top gear except during the rainy season, when the sand gets harder. I have large traps for lion and leopard set on the side of my path, and the bicycle enables me to examine them with a minimum of effort.



A 1913 Triumph fitted with a Sturmey-Archer three-speed gear, and a home-made water-cooled exhaust valve cap.

The necessity for long runs on middle and sometimes bottom gear, coupled with the attentions of a tropical sun, make some form of cooling other than that ordinarily provided a great help. I had the first push bicycle up here nine years ago, and the niggers used to smile and say, "Look at the white man, who would sooner work than walk." A thirty-mile walk is nothing to them.

There are two other motor cycles at Livingstone, eight miles from here, where there is a road one mile long, from the station to the town, and these machines—a 2¾ h.p. Douglas and a Motosacoche—are owned by doctors. However, I have the pioneer motor cycle on this side of the river, and I must say it stands up to the awful gruelling I sometimes give it most splendidly. I have 2½in. Clincher Dreadnought tyres, which are better than the original 2⅜in. for going over the sand. I would like a machine with more clearance and 3in. tyres.

A three-speed gear is absolutely necessary. Mudguards are quite efficient, but should be fitted with a scraper fitting around and within about ¼in. of tyre. There is a black soil in some parts around here, which simply piles up on the tyre during the rains until the wheel jams. I have seen many letters from Overseas correspondents saying "larger mudguards" are necessary for Colonial requirements, but a scraper would cut mud off as it was picked up. I am going to make a pair before the next rains.

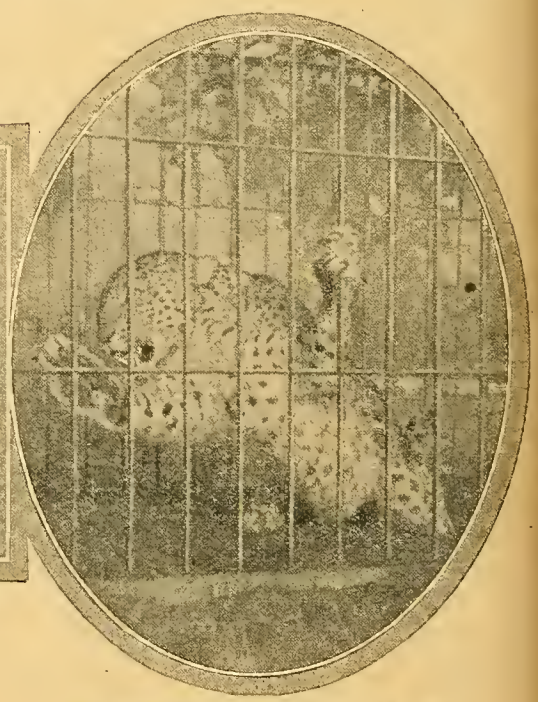
I have had no experience of any make of motor cycle other than the 1913 Triumph, but if there are any better or more reliable they must be phenomenal, as my trusty Triumph is trusty indeed, and, given fair care, simply refuses to go wrong.

I am enclosing also a photograph of a recent capture in a home-made cage. This is hardly to do with motor cycling, but it was undoubtedly owing to the facility for covering a much longer trap line (thanks to the machine) that I was enabled to get it.

The nearest repair shop is at Bulawayo, 280 miles away, where there are fair roads and a multitude of motor cycles, etc.

Trusting you will find this letter of interest, also the snaps, and wishing *The Motor Cycle* all success,

Victoria Falls, South Rhodesia. J. W. SOPER.



A leopard caught by a reader near Victoria Falls, South Rhodesia (see letter from J. W. Soper).

Running Costs.

Sir,—The cost of running a 1914 two-speed 2¾ Douglas from March 10th to October 10th over a distance of 5,400 miles has been as follows:

	£	s.	d.		Per mile.
Tyres	5	5	0	...	.233d.
Petrol	6	0	0	...	.266d.
Oil	1	4	0	...	.053d.
Transmission	1	8	6	...	.054d.
Overhauls and renewals ...	1	15	0	...	.077d.
	£15	12	6	...	.683d.

The cost of the tyres, chain, and belt on the machine when new is included in the above items, as these must be reckoned if the actual cost of running per mile is to be arrived at correctly, though, of course, if they are included here, there must be an allowance made for them in depreciation.

Accessories I do not count in running costs. On lamps, horns, speedometer, and odds and ends, I have spent

about £6. Depreciation, too, should be reckoned, I think, at so much per annum and not so much per mile. My machine is now worth about £37 10s.

Petrol consumption was, at first, 73 m.p.g. I have recently fitted a Binks, which gives much better results—about 95 m.p.g. If depreciation, accessories, and licence are all included, the total cost per mile works out at just 1½d.

The renewals include some piston rings, one gudgeon pin, various valve springs, and one exhaust valve. E.W.B.

Gear Slip on an Old Machine.

Sir,—I wonder whether any of your readers could give me a tip about my P. and M. two-speed gear. I have a 1910 machine, which I have only ridden some 4,000 miles in all since buying it in working order in 1913. The high gear persists in slipping. It has been three times in the maker's hands, and they have renewed wedge bars, etc. On one occasion an expert told me I had been oiling too much. On another the works reported I had not been oiling enough. Now for the third time the same symptoms are appearing, slip on high gear, *not* at spring drive. If any of your P. and M. rider readers could make any suggestion from their experience I should be much obliged, as I have only done one hundred and forty miles since the last overhaul, and I am confident that others find the gear satisfactory. B 10.

A Comedy of Errors.

Sir,—The following incident may, or may not, be of interest to some of your readers. In any case I must confess that, with some years of varied experience on the road, I have never before been subjected to such doubtful courtesy as befell me recently.

A friend and myself, both riding solo, started off in the morning for a short run; the run, however, was destined to be somewhat briefer than we had expected, for, within five miles, my companion broke down with magneto trouble. After some delay I returned to a garage, borrowed a rope from a young mechanic working there, and in due course arrived back with the disabled machine in tow. In all hospitality we were invited to stand the machine in the shelter of the workshop, and, there being no available assistance, save for the mechanic, who continued complacently at his work, we ventured to set about removing the magneto ourselves. Subsequent events, however, proved this to be a gigantic liberty and gross breach of etiquette in the mechanical world; though committed, I beg leave to state—for myself at all events—in all ignorance. But the enormity of our crime was quickly brought home to us with the appearance of the owner of the garage, who introduced himself by a peremptory demand as to the name of our firm! Now, it is not every motor cyclist who has the privilege of being a member of some firm, and we were perforce obliged to admit ourselves but humble tourists. The next question demanded whether he or we were doing the job; a pertinent question, certainly, but the answer should have been obvious, as the one and only mechanic present had previously made his departure. A slight argument ensued in which we pointed out that we were anxious to get the repair done as soon as possible and should be glad of such skilled aid as he might be able to afford us: our friend, on the other hand, pointed out to us (in none too polite terms) that our presence was not essential to a speedy repair. Under ordinary circumstances we should have been willing to agree with this, but our friend's hostility, together with the general appearance of lack of industry, led us to suppose otherwise. The upshot was that both we and our machines were consigned to a place all good Christians hope to avoid, the doors were opened, and we were cordially requested to "get out!"

It was greatly against the garage owner's will that we reassembled the parts we had removed from the machine, during which operation we were subjected to a homily to the effect that never in all his years of experience and ownership had he before been so insulted and "wiped the floor with" on his own premises. This latter phrase, evidently a favourite expression of his, though rather tedious in its repetition, accompanied us to the gates, whence we departed quietly.

Though our crime may have been inexcusable and possibly have merited the treatment we received—though I find it hard to believe this—we both came to the conclusion, at lunch, that we would not have missed our little comedy for worlds! Our only fear is that some less docile individual than ourselves may give our worthy entertainer cause to bemoan his favourite lament otherwise than metaphorically!

S. R. DUEL.

Christmas Gifts for Despatch Riders.

"The Motor Cycle" Shilling Fund to Provide Useful Presents for Motor Cyclists at the Front.

EVERY week, one may almost say every day, brings its quota of appreciation of the useful and invaluable work rendered by motor cyclists at the front. As a despatch rider, the motor cyclist is proving his real worth, and from all sides praise is being bestowed upon him. Very soon his services are to be extended, for in the Canadian contingent is a number of sidecars with quick-firing guns mounted on the chassis, and we believe we are giving no secret away when we state that very soon a fleet of these sidecar-mitrailleuse will be attached to the British Army, for, practically at the outbreak of hostilities, the formation of such a corps was decided upon, and, owing to its mobility, it seems likely to prove exceedingly useful.

The fleets of armoured cars, too, have their motor cyclists; the cyclist corps are invariably accompanied by riders of the power-propelled bicycle, and motor transport sections have their motor cyclist mechanics and other riders whose duty it is to keep up the lines of communication.

These many uses prove that the services of motor cyclists are generally appreciated, and that they are proving an effective arm of the service. How readers may show their sense of gratitude for the important part motor cyclists are playing in the war has been receiving the consideration of *The Motor Cycle*, and it has been decided to inaugurate

A Shilling Fund

to purchase some small but useful articles, such as gloves, muffler, handle-bar muffs, or an abdominal belt, as Christmas presents. As to the exact form the gifts shall take, we are inviting opinions from some of the motor cyclists on active service. Readers of *The Motor Cycle* are invited to send their shillings to the fund, and all amounts received will be duly acknowledged in these columns; to clubs in particular we appeal to give the fund a real send off. All the valuable work which is being performed by motor cyclists with the Expeditionary Force is bound to have a good effect in extending the movement considerably as soon as hostilities cease, and the little antagonism which existed against motor cycles in this country will be killed once and for all.

Contributions should be addressed to The Cashier, *The Motor Cycle*, 20, Tudor Street, London, E.C., and the envelopes marked "Shilling Fund."

A similar fund to provide drivers of motor transport vehicles (included in which body are many motor cyclists) with Christmas gifts is being raised by our sister journal *The Autocar*.

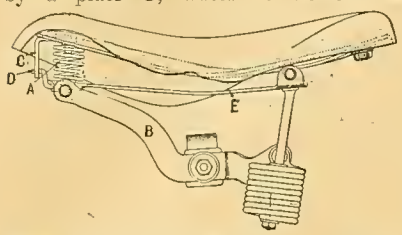
PATENTS

BY

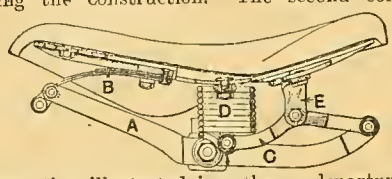
ERIC W WALFORD.

Saddle Improvements.

Two patent specifications have just been published by a leading firm illustrating new features in motor cycle saddles. The first construction illustrated comprises a system of springing for the peak of the saddle. This comprises a coil spring A mounted upon the front of main frame B. This coil spring supports the front of the seat, and excessive movement is prevented by a plate C, which is slotted and



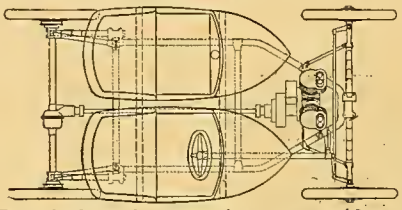
passes over a projection D on the fixed part. A radius plate E extends to the rear of the seat and assists in strengthening the construction. The second con-



struction illustrated is rather a departure from the usual method of suspension. The main frame A supports the front of the seat by means of a laminated spring B, whilst pivoted at the back of the frame A is a lever C, the front end of which is attached to a coil spring D. Midway in the length of the lever C is attached a depending lug E carried by the seat. Thus, as the load comes upon the seat, the front end of the lever C moves downward under the restraint of the spring D.—B. Brooks and J. Holt, Nos. 19,292, 1913, and 23,480, 1913.

A Cycle Car.

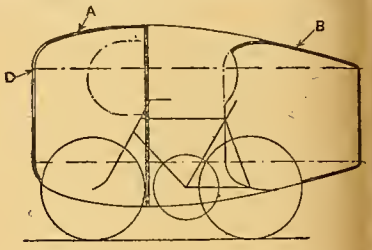
This vehicle has a tubular frame suspended by a transverse spring in front and two quarter springs at the back.

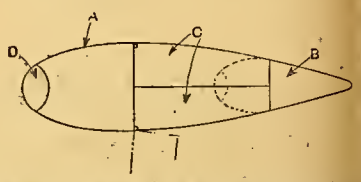


The bodywork comprises two sidecar bodies arranged as shown, these being fixed to the frame, which is spring supported as mentioned. The vehicle has a live axle driven through planetary gearing. The front mudguards swive with the steering wheels.—T. Norton No. 3,368, 1913.

A Streamline Body.

This streamline body, though primaril designed for a push-bicycle, may be o interest in view of the references t the subject in this journal. Really ther is not very much in the invention besid the actual shape of the body, which ca





be easily gleaned from the drawings. The body comprises a nose A and a tail B, between which are hinged side pieces C. At D is provided a window, and the body is, of course, slotted to accommodate the wheels.—E. Bunau-Varilla, No. 22,510, 1913.

New Tyre Depot.

The Kempshall Tyre Company have appointed a Midland depot in Coventry at 6, Warwick Row. This depot will be under the management of Mr. G. R. Bromley, who has had a long connection with the motor industry.

The Coventry Chain Co. and the War.

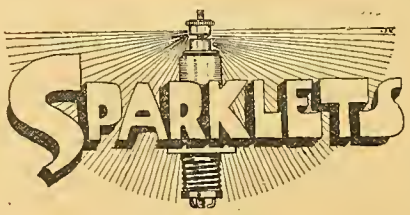
The Coventry Chain Co., Ltd., Spon End, Coventry, inform us that up to date 130 of their employees have rejoined the Colours or enlisted since the beginning of the war. They hope to reinstate all those who re-apply at the conclusion of hostilities. The company is paying reservists' wives 7s. per week and 1s. for each child.

Excelsior Exploits.

We have received from Messrs. Bayliss, Thomas, and Co. Coventry, a booklet, nicely illustrated from photographs which have appeared in this and other journals, detailing the many hill-climbing feats of W. H. Carson on a 6 h.p. Excelsior sidecar outfit. Any reader can have a copy on application to Messrs. Bayliss, Thomas, and Co.

Four Hundred Fighting Men in One Firm.

Patriotism of a practical form is the best sort of all, and many firms connected with the motor cycle industry have provided many men to serve the country. We now hear that no less than 400 of the staff of the North British Rubber Co., Ltd., have joined the forces of the Crown, either as Territorials or Reservists, and, furthermore, the company will care for the wives and children of the married men who have entered the ranks.



A Notable Success.

Shell spirit was used on the all-British Green engine which won the £5,000 prize in the recent naval and military aeroplane competition.

A Spring Carrier.

A spring carrier, which can be readily attached, has been placed on the market by the T. Eltringham Henderson Co., 25, Albion Road, North Shields. Four hook clips are provided for attachment to the bars of the carrier, and, under working conditions, this device should be very effective.

Hub Gears at the Front.

Sturmey-Archer Gears have received a large number of orders for three-speed hubs for motor bicycles for the Government and various branches of His Majesty's forces. These gears have, up to the present time, come through the campaign very satisfactorily, and a testimonial has been received from a despatch rider who had to perform arduous services during day and night over all kinds of roads, and, despite the severity of the duties he had to perform, the gear stood up and had not given the slightest trouble.

To Remove Tar Stains.

A tar removing solution has been put on the market by Messrs. J. E. Feay and Co., 12, Jackson's Row, Manchester, in the form of a fluid, which is known as Tarof. The application is performed by means of a soft cloth, and it is claimed that the tar can be removed without damage either to the varnish or paint.

Army Contract Work.

Messrs. Beard-Brown and Co., of Northampton, the makers of the College mud shield and other accessories, are very busy with Government orders, and are working overtime and on Sundays. Those customers whose orders are somewhat delayed in consequence will understand the reason.

Equipping the Motor Cycle for War.

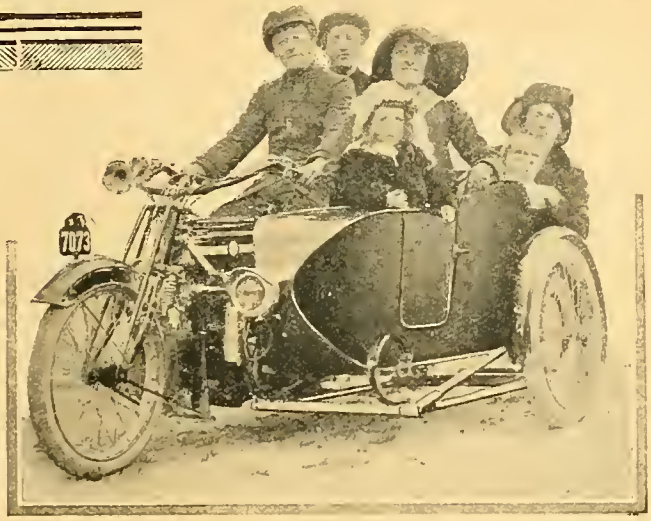
The use of motor cycles under service conditions makes imperative a completeness of equipment which, for ordinary riding in a peaceful country, is perhaps more a comfort and convenience than an absolute necessity. Consequently, J. B. Brooks and Co., Ltd, are meeting a very large demand for such specialities as spare belt and spare tube cases, tool bags, carrier bags, sparking plug cases, carbide carriers, etc., as well as for saddles. For the cyclist battalions Brooks are supplying large numbers of their Military model saddle, special tool bags, rifle clips, kit carriers, etc., and their general department is working at high pressure to meet the demand for such accoutrements as officers' sword belts, cartridge bandoliers, cases for field glasses and range finders, sleeping valises, Army kit bags, etc.

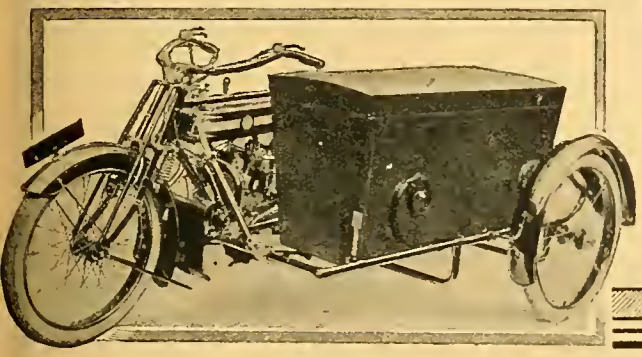
REX-J.A.P.

"The Proved Best Sidecar Machine."

For Business or Pleasure—

We manufacture Commercial Sidecars of several types and sizes to suit customers' own requirements.
We also manufacture Commercial Bodies, interchangeable with our ordinary Pleasure Bodies—so that the combination can be used for carrying goods or passengers.





The REX-J.A.P. in ITALY.
Climbing a hill 5 miles long, with an average gradient of 1 in 7, with 6 passengers.

¶ The Rex-J.A.P. is fitted with Countershaft 3-speed Gear—enclosed Chain Drive—Kick Starter—and many other desirable features.—May we post you Catalogue ?

THE PREMIER MOTOR CO., LTD.,
Aston Road, Birmingham.

A Lamp, Generator, and Horn are GIVEN FREE to purchasers of either of the following store-soiled motor cycles and sidecars:

You can secure immediate possession of either model on Selfridge's Deferred Payment Plan for a deposit of one-fifth of the price.

5-6 h.p. EXCELSIOR, with coach-built sidecar Usually £84 9 0. .. NOW **£75**

7 h.p. CHATER-LEA, with coach-built sidecar with hood and screen Usually £101 17 6 NOW **£95**

33

These are all that remain of a special purchase. Now is the time to equip your machine with new tyres for the Winter at less than half the usual price. These

HUTCHINSON
1913 Pattern T.T.
Rubber-Studded
COVERS

are in excellent condition. List price is 33/6 each, we are clearing them at

12/6

Letter Orders will be promptly filled as long as the stock lasts.

ANY of these machines can be obtained on Selfridge's Deferred Payment Plan.

Second-hand 1913 MATCHLESS 8 h.p. 2-speed, chain-drive, with cane torpedo sidecar. Nearly new **£60**

Second-hand 8 h.p. 1914 HARLEY DAVIDSON, 2-speed, chain transmission: with Mills-Fulford sidecar and outfit including hood and screen. Completely equipped for the road. List price £84. Clearance price.. **£70**

Second-hand 8 h.p. MATCHLESS combination, twin belt, completely equipped with horn, lamp set, speedometer, rear light, and tyre carrier with spare cover. Ready for the road List price £88. Clearance price **£55**

If unable to call, write for list of other combinations and solo mounts at reduced prices.

SELFRIDGE'S

SELFRIDGE & Co., LTD., Oxford Street, W.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 1912, 5h.p., 2 speeds, chain drive, clutch, and kick starter, splendid order; £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0479

Alldays.

ALLDAYS Matchless, 1913, 3½h.p., 2-speed, lamps, tools, Cowey speedometer; £33.—Herrmann, 29, Beckenham Rd., Beckenham. [X1474

Antoine.

5-6h.p. Antoine Combination, £12/10; M.M.C. lightweight, £5/10.—287, Beckenham Rd., Beckenham. [8003

ANTOINE 5-6h.p. Twin, tyres good, new wicker canoe body sidecar; bargain, £14.—Overington, Station Approach, Earlswood. [8046

Ariel.

ARIEL, 1913½, 3½h.p., 3-speed Armstrong, new tyres, wicker sidecar; £40.—Allies, Stanwell, Staines. [X1577

ARIEL 5-6h.p. Combination, brand new, a splendid turnout; £86/10; exchanges invited.—Bunting, Harrow. [X1582

2¼h.p. Ariel, decompressor, Amac, adjustable, good 2 tyres, low, fast, starts walking, perfect; £9/10.—Parker, 21, Clarendon Rd., Blackpool. [8058

ARIEL, 1914, 6h.p., 3-speed, gear box on car lines, chain-cum-belt; reduced to £83/10; E.P. if desired.—Lamb's, 50, High Rd., Wood Green. [8079

ESTABLISHED 20 YEARS "IN THE HEART OF THE TRADE"

COLMORE DEPOT

Clearing our 1914 stock

Every 1914 Motor Cycle and every 1914 Light Car in our stock is going to be sold by us *now*; we intend carrying none of them forward.

They are good, well-known makes, all of them, and now is your chance.

This week's price **20%** off ordinary,

next week those unsold will be **25%** off the usual,

and the week after they will be **30%** discount from usual nett list,

so that we shall then have nothing left to push on to 1915 buyers

Now the above means our loss!

But it will be your gain!!

Someone is sure to tell us it is foolish to sell below cost. We shall reply that it is yet more foolish to "stand still" in business.

Get on to these bargains, say what make you want, and write now to one of

COLMORE DEPOTS

31, Colmore Row, BIRMINGHAM
62, High Street, LEICESTER
31, Renshaw Street, LIVERPOOL
261, Deansgate, MANCHESTER

MOTOR CYCLES FOR SALE.

Ariel.

ARIEL, new 3½h.p., counter-shaft 3-speed gear compressor, latest model; makers' price £61 cept £50.—Northern Depot, Leece St., Liverpool. [X

Arno.

ARNO Motor, 3½h.p., 1913, T.T. model, per £18/10.—Syd. Pearsoo (see Miscellaneous). [X

ARNO, 1913, 3½h.p., 3-speed, with coachbuilt sid bargain, £35.—Carlton, 7, Spencer Rd., Cro [

Auto-Wheels.

AUTO-WHEEL, perfect condition; £10/10.—Lee Chester St., Newcastle-on-Tyne. [X

1914 Auto-Wheel, only done 50 miles, as new; £ Wales, Ploverigg, Shap, Westmorland. [X

AUTO-WHEEL, recently completely overhauled makers; £8.—Hobson, Esholt, Rawmoor, Shef [X

AUTO-WHEEL, 1914, only ridden 30 miles; £1 —Margaret S. Earnshaw, Stanley Rd., Handf [X

AUTO-WHEEL, in splendid running order, 200 m £9; spares.—Sunderland, North St., Lockw Huddersfield. [X

AUTO-WHEELS, 1914, lady's and gentleman's, Rover cycles, new condition; 14 gns. ea P. J. Evans. John Bright St., Birmingham. [

Bat.

BAT, 1914, 6h.p., 3 speeds, kick starter, excel condition; £55.—P. J. Evans, John Bright Birmingham. [

1913 Bat, T.T., 8h.p., overhead valves, J.A.P. matic carburetter, all accessories, perfect; o —Eadington, Alderley Edge. [X

BAT-J.A.P. 6h.p. Combination, bought new 1 chain, 2 speeds, kick start, perfect; £48.—I cathra, Highfield Rd., Walton-on-Thames. [X

BAT, 1912, fixed gear, spring frame model, in per order; bargain, £23.—The Exeter Motor Cycle Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, stock Rd., Plymouth. [C

Bradbury.

1914 4h.p. Bradbury, 3-speed gear, heavy tyres new condition, for quick sale £36/10.—W High St., Saffron Walden, Essex. [X

BRADBURY, 1911, 3½h.p., solo mount, lamp, h £27/10, or £7 down and £1/13/4 monthl Lamb's, 151, High St., Walthamstow. [

BRADBURY, 4h.p., 2-speed, new February, 1 ridden 3,000 miles, Gondolier sidecar, 1,000 m equal new; £45.—A. Bennett, Abram, Wigan. [X

BRADBURY, 3½h.p., and Bradbury sidecar, 2-sp F.E., Dunlop tyres; £31/10, or £8 down and monthly instalments.—Lamb's, 50, High Rd., W Green. [

1913¼ 4h.p. Bradbury, 2-speed, clutch, Lucas la complete h.b.c., overhauled, re-bushed, M gomery No. 7 wicker sidecar, many accessories; £3 225, Nantwich Rd., Crewe. [X

Brough.

BROUGH, 1911, 6h.p., Blumfield engine, mag. speeds; real bargain, £24.—Bown, Ph grapher, Earlsfield. [X

T.T. Brough, 500 c.c., horizontal twin, 1914, just fi with latest engine August, absolutely perf £38/10.—W. S. Life, The Cliffe, Southport. [

BROUGHS.—Immediate delivery from stock of 500 c.c. horizontal twin 2-speed overhead v models.—The West Lancashire Motor Co., Southpo [

BROUGH, 1914, 3½h.p., horizontally opposed 2-sp twin, condition absolutely as new, picked eng very fast and powerful, won gold medal last Lond Edinburgh, hardly ridden since; stringent expert amination invited; £40, a real bargain.—Lovegr Rossmore, Wharncliffe Rd., Boscombe. [

Brown.

3½h.p. Brown, accumulator ignition, h.b.c., good ning order; £9.—H. Rowland, Cranleigh, Sur [X

B.S.A.

B.S.A., 1913 model (late 1912), 2 speeds, free eng accessories, tools; £32/10.—Elliott, Hanover Ch bers, Hull. [

B.S.A., late 1914, 4h.p., 3-speed counter-shaft, condition; price £53.—Gaylard, Ashley Dairy, W ton-on-Thames. [

B.S.A., June, 1914, as new, 3-speed gear box, ch drive, with sidecar; £50.—Brown, 7, Manor P Parade, High Rd., Lee, S.E. [

B.S.A., 1912, excellent condition, all accessories, re to be ridden away; seen any time; £26.—Brou Motor Works, Masons Hill, Bromley, Kent. [

MOTOR CYCLES FOR SALE.

James.

JAMES, 1914, 4¼h.p., Big Single, and Canoelet tandem sidecar (cost £16/16), speedometer, lamps, horn, etc., chain driven, 3 speeds; cost complete £90: equal to new; rattling bargain, £60.—Apply, No. 6,779, *The Motor Cycle* Offices, Coventry. [X1399

MUST be Sold; owner joined Royal Engineers.—Late 1913 4¼h.p. James and Canoelet sidecar, cost over £80, machine overhauled last month at cost of £8/10/6, 3-speed gear, chain drive, climb anything; £50, or close offer.—Brown, Gloucester Rd., Chesterfield. [X1412

J.E.S.

SPECIALLY Built J.E.S. Motorcyclette, with direct drive, Amac carburetter, h.b.c., large saddle, many extras, low frame, suit elderly gentleman; owing to war for sale absolutely new at cut price.—Millards, Cycles, Guernsey. [7827

Kerry.

1911 Kerry-Abingdon, 3½h.p., free engine, perfect condition, lamp, horn, etc.; £25.—Mastin, Gedney, Holbeach, Lincs. (D) [X1400

Lea-Francis.

1914 3½h.p. Lea-Francis, twin engine, 2-speed, hand clutch; £50.—Sproston and Grace, 154b, Great Titchfield St., W. [8101

1914 Lea-Francis, perfect, very little used, cost £72, also £3/3 waterproof suit; the lot £56.—47, Waterloo Place, North Shields. [8185

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

Levis.

LEVIS Popular Models in stock; £25 cash, or E.P. —Lamb's, 151, High St., Walthamstow. [8073

LEVIS Baby, 1913¾, perfect, Lucas lamp; any trial.—Hammond, 8, Spain, Petersfield. [8121

HARRY WALKER'S for Levis's. More business as usual. The £25 Popular supreme.—Muswell Hill, N. [7721

£12 deposit and 12 payments of £1/15 for 2½h.p. slightly used £38/10 Levis; any trial.—Colmore Depot, Birmingham. [X1427

LEVIS, 1914, Baby model, 2¼h.p., brand new; £28.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0480

LEVIS, 1913, accessories; cost over £40; absolutely faultless; bargain, £19/10, honestly worth £30.—Bradley, 11, Brownlow St., Holborn. [8085

1914 (September) 2¾h.p. Levis, Model de Luxe, 2-speed, free engine, brand new, never ridden; cost £47/10, accept £38 for cash.—King, Sunnyside, Stapleford, Cambs. [X1563

Martin.

4h.p. Jap-Martin, free engine, T.T., only three months' use.—Bunting, Harrow.

MARTIN-J.A.P., 4h.p., T.T., free engine, only three month's use; £40; exchanges invited.—Bunting, Harrow. [X1580

M. and M.

M. and M., 2-stroke, completely equipped; £28; all British, including magneto.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X1538

Matchless.

MATCHLESS. 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

1914 Matchless Combination, 7h.p., 8B. model, speedometer, lamps, etc.; offers wanted.—Selkirk, 489, Rice Lane, Liverpool. [X1388

MATCHLESS, 3½ to 8h.p.; prices from £35 to £55 cash, or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X1432

1913½ 6h.p. Matchless, clutch model, kick starter, engine excellent, fine condition throughout; £38.—King, Sunnyside, Stapleford, Cambs. [X1565

£12/10 deposit and 12 payments of £3/10 secures 3½ h.p. twin-cyl. Matchless-Jap, 6-speed gear, shop-soiled only.—Colmore Depot, Birmingham. [X1428

MATCHLESS, 8h.p., 1912½, art cane sidecar, new condition, twin belt, V.S. 2-speed, tools, and accessories; £50.—Clements, 32, Bellenden Rd., Peckham. [7994

1913 Matchless, 3½h.p. twin, 3-speed counter-shaft, new back Kempshall, lamp, horn, spares, light wicker sidecar; 32 gns.—Young, 7, Chesterton Rd., Cambridge. [8081

MATCHLESS, 1914, 8h.p., latest combination, 3 speeds, enclosed chain drive, fully equipped with tools and spares, lamps, horn, speedometer, etc., magnificent machine; cheap at £70.—Seen at Brownhill Motor Works, 172, Brownhill Rd., S.E. [8082

MATCHLESS Combination, 7-9h.p., 1913, kick start, 2-speed, free engine, 5½ gn. Cowey, Klaxon type horn, lamps, etc., all spares, 14 gn. sidecar; cost over £100, complete, £45, or nearest; inspection or trial by appointment.—Sannt, 2, Eton Av., Hampstead. [8037

Minerva.

MINERVA Twin, 4½h.p., 2 speeds, mag., B. and B., and torpedo sidecar, in excellent order; £20.—Safe, 5, Willow Walk, Bermondsey. [8004

£20 EACH!

SIDECAR COMBINATIONS.

3½ h.p. 2-speed **HUMBER** and Torpedo Sidecar £20
4 h.p. 2-speed **ROC** and Torpedo Sidecar..... £20
3½ h.p. 2-speed **N.S.U.** and Torpedo Sidecar..... £20
5 h.p. 2-speed **REX** and Torpedo Sidecar £20

All in good running order.

NEW MACHINES AT SECOND-HAND PRICES.

2½ h.p. 1914 **WOLF**, J.A.P. engine, 2-speed countershaft gear, spring forks, magneto, etc. Usual price, £33. Our price £26
4 h.p. 1914 **WOLF**, J.A.P. engine, 2-speed countershaft gear, combined belt and chain drive. Usual price, £44. Our price..... £34
4 h.p. 1914 **WOLF**, J.A.P. engine, 2-speed countershaft gear, all chain drive. Usual price, £46. Our price..... £36

These are shop-soiled only.

FARLOW SIDECARS at SPECIAL WAR PRICES

From **£6 15 0** From

Write us your requirements.

SECOND-HAND BARGAINS.

3½ h.p. 1914 **MOTOSACOCHE**, Enfield gear, fine order £40
3 h.p. **EXCELSIOR**, vertical engine, spring forks £8
2-3 h.p. Twin **MOTO-REVE**, magneto ignition, Druids £11
3½ h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb. .. £16
3½ h.p. **N.S.U., 2 speeds and free engine**, Bosch magneto £17
3½ h.p. **PREMIER, Bowden 2-speed gear**, Bosch £18
5 h.p. **VINDEC, 2 speeds**, kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds**, handle starting .. £19
3½ h.p. **TRIUMPH**, ball bearing engine, M.O.V. £19
5 h.p. 1908 **REX** de Luxe, **2 speeds**, handle starting £19
5 h.p. 1908 **REX, 2 speeds**, kick starter, Bosch, Amac £19
6 h.p. 1912 **REX** de Luxe, **2 speeds**, handle starting £25
6 h.p. 1912 **CLYNO** and Clyno Sidecar, **2 speeds**, kick £33
8 h.p. **Cycle Car**, Chater-Lea engine, **3-speed gear box** and worm drive, speedometer, screen, etc. £80

NEW 1914 MACHINES.

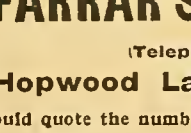
1914 4 h.p. **TRUMBULL** Cycle Car ..... **What offers?**
1914 2¾ h.p. **DOUGLAS**, Model V. ..... **What offers?**
1914 3½ h.p. **ARIEL**, 3-sp. counter-shaft gear **What offers?**
1914 6 h.p. **NEW HUDSON**, 3 speeds ..... **What offers?**
1914 6 h.p. **ENFIELD** Combination ..... **What offers?**
1914 6 h.p. **A.J.S.**, 3-sp. counter-shaft gear **What offers?**

SPECIAL BARGAINS IN NEW ENGINES.

5-6 h.p. **BLUMFIELD** Engines, complete with inlet pipe, exhaust pipes and silencers, magneto bracket, valve lifter, magneto sprocket, variable pulley, and magneto chain cover, all new and unused £11 11
S.-hand 5 h.p. twin **REPTON** Engine, good order £3 10

SIDECARS.

GLORIA, spring wheel, cane body, fit Triumph £5
FARLOW, 1913, underslung, cane torpedo body £5
FARLOW, 1914, demonstration wicker model £5
FARLOW, 1914, reed cane, underslung, demonstration model, condition like new £6
FARLOW, 1914, coach-built, underslung, demonstration model, condition like new £7
FARLOW, 1914, lightweight model, used trials only .. £5
Also several New **FARLOW** Sidecars at big reductions.



NEW MOTOR CYCLE FRAMES.
Fully Guaranteed.
25/- each.

FARRAR'S MOTORS

(Telephone 919),
Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

Monopole.

MONOPOLE, 2½h.p. Precision, Villiers hub clutch, up to date, brand new, never been ridden; sacrifice £36 cash; seen by appointment.—Barrett, 101, St. Alban's Av., Chiswick, W. [8028

Moto-Reve.

MOTO-REVE Twin, mag., low, good; accept £12, or offer.—E., 208, Camberwell Rd., S.E. [8147

MOTO-REVE 1911 2¾h.p. Twin, re-enamelled and overhauled by makers; sacrifice £12.—1, King St., Acton. [8153

Motosacoche.

1913 Motosacoche Motor Cycle, second-hand; price £15; cash or easy terms.—E. E. Jones (Garages), Ltd., Swansea, also at Cardiff. [0548

M.M.C.

3½h.p. M.M.C., Chater-Lea, Hellesens, h.b.c., good condition, first-class tyres, runs well; £10/10; Saturday after 3.—H., 63, Nimrod Rd., Streatham. [X1396

New Hudson.

NEW Hudson, 1912½, 2¾h.p., J.A.P., free engine, 3 speeds; inspection invited; £28.—Salter, 25, Crescent Grove, Clapham Common. [8021

NEW Hudson 2-stroke lightweights in stock, extraordinary good value, for £27/5; E.P. if desired.—Lamb's, 151, High St., Walthamstow. [8070

NEW HUDSON Big Six 1914 Combination, done 2,900, engine just taken down by makers and now running better than ever, Lucas head lamp and rear lamp, 2 best quality horns, speedometer, spare new belt and chain, and numerous other spares; accept £65, or nearest offer, cost over £100.—Box L6,298, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8187

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

N.S.U.

N.S.U. 6h.p. Twin, 2-speed, F.E., accessories, and sidecar; £22.—Revill, Henholmes, Deepcar. [X1398

3½h.p. N.S.U., Mabon free engine, mag., Binks carburetter, new back tyre, engine completely overhauled, lamp, horn, complete; £14/10.—Dunn, Cross Keys, Mon. [8054

N.U.T.

EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—W. S. Life, 10, Cumberland Rd., Southport. [0573

N.U.T., 1914, T.T., 3½h.p. twin, overhead valve, J.A.P. 3-speed gear, month old, very fast, large Lucas, new extra heavy 2½in. Bates, spare valves; £55; reason for selling, going abroad with Terriers.—T. Plant, St. Mary, Bedford. [X1100

Peugeot.

2¾h.p. Peugeot Twin, accumulator; £10; exchange 2-stroke.—Durling, 69, Skinner St., Gillingham, Kent. [8051

P. and M.

P. and M., with sidecar, 1911, 2 speeds; £18.—Hadfield, Chemist, Matlock. [X1193

P. and M., 1913, new condition, £45; Canoelet, £9.—Ernest Ponzio, Cork Merchant, Whipp's Cross, N.E. [X1435

1913 P. and M., new tank, new first quality tyres, lamp, horn, Lucas's best, spares, perfect condition, little used, always solo; £40.—Gerald Tolson, Kirkburton, Huddersfield. [8069

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

1913 P. and M., Canoelet sidecar, wind screen, not used till April, 1914, through illness, mileage 900, tyres practically new, unpunctured, all spares; £55, or offer.—21, Seymour Place, Fulham Rd., London. 'Phone: 2719 Western. [8181

3½h.p. P. and M. and sidecar, 1912, kick starter, Cowey, spares, 3 Lucas lamps, electric handle-bar lamp, new cylinder, gear, sprockets, chains, re-enamelled by makers, perfect condition; £55.—Jones, Lytchett, Chatsworth Rd., Cricklewood. [8027

Precision.

PRECISION-SUN, 1913, 3¾h.p., 3-speed model, excellent condition; £29 cash; part exchange lightweight or push-cycle.—87, Highland Rd., Coventry. [X1585

1914 4¼h.p. Precision, in Rex 1912 frame, perfect order throughout, footboards, done 1,200, fully equipped; £22, no exchange.—Siddall, Avenue Halcrot, Hessle. [X1515

PRECISION 1913 2½h.p. Lightweight, Brampton variable gear and free engine, splendid order, lamp set, horn, and tools, complete; £22.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0598

1913 P. and M. Combination, guaranteed perfect order, recently overhauled by makers, lamp and generator, Cowey speedometer, luggage carrier, everything as new, numerous accessories; any trial; 58 gns., or near offer.—Bradford, Sancroft, Eastbourne. [8093

MOTOR CYCLES FOR SALE.

Premier.

PREMIER, 1914, 3½h.p., and conchbuilt sidecar, kick starter, 3 speeds, done about 700 miles, all accessories; £55.—Browne, 51, High St., C.-on-M., Manchester. [X1395

PREMIER, 1914 (April), 3½h.p., 3-speed countershaft, speedometer, horn, Paragon folding sidecar, as new; £48, or separate.—Watts, 54a, Church Rd., Hove. [8164

PREMIER, 1912, 3½h.p., 3 speeds, clutch, purchased new 1913, used solo only, guaranteed good order; £28.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0552

PREMIER, 3½h.p., 3-speed counter-shaft, brand new; £61, sacrifice £55 for cash.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

Quadrant.

3½h.p. Quadrant, low, B. and B., new magneto, slope back frame, P. and H., horn, etc., takes sidecar 3 up; £9/10, or offer.—31, Tarver Rd., Manor Place, Walworth. [7996

Regal.

REGAL-PECO, 2-stroke, demonstration model, Sturmey 3-speed, only done 200 miles, condition as new; £35.—Regal Motors, High St., Saltley. [X1483

REGAL-GREEN, 2¾h.p. T.T., 3-speed, special ball bearing racing engine, exceedingly fast, condition as new; £42/10.—Regal Motors, High St., Saltley. [X1484

Rex.

5-6h.p. Twin Rex and sidecar, Bosch mag.; any trial; £13/10.—15, Curzon St., Leicester. [X1469

3½h.p. Rex, Amac, free engine; £10/10.—Newman, 31a, Quinton St., Earlsfield, S.W. [7992

REX Combination, 6h.p., Bosch, good tyres; seen running; £13/10.—45, Church Rd., Acton. [X1568

5-6h.p. Rex, twin, 2-speed, free, Bosch, Druids; £16/10. —Clow, Milton St., Barrow-in-Furness. [X1442

REX, 1910, 3½h.p., mag., good running order; fair offer accepted.—Shynn, Ide Hill, Sevenoaks, Kent. [X1475

REX Sidette, new 1914 6h.p. twin, 2 speeds, coach built body; real bargain, £65.—228, Pentonville Rd., King's Cross, London, N. [8156

REX 6h.p. Combination, 2 speeds, free engine, handle starting, Dunlops, B. and B., Bosch, very powerful; £25, bargain.—136, Lambeth Walk. [8118

3½h.p. Rex, mechanical valves, fine condition, Bosch, Lyso, Brown and Barlow carburetter, extremely low machine; gift, £13/10.—Barratt, Fairfield, Buxton. [X1508

1914 6-8h.p. Rex, chain-driven, 3-speed, kick starter, and coachbuilt sidecar; £60; take Douglas in part payment.—Baines, 166, Belgrave Gate, Leicester. [8129

REX, brand new, 1913, 2-speed, twin, handle starting; makers' price £62/10, our price £53/2/6; fully guaranteed; exchange considered. — Collier's Motories, Westgate, Halifax. [0388

REX 1913 6h.p. Combination, 2-speed, 1914 coach body, wind screen, ideal combination, excellent condition throughout; £45 cash; part exchange solo.—37, Clarendon St., Coventry. [X1586

REX Combination, 2-speed, belt drive, 1914, brand new; £77/10, sacrifice £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 29, Tavistock Rd., Plymouth. [0604

REX Sidette, 1913, 6h.p., 2-speed gear, cane sidecar new, 26×2½in. passenger Hutchinson tyres, F.R.S. lamp set, perfect order, guaranteed; £38.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0491

Rex-Jap.

REX-J.A.P., 1912, 6h.p., Mills-Fulford sidecar, 2 speeds; trial run; £38.—Apply, Garland, 2, Finstock Rd., Notting Hill, W. [X1391

REX-J.A.P., 1913, 4h.p., Armstrong heavy Mark VII. 3-speed gear, 26×2½in. Kempshall tyres, machine equal to new; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0592

REX-J.A.P. 1912 6h.p. de Luxe Model, 2-speed and free engine, 650×65 Kempshall tyres, coachbuilt sidecar, very good condition; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

REX-J.A.P.—We have several second-hand 1912 and 1913 combinations which we have taken in part payment of 1914 models. We are offering same at very low prices. Full list free upon request.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Rover.

ROVER, 1912, clutch, spares, new belt, Lucas lamp, perfect condition; £25.—Vicarage, 123, Peckham Rye. [8092

ROVER, 1912-13, 3½h.p., 3-speed, absolutely new condition, with smart sidecar; £35.—Longman, 1, King St., Acton. [8152

ROVER 3½h.p. Combination, 3-speed, 1914, only ridden 2,000, speedometer, lamps, etc.; £60; owner buying small car.—Smith, 16, Victoria Rd., Romford. [X1401

ROVER, 1912, 3½h.p., free engine clutch, splendid order, a good solo mount, guaranteed; £22/10. —Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0551

Halifax Motor Exchange

Largest Rex Dealers,
16, WESTGATE, HALIFAX.

'Phone—766. Telegrams—"Perfection."

1915 DOUGLASES.—We are now booking orders for November delivery of these splendid machines. Cash, Exchange, or Easy Terms.

BARGAINS IN BRAND NEW REXES.

Fully guaranteed by Makers.	Makers' Price.	Our Price.
1913 6h.p. 2-speed Twin	£62 10	£53 2 6
1912 New 6 h.p. 2-speed Twin	£62 10	£45 10 0

Liberal Exchanges. Cash Offers wanted.

NEW LIGHT CARS.

1914 11 h.p. **LAGONDA**, hood, screen	£150 0
1914 11 h.p. **LAGONDA** Cabriolet	£150 0
1914 **G.W.K.** (second-hand)	£105 0
1914 **G.W.K.**, hood, screen, etc.	£150 0
1914 **VICTOR**, A.C., £105 ..... W.C.	£115 0
1914 **CALTHORPE** Minor	£168 0
MORGAN, w.c., Grand Prix	£105 0
MORGAN Sporting, hood, screen, lamps, etc.	£103 0

SHOP-SOILED 1914's.
SPECIAL EXCHANGE QUOTATIONS.

1914 8 h.p. 2-speed **REX-J.A.P.**	74 Gns.
1914 **REX-J.A.P.**, 8 h.p., Combination	£94 10
1914 **WILLIAMSON**, w.-c., combination ...	£98 10
1914 **DOUGLAS**, 2-speed	£48 0
1914 **SUN-VILLIERS**, 3½ h.p., 2-speed, F.E.	£42 0

SOLO MACHINES.

1913 4 h.p. 2-speed **REX**, chain drive	£39 10
1913 4 h.p. 2-speed **REX**, chain drive, New	£49 10
1913 3½ h.p. 3-speed **TRIUMPH**	£39 10
1912 3½ h.p. 3-speed **ARIEL**	£32 10
1912 3½ h.p. 2-speed **N.S.U.**	£29 10
1912 2¾ h.p. 2-speed **F.N.** Lightweight	£28 10
1912 3½ h.p. 2-speed **ALLDAYS**	£29 10
1912 3¾ h.p. 2-sp. **BRADBURY**, kick starter	£31 10
1912 3½ h.p. **LINCOLN-ELK**	£24 10
1912 3¾ h.p. 2-speed **ALLDAYS**	£29 10
1912 3½ h.p. **RUDGE**, free engine	£28 10
1911 3½ h.p. **TRIUMPH**, variable gear	£29 10
1911 W.-C. 2-speed **SCOTT**, late model	£29 10
1911 3½ h.p. 2-speed **REX**, N.S.U. gear	£27 10
1911 2¾ h.p. 2-speed **A.J.S.**, counter-shaft ..	£22 10
1911 3½ h.p. 2-speed **N.S.U.**, almost as new ..	£22 10
1911 3½ h.p. **LINCOLN-ELK**	£18 10
3½ h.p. Magneto **TRIUMPH**	£20 0
1910 3½ h.p. 2-speed **TRIUMPH**	£25 10
4 h.p. **CORONET**	£8 15
2¾ h.p. **BRADBURY**	£6 15
2¾ h.p. **DE DION**, battery ignition	£6 15

SIDECAR COMBINATIONS.

1913 6 h.p. 2-speed **REX** Sidette	£49 10
1913 6 h.p. 2-speed **REX**, and Sidecar	£44 10
1913 4 h.p. 2-speed **REX**, chain drive, and new sidecar	£43 10
1913 4½ 2-speed **LINCOLN-ELK**, and Millford coach-built Sidecar	£39 10
1912 6 h.p. **DOT-J.A.P.** and Sidecar	£29 10
1912 6 h.p. **ZENITH** and Sidecar	£42 10
1912 6 h.p. 2-speed **REX**, chain drive, and new Sidecar	£43 10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar	£29 15
1911 3½ h.p. 2-speed **REX** and Sidecar	£29 10
1911 3½ **TRIUMPH**, speed gear and Sidecar	£33 10
1910 3½ h.p. 2-speed **TRIUMPH** and Sidecar	£28 10
1910 7-9 h.p. **V.S** 2-speed and sidecar.....	£29 10
CHATER-LEA-J.A.P., 8 h.p., 3-speed, and coach-built Sidecar	£47 10
V.S., 6 h.p., chain drive, Phelon and Moore gear, and Sidecar	£27 10
PHANOMEN, 6 b.p., 2-speed, and Sidecar ..	£21 10
EXCELSIOR, 3½ h.p., 3-speed, and Sidecar .	£24 10
REX, 1910, 2-speed, twin, and Sidecar	£31 10
REX, 1909, 2-speed, twin, and Sidecar	£27 10
REX, 5½ h.p., magneto, twin, and Sidecar..	£19 10

£5 Deposit and 7/6 per week purchases any of the following machines. Every one guaranteed in running order.

ARIEL, 2½ h.p., magneto, lightweigbt	£15 10
REX, 1908, 3½ h.p., magneto	£18 10
REX, 1909, 3½ h.p., magneto	£19 10
VINDEC, 3½ h.p., magneto, spring forks ...	£16 10
REX, 1910, 3½ h.p., magneto	£21 10
REX, 1911, 3½ h.p., magneto	£22 10
REX 1908 5½ h.p. twin, magneto	£18 10
N.S.U., 4 h.p., twin, grand condition	£18 10
N.S.U., 3 h.p., magneto, h.-b. control	£12 10
LINCOLN-ELK, 3½ h.p., magneto	£19 10
N.S.U., 3½ h.p., 2 speeds, F.E.	£19 10
N.S.U., 3 h.p., 2-speed, F.E.	£16 10
TRIUMPH, F.E., magneto, spring forks	£18 10
ANTOINE, 4 h.p., 2-speed, and Sidecar	£12 10

TRADE SUPPLIED.

MOTOR CYCLES FOR SALE.

Rover.

1913 Free Engine Rover, good tyres and belt, plate and enamel perfect, in sound running order; for quick sale, £26/10.—Wallis, High St., Saffron Walden, Essex. [X1557

ROVER, 3½h.p., 1913, 3-speed, with Rover coach-built sidecar, guaranteed in perfect condition; price £55, or near offer.—Harold Petty, 32, King St., Leicester. [X0560

3½h.p. Rover, mag., Mabou clutch, Druid spring forks, Whittle belt, tyres perfect, will carry 2 anywhere; £12, or near offer.—131, Park Lane, Stoke Newington, London. [8091

ROVER 1914 Sidecar Combination, footboards, luggage grid, lamps, speedometer, all accessories, condition perfect; £47/10.—Hunt, 106, Coningham Rd., Shepherd's Bush, W. [8186

ROVER Combination, late 1913, cost £80, with speedometer, lamps, etc., lovely condition; £47/10; cycle separately, £37/10.—M. Toulson, Ashchurch Lodge, Ashchurch Terrace, Shepherd's Bush, W. [8057

ROVER, 1913, 3-speed, and Chater-Lea wicker sidecar, very little used, excellent condition throughout, fast, silent, and reliable, all accessories; £41.—At Stourwood Garage, Stedman Rd., West Southbourne, Bournemouth. [8012

Royal Ruby.

ROYAL Ruby-Villiers, 2-stroke, 2-speed, hardly used, in bentiful tune; £29/10; appointment, Surrey.—Box L6,296, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8189

ROYAL Ruby, 2-stroke, 1914, ridden only 200 miles; £20.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0605

Rudge.

RUDGE, 1912 model, lately overhanled; best over £18.—45, Church Rd., Acton. [X1567

RUDGE, 3½h.p., free engine, tyres new, just been enamelled, nickelled, and overhauled; £26.—174, High St., Stoke Newington. [8061

RUDGE Multi, 1913, 3½h.p., and sidecar, little used, hood, screen, lamps, speedometer, insurance policy; £42.—41, Catherine St., St. Albans. [X1548

RUDGE Multi, 5-6h.p., 1913, done 500 miles; owner abroad; lamp, horn, new spare cover, tube, belt; £40.—Green, 8, Victoria Rd., Worthing. [8166

RUDGE Multi, 3½h.p., late 1913, speedometer, lamp, Klaxon, all accessories, and spares; any examination; offers.—Camm, Calderbank, Todmorden. [X1489

RUDGE Multi, 1912½, Sensprav, Xl'all, new tyres, splendid order throughout; £32 cash; opportunity; horn, speedometer, spares.—Shone, Northlands, Chester. [8048

RUDGE Multi, 1913½, 3½h.p., P. and H. lamp, Cowey speedometer, almost new, Palmer cord tyres, all accessories, perfect condition; bargain.—Pennington, Collegiate Crescent, Sheffield. [X1476

RUDGE Multi, 1913, excellent order, lamp, horn, speedometer, spares; £36/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

RUDGE, 1913, 3½h.p., T.T. roadster model, lamp, horn, new rubber-studded Bates and Dunlop tyres, very fast, and condition equal to new; £27.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0595

1914 5-6h.p. Rudge Multi Motor Bicycle, cycle car cover on the back 26×3in., Avon 3in. cover on front, Brooks 170 saddle, F.R.S. Major lamp and D.A. cylinder, Stewart trip speedometer with 8-day watch attached, 2 spare inner tubes, 2 spare valves, Dunlop belt, knee grips, Lucas horn, belt and tube case, the machine has only been ridden 800 miles, condition as new, including tyres; £50.—Robinsons, Green St., Cambridge. [6866

Scott.

1911 Scott Combination, only run 1,500 miles, lamp, Cowey speedometer, etc.; £45 cash.—C/o Brown, Trevena, Trimley, Ipswich. [X1202

1911 Scott Motor Cycle, in thoroughly good order; £27/10; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0547

SCOTT, 2-stroke, perfect order, £32, particulars on application; studded Palmer cord, new, 26×2½, 35/-.—Newbery, 34, Victoria Rd., Cambridge. [8112

SCOTT, late 1911, complete with Myers sidecar to match, speedometer, lamps, and all accessories; bargain, £50, or nearest; owner bought car.—Wilkinson, Barmouth, Wales. [8066

SCOTT, 1911¾, 2-speed, kick, coachbuilt sidecar, new tyres, 2 lamps, 2 horns, spares; sell £36, or exchange 1914 T.T. Douglas 2-speed and cash.—W.J.P., 25, Lancaster Rd., West Norwood, S.E. [8136

Singer.

1912½ 2½h.p. Singer, nearly new; £18, or nearest offer.—Sibley, 10, Terrace, Clay Hill, Enfield. [8162

LATE 1911 3½h.p. Singer, splendid condition; £16/10.—Baines, 166, Belgrave Gate, Leicester. [8126

SINGER, 1913, 3½h.p., free engine, perfect condition, Cowey speedometer, Lucas lamp, horn, tools; £35. —G. P. Chitham, Millstone Lane, Leicester. [X1387

SINGER 1913½ 4½h.p. Combination, 2-speed, clutch, little used, nothing better exists; £45, bargain; offers.—S., 4, Dollis Rd., Church End, Finchley. [X1523

SIDECARS AND FORECARS.

ROYAL Leicester Sidecars are admitted by all to be first-class finish and remarkable value; best racing designs on the market; light bodies for low power machines a speciality; make no purchase without seeing ours; several shop soiled sidecars offered cheap.—Stokes and Holt, Ltd., Belgrave Rd., Leicester. [0190

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BODIES.

MILLFORD Wicker Sidecar Body, with apron, mat, and head lamp; 15/-.—Stich, Paisley. [7998

WICKER Sidecar Body, splendid condition; 17/6, bargain.—25, Lavant St., Petersfield. [8150

CYCLE CARS.

TANDEM-SEATER Duo Cycle Car; £20, or exchange.—65a, Rosendale Rd., West Dulwich. [8096

8-10h.p. Cycle Car, Morgan type, 3 speeds and reverse, mag.; £39, or exchange good sidecar combination. —2, St. Ann's Well Rd., Nottingham. [X1506

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0527

1913 Side by side Rollo, hood, screen, J.A.P., all overhauled; £60, or exchange 2-seater, w.c., 2-cyl.; seen Huddersfield.—78, Walmer St., Rusholme, Manchester. [X1409

A.C. Pattern Cycle Car, 4½h.p. De Dion engine, mag., new, wants dash and guards to complete; what offers?—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham. [X1536

1914 Warren-Lambert, condition excellent, done under 5,000, Watford speedometer, D.A. lighting, 700×80 Roms; £90, or offer; take motor cycle or combination part.—Marshall, Cowfold, Sussex. [X1441

2-SEAT. Water-cooled Cycle Car, hood, screen, lamps, new condition, sacrifice, £30; also brand new 6h.p. twin Rex engine, pulley, mag., carburetter, exhaust, engine plates, ready for frame, £15. — Turner, 78, Church Rd., Willesden. [X1201

CARS FOR SALE.

WANDSWORTH Motor Exchange.—Peugeot, 8h.p., mag., 3 speeds, runs well; £22/10; exchanges.

WANDSWORTH.—Ford touring car, 15h.p., 4 cyls., mag., hood, screen; sacrifice £47/10; exchanges.

WANDSWORTH.—Sabella latest cycle car, 8-10h.p. J.A.P., water-cooled, mag., hood, screen; £45; exchanges

WANDSWORTH.—Sizaire (sporting type), 2-seat., 8h.p., mag.; any trial; £28/10; exchanges.

WANDSWORTH.—De Dion 2-seat., 8h.p., new tyres, hood, screen, beautiful order; £32/10; exchanges.

WANDSWORTH.—Singer 2-seat., 7-9h.p. twin, mag., gate change, splendid order; £42/10; exchanges.

WANDSWORTH.—Morgan 1912 2-seat., 8h.p. J.A.P., mag.; great bargain, £52/10; exchanges.

WANDSWORTH Easy Terms.—Wandsworth Motor Exchange, Ebner St., Wandsworth Town Station. 'Phone: Battersea 327. [X1587

8h.p. Genuine De Dion, 4-seat.; room wanted, must sell; £13.—E., 208, Camberwell Rd., S.E. [8148

SINGER Light Car, 10h.p., 1914, for immediate delivery; trade supplied.—Rey, 378, Euston Rd. [6612

HUMBERETTE, 1913, 8h.p., 3 speeds, just repainted, every accessory; £75.—P. J. Evans, John Bright St., Birmingham. [8178

ALLDAYS Midget, 1913, 8h.p., water-cooled, excellent order, with all accessories; £85.—P. J. Evans, John Bright St., Birmingham. [8179

15-9h.p. 1913 R.C.H. 2-seat., dickey, guaranteed as new; £110; for combination and cash.—Walton's, Dawson Sq., Burnley. [X1196

6h.p. Rover, 2-seat., hood, screen, mag., £35; exchange motor cycle.—Palmer's Garage, Tooting. Ask for catalogue of 100 automobile in stock. [8109

CALCOTT 1914 Light Car, 10.5h.p., quite new, but slightly showroom soiled; to be cleared at special price.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [8016

CLYDE, 10-12h.p., 3-speed, gate change, mag., live axle, 2-seat., scuttle dash, new tyres, screen, etc., perfect; £35, or exchange for motor cycle.—Fernlea, Hillcrest Rd., Acton. [8154

ALLDAYS Midget, 1913, green, detachable wheels, twin J.A.P. engine, well equipped, nearly equal new; £90, or take good motor cycle part payment.—Fryer, Ltd., Hereford. [8035

SALE, 15h.p. Mitchell 2-seat. car, newly painted, 2 ignitions, good tyres, good sidecar combination; part payment, or £120 cash.—Box 6,786, *The Motor Cycle* Offices, Coventry. [X1520

WE VALUE NO ASSET OF OUR BUSINESS MORE HIGHLY THAN OUR REPUTATION FOR STRAIGHT DEALING.

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Substantial Cash Discounts.

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CALCOTT Light Cars, 1915 models now ready in stock; immediate delivery. We are now booking orders; £185 Trade supplied.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London [8015

BARGAINS in Chassis and Char-a-bancs. Daimler, Delaunay, and Sunbeam chain-driven chassis, fitted with solid tyres, for sale cheap; Daimler char-a-banc, fitted new torpedo body, seat 15, £200; Crossley ditto, £175; Star ditto, £165; Delaunay-Belleville ditto, £186; Napier ditto, £150; Delaunay-Belleville landaulet, 20 h.p., live axle, £126; Renault ¾ landaulet, 12-16h.p., £175; several touring cars cheap; 500 solid band tyres, cheap.—Star and Garter Garage, Kew Bridge, Brentford. Tel.: 1031 Chiswick. [0682

COMMERCIAL CARS.

HUMBER, 10-12h.p., 4-cyl., Bosch, 10 cwt. van, good tyres; £45.—Morgan and Maxwell, 80, High Rd., Streatham. [X1535

UNIC, 2-cyl., Bosch mag., 3-speed and reverse, good tyres, 10 cwt. box van, load 15 cwt.; £60.—Morgan and Maxwell, 80, High Rd., Streatham. [X1546

CARS FOR HIRE.

FOR Hire, several Morgan runabouts, with driver; suit commercial travellers.—65a, Rosendale Rd., West Dulwich. [8098

ENGINES.

ABSOLUTELY New 5-6h.p. Blumfield Engine Set (less magneto); £11/11.—Farrar's Motories, Halifax. [X8389

BASTONES.—New Rex 6h.p. twin engines, with pulley, silencer, and pipes, complete, less magneto; £12/10.

BASTONES.—Rex 5-6h.p. twin engine, with Bosch mag., £9/9; 3½h.p. single, with Bosch mag., £8/8. —228, Pentonville Rd., King's Cross, London. [8160

N.S.U. Engine, twin, mog., 2 speeds and free, latest sidecar; accept offers, or exchange.—E., 208, Camberwell Rd., S.E. [8149

REX Engine, 1911, 5-6h.p., with Bosch mag., £8; Abingdon, 3½h.p., £5; Minerva, m.o.v., 52/6. —222, Warwick Rd., Birmingham. [X1471

STILL Running!—Stag, 4½, 5, 6-6h.p., single-cyl. engines, unbeaten for power, durability, price.—Only address, Enckman and Howard, 18, Canal St., Nottingham. [X0597

FIRST Postal Order secures 3h.p. Rover engine, with carburetter, pipe, and silencer, free engine clutch on shaft, in perfectly sound order; 50/-.—Wallis, High St., Saffron Walden, Essex. [X1556

1911 6h.p. Twin Rex Engine, complete with mag., pulley, etc., £8; 1914 4h.p. Rex engine, complete with mag., pulley, etc., £8; 1910 3½h.p. Rex engine, complete with mag., pulley, etc., £6.—Baines, 166, Belgrave Gate, Leicester. [8124

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PARKER and Rice, Magneto Specialists.—Experts on all magnetos, Bosch, Eisemann, etc.

PARKER and Rice.—Re-winding, re-magnetising, overhauling, etc.; repairs executed with expedition, and unapproachable workmanship; low quotations.

IMPORTANT.—Parker and Rice give 12 months' written guarantee with each repair.

PARKER and Rice, Johns Place, King St., Acton, London.—State your trouble; let us quote you. [2976

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ACCUMULATORS Repaired and made as new; work guaranteed; liberal allowances for old cells in exchange for new; lists free.—Richford, 153, Fleet St., London. [1775

JEBRON, registered 291298, greatly superior to platinum, unequalled for blades, screws, etc.; cures misfiring; 2/6 each rivet; Jebron screws, fit Bosch magnetos, 6/6 pair; old screws Jebronised, 2/6 each.

JEBRON Contacts, used by Messrs. Collier Bros., Colver, Martin, making world's records.—Jebron, 33, Herbert Rd., Woolwich, London, S.E. [X4331

BIRMINGHAM.—Magneto Repairs.—Re-winding, re-magnetising, and overhauling promptly executed; moderate charges.—The Electrical Trades Supply, Ltd., 41, Gt. Charles St., Birmingham. T.A.: Motors, Birm. Tel.: No. 1601 Central. [6987

24 Hours Magneto Repair Service.—All makes of magnetos, coils, or accumulators repaired by experienced mechanics, and returned within 24 hours as efficient as new. Spares for all makes stocked.—Simms Motor Units, Ltd., 191, Wardour St., London, W. [0539

MAGNETO Repairs of every description; we are specialists in this work. Bosch magneto repairs a specialty, re-winding, re-magnetising. All repairs guaranteed. Avoid incompetent tinkerers. All spare parts actually stocked. Catalogue. Large stock of second-hand magnetos. Coils and accumulators repaired. Northern representative for the Eisemann Magneto Co. Send for illustrated booklet.—J. H. Rumbaken, Magneto Specialist, 7, Peter St., Manchester. 'Phone: 6111 City [0404

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MAGNETO Repairs of every description, any make. Armature winding a speciality, guaranteed 12 months. We are late from leading manufacturers, and guarantee all work the same at half their prices in 24 hours.—The Magneto Repairing and Winding Co., 158, Seymour St., Euston Rd., London. [8036

BELTS.

NEW Dunlop Belt, ¾in., never used, and fastener; 7/6.—Alford, Bovey Tracey. [X1578

BASTONES.—Balata and chrome belting, ⅞ 10d., 1in. 1/-, 1⅛in. 1/2 per foot.

BASTONES.—Best quality leather chrome belting, ⅝ 11d., ¾ 1/1, ⅞ 1/2, 1in. 1/4, 1⅛in. 1/6 per foot.—228, Pentonville Rd., King's Cross, London, N. [8158

NEW Lyso Rubber Belting, ⅞, in two pieces, 8ft. 5/6.—Murray's, 37a, Charles St., Hatton Garden, Holborn. [X1527

SPECIAL Line Balata and chrome belts for autumn and winter use, ⅞in. 10d., 1in. 1/-, 1⅛in. 1/2 per foot, post free.—Pollin, V Belt Specialist, Shepherdswell, Dover. [8168

ELITE.—Special clearance line in Lyso belts, fully guaranteed by the manufacturers (the Avon Rubber Co.), 7ft. 6in.×⅞in., suitable for Triumph, etc., 7/- each; only a few left.

ELITE.—Continental belts, rubber and canvas, 1in. 1/6 a foot (list price 2/2), ⅞in. 1/3 (list price 1/11), ¾in. 1/1 (list price 1/7), ⅝in. 11d. a foot (list price 1/5).

ELITE.—New 1914 John Bull belts, ¾in. 1/6, ⅞in. 1/9½, 1in. 2/1, 1⅛in. 2/7; allowance up to 3/- for old belts.

ELITE.—Service pattern leather belting, best quality ⅞in. 1/- a foot, 1in. 1/3 a foot; fastener given with each belt.

ELITE.—Special clearance line of best English made rubber and canvas belting, ⅞in. at 1/- per foot, 1in. at 1/3 per foot; cannot advertise makers' name.

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria (one minute from Victoria Station), and 260, Coldharbour Lane, Longhborough Junction, Brixton, S.W. 'Phones: Victoria 6553, and Brixton 2042. [9069

TYRES.

LEGGATE, Edinburgh, for tyre value.

LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchere, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

LEGGATE, Edinburgh.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6; 26×2¼ 32/6, list £2/7/3; 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10. An experienced sidecarist says: "Dreadnought is undoubtedly IT."

LEGGATE, Edinburgh.—1914 Clincher De Luxe heavy 6-ply fabric, rubber studded, beaded covers; 26×2⅛, to fit 2¼ rims, 27/6, list £2/1; 26×2½, 29/6, list £2/2/9. A customer writes: "The De Luxe tyre is truly marvellous value."

LEGGATE, Edinburgh.—1914 Clincher A Won, heavy rubber studded, bearded covers, 26×2 21/-, list 31/6; 26×2¼ 23/-, list 34/-; 26×2½ 23/-, list £2/1/6.

LEGGATE, Edinburgh.—1914 heavy Clincher made, rubber studded, beaded edge covere, 26×2 17/6, 26×2¼ and 26×2½ 20/-; exceptional value.

LEGGATE, Edinburgh.—Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅛ 6/6, 26×2½ 7/-; worth double.

LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against remittance. Should a customer, for any reason, wish to return a tyre we pay carriage both directions, and refund cash in full.

LEGOATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh. [X1042

HOLYOAKE'S, 92, Battersea Rise, S.W.—Various 26×2¼ and 2½ heavy re-tread, 17/6; other tyres, tubes, etc.; vulcanising, re-treading. [X1460

LIGA Plain Tread Cover, 26×2½, only ridden 60 miles; will accept 15/-.—Box No. L6,155, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0589

NEW Heavy Peter-Union Covers, 24×2¼ 12/-, 26×2 10/-, 2¼ 15/-, 2½ 17/6, 28×2¼ and 2½ 17/6.—Murray's, 37a, Charles St., Hatton Garden, Holborn. [X1528

QUANTITY New Heavy Red Tubes, best Englieb make, just delivered, 26×2 5/-, 2¼ 5/6, 2½ 6/-, complete with Bolt valve; approval against cash; postage 3d. extra.—Pitts, Fordingbridge. [7830

26×2¼ Heavy 1913 Dunlops, 17/6; 26×2½ T.T. clearance Hutchinsons, 16/-; one 26×2¼ non-skid clearance Kempshall, 35/-; ditto 650×65, 45/-. Belting, ⅞in. 1/-, 1in. 1/3; guaranteed leading British manufacture. Special M.U. insurance agents, get our terms.—Economic Tyre Co., 137, Lewisham High Rd., S.E. [8183

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A selection is given below from the large stock of accessories accumulated during the season, and which we are offering at great reductions to clear. Any article will be sent on approval on receipt of deposit to value. This list contains a selection only. If you don't see what you want, write us, stating requirements.

COILS.—851, non-trembler H.H. twin, cost £1/7/6, to clear 17/6; 852, twin trembler coil, cost £1, to clear 2/-; 853, twin Nilmelior trembler, cost £1/10, to clear £1/1; 854, twin trembler, cost £1/10, to clear 19/3; 855, twin trembler tall front, cost £3/3, to clear £1/10.

HORNS.—951, N.P. car, 4, 4/9; 957, Columbia electric, N.P., 10/6; 958, Garner whistle, N.P., 7/6; 959, Antovox car, flywheel pump, brass, £1/10; 960 and 961, flywheel syrens, N.P., 7/6; 962, brass car, 4/3; 963, M.O. syren, 2/3; 965, whistle, N.P., 1⅛ pipe, 7/6; 972, electric, N.P., 7/6; 2258, M.C. syren, new, 4/3.

LAMPS, Shop-soiled only.—Sets including Lamp, Generator, and Bracket. 2179, Sunrise lamp set, cost £2/2, to clear £1/8/6; 1272 Lucas set, as new, cost £2/10, £2/2; 2331, F.R.S. Standard, cost £2/7/6, £1/17/6.—**Lamps only.** 2335, F.R.S. 800ft. De Luxe, cost £1/9/6, to clear £1/3/3; 2334, F.R.S. 800ft. De Luxe, with back opening, cost £1/14/6, to clear £1/4/6; 2338, F.R.S. Standard, cost £1/5, to clear 19/6; 2399, Goldenlyte, cost £1/10, to clear 19/3; 2303, Solar, side sockets, cost £1/1, to clear 17/6; 2305, Barnes head lamp, cost £1/5, to clear 15/-; 2380 and 2302, Barnes cycle car off-side lamp, white side, red rear light, to clear 15/-; 2322, sidecar gas lamp, mudguard bracket, 9/6; 2313, electric head lamps, adjustable brackets, 4/9 each; 2314, gas head lamp, torpedo shape, 6/9; 2315, C.A.V. head lamp, 19/6; 2301, set three Glad-Eye electric head lamps, 17/3.—**Second-hand.** 170, P. and H., self-contained, to clear 4/3; 176, pair Silverlyte electric car, brass, with brackets, £1/10; 177, brass electric car head, 2/9; 179, cycle candle, N.P., 9d.; 180, Cox-Walker electric M.C. head, 6/6; 184, pair carriage candle and acetylene, £1/5; 185, pair Salsbury gas side, 4/9; 187, brass near side oil lamp, 5/9; 183, black Dietz oil side, pair, 17/6; 188, Dependence 8in. car brass head, £2/2; 202, Voltalite dynamo, M.C. size, 17/6; 2273, H.H. black M.C. electric head, 15/-; 2355, Italian 6in. M.C. head, N.P., £1/7/6; 2356. M.C. N.P. head, adjustable focus, 10/-; 2370, small P.H. head lamp, 7/6; 2177, P. and H. small head lamp, 5/-.

GENERATORS, Second-hand.—152, N.P. generator and bracket, to clear 2/9; 153, F.R.S. generator, 3/9; 159, F.R.S. generator, 2/9; 160, car generator, N.P., 16/-; 161, M.C. generator, 7/6; 162, Solar, 2/6; 165, P. and H. generator, 1/3; 199, F.R.S. grid, 6/9; 200, A.L., N.P., 6/9; 2358, large P. and H., nearly new, 15/-; 2371, P. and H., 5/-.—**Shop-soiled only.** 2176, Miller, to clear 8/-; 2175, Service, 3/-; 2174, F.R.S., 17/6; 2316, grid, F.R.S., 15/3; 2317, drip, F.R.S., 11/9; 2318, Miller, 7/3; 2320, twin drip F.R.S., 6/3; 2323, A.L. immersion type, 12/6.

SPEEDOMETERS.—101, Cowey, complete, graded 10-60 miles per hour, only been 453 miles, cost £4/4, take £1/18/6; 104, Jones, complete, graded 5-60, been 5,920 miles, £1/19/6; 105, Veeder gear-driven trip cyclometer, 7/9; 107, Cowey, complete, graded 5-40, been 4,251 miles, £2/7/6; 2149, Klein, 5-40 miles per hour, in good order, 5/6; special Cowey, £4/4 model, slightly used, as new, £3/12/6.

The new Low Generator and the new Fallot Incandescent Lamp are on demonstration in Showroom. Inspection invited. Immediate delivery.

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TYRES.

BASTGNES.—Special clearance line of brand new Englebert and Collier covers.

BASTONES.—Englebert plain ribbed covere, 26×2¼; 14/-.

BASTGNES.—Englebert rubber studded, solo model, 26×2¼; 16/6 (list price 30/6).

BASTONES.—Englebert tonring rubber studded, 26×2¼; 19/6 (list price £1/17/6).

BASTONES.—Englebert Passenger, rubber studded, 26×2¼; 25/- (list price £2/1).

BASTONES.—Englebert super reinforced rubber studded, 28×3; £1/19/6 (list price £2/19/6.

BASTONES.—Collier heavy square tread small car covers, 650×65; 25/-.

BASTONES.—Henley oversize covers, heavy, 700×80, fit 650×65 rim; 25/6.

BASTGNES.—Midland heavy ribbed and studded, clearance, 26×2¼: 18/6.

BASTONES.—Hutchinson Brooklands rubber non-skid, 26×2, 12/-; ribbed pattern, 26×1¾, 10/6.

BASTONES.—Hutchinson 1913 T.T. rubber studded, 26×2½, to fit 2¼ rims, 24/-; passenger, 26×2½, 25/-.

BASTONES.—Michelin covers and tubes. See previous adverts.

BASTGNES.—Gnaranteed red tubes, 26×2 4/9, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.—228, Pentonville Rd., King's Cross, London, N. [8155

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria (one minute from Victoria Station), and 260, Coldharbour Lane, Brixton, S.W. All post orders to Victoria Depot. 'Phone: Victoria 6553, and Brixton 2042.—We have the following special clearance lines in motor cycle covers, belts, tubes, etc., and are willing to send goods on 7 days' approval against cash. All orders despatched carriage forward unless postage sent.

ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Send for price list, together with free sample of Elite Sticktight patches.

ELITE.—Kempshall clearance covere, heavy non-skid, 26×2¼ 35/-, list price 45/-; 26×2½ 40/-, list price 50/-; 650×65 45/-, list price 67/6; 28×3 69/-, list price 77/6.

ELITE.—Kempshall clearance covers, heavy anti-skid, 26×2¼ 24/6, list price 32/6; 26×2⅜ 26/6, list price 37/6; 28×2½, suitable for Indian, 30/-, list price 42/-; 28×3 35/-, list price 57/6; Kempshall sidecar covers, 28×3 25/-.

ELITE.—Special clearance lines of Wood-Milne covers, 28×3, heavy grip rib pattern, 25/-.

ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 27/-.

ELITE.—Dunlop Pillion covere, 1913 stock, 650×65; 25/-, list price 50/-.

ELITE.—Midland heavy ribbed and studded covers, special clearance line guaranteed for 3,000 miles, 26×2¼ 25/- (list price 37/6), 26×2½ 27/6 (list price 40/-).

ELITE.—Clincher A Won covers, 26×2, B.E., 13/6; Hutchinson Brooklands, 26×2, B.E., 12/-; Michelin Bght, B.E., 26×2, 8/9. Special clearance lines.

ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2½ 28/- (list price 41/3), 26×3 to fit 2½ rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 26×2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

ELITE.—Hutchinson small car covers, 650×75, to suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Clincher heavy rubber studded covers, 26×2¼ 17/6 (list price 34/-).

ELITE.—Dunlop heavy rubber studded covere, 26×2¼ 14/3 (list price 30/-), old 1913 stock.

ELITE.—Clincher 700×80 covers, plain tread 21/6, Clincher tubes, 700×80, 6/6, suit 650×65 rims.

ELITE.—Clincher extra heavy tubes, best quality, 26×2¼ 5/9.

ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26×3 7/6, butted 1/3 extra.

ELITE offer a rebate of 7/6 off new motor cycle covers costing not less than 40/-, providing old covers are returned with order, and 15% off covers listed at less than 40/-. This offer does not apply to clearance lines as mentioned above.

ELITE.—Motor cycle covers re-treaded by special process; treads guaranteed not to come loose; special heavy 15/-, heavy 12/6, medium 10/-; sections on application.

ELITE.—It is impossible for us to advertise all the special lines which we have in stock; therefore, if there is anything you require which is not mentioned in our advertisement, we shall be pleased to quote you upon receipt of a postcard.

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria, and 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phones: Victoria 6553, and Brixton 2042. [9072

TYRES.

MONTHLY Bargains offered by the Redfield Rubber Co., Bristol. Showrooms: Tyre House, Bristol Bridge, Bristol.

WE will willingly forward any of the following goods subject to being unsold on 7 days' approval upon receiving remittance, and return cash in full if not satisfactory. During the whole of last year and up to the present this, we have not had a single return.

12 Only 26in.×2in. Motor Cycle Covers, beaded edge, been used for testing purposes and may have had slight repairs. from 5/- to 10/- each.

50 26×2 Second-hand Tubes, all been tested; 3/6 each, post free.

WE can offer you guaranteed rubber studded covers which have been proved to do 4,000 miles carrying passenger, 26in.×2in. 16/6, 26in.×2¼in. 18/6 each, postage 6d. extra.

15 Brand New Heavy Red Tubes, original price 8/6, 26in.×2in. and 2¼in. 5/9 each, postage 3d. extra.

HEAVY 3-ply Rubber Non-skid Covers, 26in.×2in. 19/6 each, 26in.×2¼in. 21/- each, postage 6d. extra.

WE will re-tread your motor cycle covers, all sizes up to 2½in., during this month with heavy rubber studded tread, together with new insertion, for 10/-, or special tread, suitable for driving wheel, 12/6.

DO You Require a special heavy cover, the best made? Heavy 4-ply fabric, 2¼in., 27/6; 2½in., 32/6 each. —Redfield Rubber Co. Works: Redfield, Bristol. Showrooms: Tyre House, Bristol Bridge, Bristol. Tels.: 2107 and 3577. [X0388

1,000 New Motor Cycle Covers, any size, from 9/- each. Our speciality, bursts, re-treads. Butts fitted in two days.—Premier Tyre Repairing Co. (1914), Newman Passage, Oxford St., W. 'Phone: 47 Museum. [8008

DESPATCH Riders, etc.—Tyre bargain ; excellent line of brand new, 7 days' approval, satisfaction guaranteed; 26×2 13/6, 2¼ 15/-, ditto Dunlop 17/6; heavy tyres, suitable for 5h.p. machines, special value, 26×2 15/6, 2¼ 17/6, 2½ 21/-; Palmer heavy fabric, clearance, 650×65, 21/- each; tubes, heavy red, 26×2 5/6, 2¼ 6/-, 2½ 6/9; butt-ended, 2in. 6/9, 2¼ 7/7, 2½ 8/8; hundreds of others; state your requirements. —Armstrong and Co., 17, Goldhawk Rd., Shepherd's Bush, London. [8173

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J. E. S. LOCKWOOD, Patent Agent, 3, New St., Birmingham. Guide and price book free. [7941

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EXPERT Reports.—Purcells send experts to examine machines: 10/6, plus fares.—78, Charlotte St., Fitzroy Sq., W. (See advertisement.) [3473

FINANCIAL.

HEIRS to Money.—Private gent. is prepared to advance money on reversions, life interests, motor cycles, cars, or would purchase.—Jones, 165, Euston Rd., Morecambe. [7427

SITUATIONS VACANT.

TOOL and Jig Draughtsman, also tool and jig makers, required immediately.—Apply, with full particulars of experience and salary required, to B.T.H. Co., Lower Ford St., Coventry. [X1322

GARAGES.

GARAGE.—We can garage your motor cycle or combination.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., opposite Olympia, London. [8020

TUITION.

£3/3 until proficient and satisfied, including motor car driving instruction; 100 cars in stock.—Palmer's Garage, Tooting. [8108

AGENCIES.

AGENT opening showroom large town West of England requires lightweight agency.—Box L6,297, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8188

WANTED.

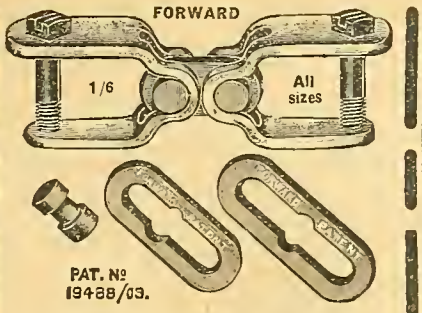
SPARES.—Morgan and Maxwell. Streatham. [X7877

3½h.p. M.M.C. Cylinder Head.—Way, 64, Aldenham St., St. Pancras. [7999

WANTED, cylinder for 1905 3¼h.p. Rex.—43, Ashburton Rd., Liscard, Cheshire. [X1509

100 Motor Cycles wanted; spot cash paid. Bring or send.—Palmer's Garage, Tooting. [8106

MABON Clutch, Druid forks, Rudge T.T. handlebars.—73, Kent House Rd., Beckenham. [7774



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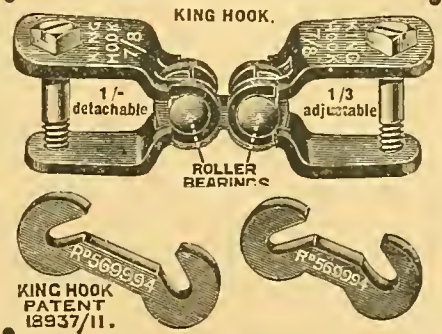

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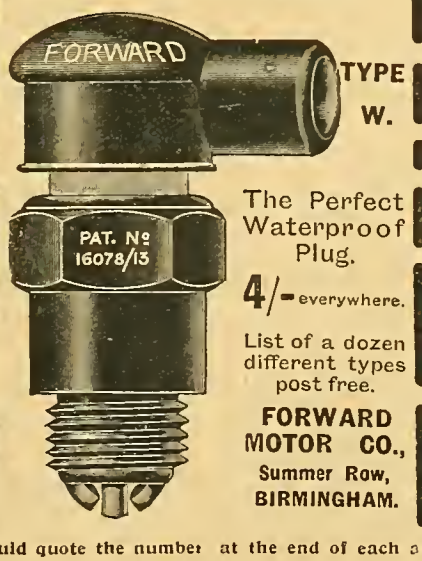

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List of a dozen different types post free.

FORWARD MOTOR CO.,
Summer Row,
BIRMINGHAM.

WANTED.

WANTED, Douglas or typical machine; state lowest price.—G. Nagle, 10, Gibbons Rd., Bedford. [8039

DOUGLAS, 1913-14, in perfect condition, for cash.—T. B. Grice, Kiskin, Bootle, Cumberland. [X0668

WANTED, Philipson pulley, fit 3½h.p. Premier, with control.—Barclay, County Hotel, Perth. (D) [X1433

WANTED, tank, brake, 28×2in. tyre.—Letters, Albert, 17, King St., Mostom, Manchester. [X1459

EAGLES and Co., 275, High St., Acton, will purchase motor cycles and combinations for cash. [X1551

AUTO-WHEEL, any condition; cheap; immediate cash.—N., 11, Raymead Av., Thornton Heath, London. [8041

SIDECAR Required for lightweight cycle.—Box L6,294, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8034

WANTED, powerful twin combination, good working condition; bargain.—Apply, Edgell, Fenington, Bristol. [8049

WANTED, magneto, anti-clockwise, single-cylinder. —Magneto, 11, Ferguson Drive, Strandtown, Belfast. [X1318

WANTED, 1914 motor cycle, good make, 2¾h.p. to 3½h.p. change-speed, for cash.—Kelham, Bourne. [8117

MOTOR Cycles Wanted.—Full particulars, L.C.P., Etesian Motors, 206, Bury New Rd., Manchester. [X1493

WANTED, light coachbuilt sidecar for 1914 Triumph; cheap for cash.—Hooper, Cloveley, Newquay. [8165

WANTED, magneto motor cycles, any good make, for cash.—Box 6,788, *The Motor Cycle* Offices, Coventry. [X1550

WANTED, engine, air-cooled, 8h.p. twin J.A.P., Fafnir, or Peugeot preferred.—W.S., 237, Bethnal Green Rd. [8022

WANTED, good Auto-wheel, in perfect running order, between £5 and £8.—FitzRoy, Park Place, Englefield Green. [7997

MACHINE for Despatch Work at once, in exchange for 1914 6h.p. Cardeo.—Allen Jones, Motorist, Carnarvon. [X1560

WANTED for spot cash, old magneto motor cycles, any condition.—Box 6,790, *The Motor Cycle* Offices, Coventry. [X1591

CASH Waiting.—Wanted, motor cycles and combinations; state lowest price.—Box No. 6,787, *The Motor Cycle* Offices, Coventry. [X1566

WANTED, new 7h.p. 2-speed Indian for 1912¾ Ariel, 3-speed, and cash.—D. McIntyre, Fruitgrower, Esseady, Blairgowrie. [8000

WANTED, second-hand J.E.S. auxiliary motor attachment, cheap.—Particulars, Box 6,777, *The Motor Cycle* Offices, Coventry. [X1321

WANTED, 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories, cheap.—125, London Rd., Manchester. [0560

WANTED, 1913-1914 solo or combination, in part exchange for 1915 models; E.P. if desired.—Lamb's, 151, High St., Walthamstow. [8076

WANTED, cheap for cash, boat-shaped Millford cane basket, red upholstering preferred.—Box 6,785, *The Motor Cycle* Offices, Coventry. [X1519

WANTED, motor cycles, cycle cars, good cash prices. —Wandsworth Motor Exchange, Ebner St., Wandsworth Town Station. 'Phone: Battersea 327. [X6518

WANTED to Purchase, motor bicycles, light cars, or cycle cars for cash down.—Write, Box L6,190, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7584

WANTED, magnetos, carburetters, engines, speedometers, sidecars, motor cycles; cheap, cash.—Grove, 224, Fore St., Upper Edmonton, London. [8134

CASH Buyers or Exchanges for shop-soiled Morgans and G.W.K., Victor, Lagonda, and Calthorpe light cars.—Collier's Motories, Westgate, Halifax. [0446

WANTED, latest 3½ Drummond lathe, complete, perfect condition, also 1914 single magneto, 1914 variable B. and B. carburetter.—9, Tivoli Gardens, Belfast. [8005

1914 Combination; exchange 2¾h.p. New Hudson, Jones treadle sewing machine, cost £9/10, and gent's Raglan push cycle, value £50.—E. F. Gladwin, Felstead, Essex. [X1445

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell, London Motor Salerooms, 80, High Rd., Streatham, London. [X9559

EXCHANGE.

MORGAN and Maxwell, 80, High Rd., Streatham, London, for exchanges. [X1534

10-12h.p. Gladiator Van for motor cycle; sell £25.—53, Brownhill Rd., Catford. [8142

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MYERS Coach-built Sidecars **£17 17**
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1914 4 h.p. 3-speed **TRIUMPH**..	£60 0	**£53 0**
1914 3½ h.p. **LEA-FRANCIS**	£69 6	**£62 0**
1914 3½ h.p. **SCOTT**	£68 5	**£64 0**
1914 2¼ h.p. 2-stroke **TRIUMPH** .	£42 0	**£38 0**
1914 2½ h.p. **N. IMPERIAL-J.A.P.**	£32 11	**£29 0**
1914 2⅜ h.p. **DOUGLAS,** Model U	£48 0	**£43 0**
1914 2¾ h.p. **DOUGLAS,** Model V	£48 0	**£43 0**
1914 2¾ h.p. **DOUGLAS,** Model W	£52 0	**£46 0**
1913 4½ h.p. **JAMES,** 3-sp., chain drive, and James Canoelet Sc.	£76 13	**£60 0**

MYERS (Scott's patent) Sidecar, coachbuilt, complete with wind screen, apron, etc., brand new **£16**
MYERS cane Sidecar, brand new **£11**
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GLORIA No. 1, suit Triumph (soiled) **£8**
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MILLFORD Parcel Carrier (new)..... **£12**

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26 × 2 4-ply Griprib	28/-	**19/6**
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10 h.p. Sizaire, 2-seater, for M.C.; offers over £20.—53, Brownhill Rd., Catford. [8141

EXCHANGE 5h.p. V.S. for good single, Triumph preferred.—91, Melbourne, Eastbourne. [X1464

1912¾ 3½h.p. Singer, sidecar, and cash, for powerful twin.—Proud, Axwell, Blaydon-on-Tyne. [8029

HUMBERETTE or other good cycle car wanted, side-car combination, and cash paid.—Palmer's Garage, Tooting. [8107

EXCHANGE Singer sewing machine (treadle), and Zonophone records for good sidecar.—Crump, Market Drayton. [X1482

1914 D.T.C., F.E., Senspray carburetter; £28; exchange.—Buckmaster, 160, Boundary Rd., Walthamstow. [X1572

EXCHANGE G.N. Cycle Car, sound order, for motor bike, cash adjustment.—Paterson, Percival Parade, Worcester Park. [8038

TRIUMPH, 1913, clutch, T.T., perfect order; exchange with cash for late 5-6h.p. 3-speed; sell £36.—114, Foxhall Rd., Nottingham. [X1510

KEENEST Possible Exchanges quoted against 1914 Rex-Jap, Williamson, and Sun Villiers machines.—Motor Exchauge, Westgate, Halifax. [0445

1914 Rex Sidette, little used; cost £84 July, sell £55, or exchange with cash for modern cycle car.—Judge, Shirley, Cadogan Rd., Surbiton. [8191

5h.p. 4-cyl. F.N., bought 1912, grand machine, but too fast and powerful for owner; exchange for lightweight.—Watson, Ryecroft, Ripley, Derby. [X1480

EXCHANGE 1913 6h.p. Zenith, complete, with £10 worth of spares, for 6 or 8h.p. 3-speed chain drive combination.—33, Frizinghall Rd., Bradford. [X1404

3½h.p. L.M.C., not done 200 miles, 2-speed, Free engine, kick starter, 26×2¼ Dunlops, footboards, for light car.—F.J., 38, Brookville Rd., Fulham. [8145

JULY, 1913, 4h.p. James and Canoelet sidecar, chain drive, 3 speeds, just overhauled, cost £8/10/6, for Henderson or Morgau.—Bon Marche, Chesterfield. [X1411

1914 Water-cooled Humberette, late type, value £90, for 1914 A.J.S. combination, or Douglas and cash.—N., 11, Raymead Av., Thornton Heath, London. [8042

EXCHANGE 1914 Matchless and sidecar, 8h.p., 2-speed, chain drive, sporting turnout, for Morgan, Grand Prix model preferred.—Bell Cottage, Chelmsford. [8132

2-SEATER Argyll Car, 8h.p., single-cyl., just overhauled, new £5 carburetter, tyres first-class; exchange for good motor cycle.—Watson, Ryecroft, Ripley, Derby. [X1479

EXCHANGE 10-12h.p. twin Darracq, 1911, 2-seat., hood, screen, Stepney, speedometer, in good condition, 1914 combination; sell £65.—Rees, Whitehall, Bristol. [X1513

EXCHANGE 1914 3½h.p. Premier and coachbuilt sidecar, 3-speed, kick starter, done about 700 miles, for 2-seater light car.—Browne, 51, High St., C.-on-M., Manchester. [X1394

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EXCHANGE 1912 Royal Enfield 6h.p. Combination, splendid order, £50, for modern lightweight Douglas, 2¾h.p. preferred.—Beebive Cottage, Churchhill St., Smethwick. [X1199

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CYLINDERS, crank cases welded; quotations free.

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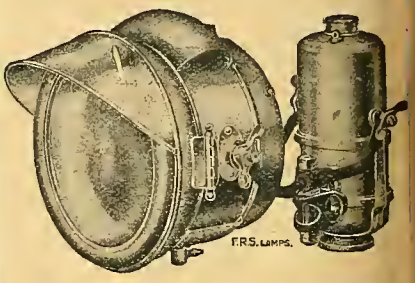

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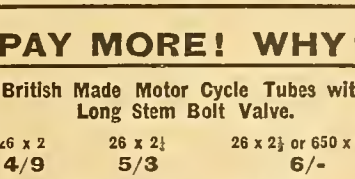

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1912 **DOUGLAS,** absolutely perfect ..... 22 gns.
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A.J.S., 2¾ h.p., 2 speeds; list £49 7s. £45
CLYNO, 2½ h.p., 2-stroke; list £30 ... £25
INDIAN, 7 h.p., free engine; list £59.. £49
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A

WRITE P.C. for 1914 catalogue, 180 pages, 1,000 illustrations; all the latest accessories, lower prices than any other house. The Juno 2-stroke, £26/5, 46/3 month, with 2-speed £33, 58/4 month; the Juno 5-6h.p., for sidecar or tradesman's carrier, £61/15, 106/8 month; Auto-Wheels, £16/16, 30/10 month; flags with number plate clip, 9d.; number plate flag clips, 4d.; fork girders for Auto-Wheels, 5/3 pair; mudguard extensions with stays, 1/-; Auto-Wheel shock absorbers, 7/6; sidecar lamp brackets, 8 patterns, from 1/6; silencers, 3/3 to 25/-; valves from 2/6; accessories to value of £4 supplied on monthly payments; engines, any make, cash or monthly payments; sidecar wheel shields, 1/6; sidecar rear lamps, 3/6, 5/6, 8/9, 10/6, 11/6; wheels, 26×2¼, with Villiers free engine hub, 105/-; leather helmets, 4/3; portable vulcaniser, 15/-; belt rim brakes, 8/-; decompressors, 8 patterns, from 5/-; lathes, £5/10; counter-shaft gears, 105/-; pannier seats, 10/6; kick starters, 14/9; Philipson pulley controls, 15/-; Fitall gears, 105/-; Unito couplers, 21/-; oilskin suits, 11/10; tanks or pulleys made, any size or pattern; handle-bars, 7 patterns, from 5/-; knee grips, 4/-; sidecar bodies from 25/-; sidecar aprons, 6/-; spring shackles, 7/6 set of 4; Maugin mirrors, 5/-; any make of machine or sidecar bought, sold, or supplied on monthly payments; belting and tyres all makes; head lamps, 20 patterns, from 8/6 to 60/-; belt rims, 5/6; side wings, 2/6 pair; Stewart speed indicators, 50/-; Watford, 63/-; Jones, 63/-; post horns, 9/6; sidecar gongs, 6/9; motor cycle houses from 32/6.—M.C. Department., Metropolitan Machinists' Co., Ltd., 248, Bishopsgate, London, E.C. 'Phone: : Central 12857. [6615

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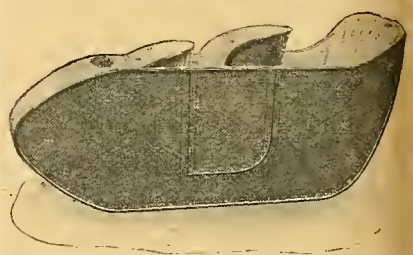

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1909 **N.S.U.,** 4 h.p., 2-speed, and Sidecar £16
All complete with Lamp, Horn, Tools, etc.

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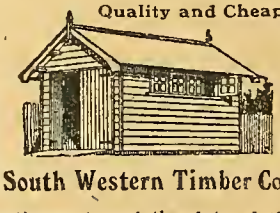

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Telephone: 2848 *City (five lines.)* ADDRESS: 20, TUDOR STREET, LONDON, E.C. *Telegrams:* "*Cyclist, Fleet, London.*"

An index to advertisements will be found on the page facing the back cover.

A Clean Slate.

EVERYONE is by this time pretty well agreed upon the great value of the motor cyclist despatch rider at the front, and it is certainly the case that the work requires very considerable pluck—not to say courage—and most of the men are young. Now, put a young and plucky man upon a motor cycle and in most cases you will have the kind of rider which may be described as dashing, or even rash, and it may be taken for granted that the dashing rider at home will make the best despatch rider at the front. By this we do not mean that reckless riding is desirable, for the opposite is most decidedly the case, but that a man who does not object to taking risks will make the best despatch rider. So many risks come from outside that the wise despatch rider will not add to them by careless riding. This brings us up to our point. Despatch riders being gathered from the class which we have designated as "dashing," there must be many men among them who in some cases deservedly—in others not—have had their licences endorsed. In fact, we know of one who has done much useful work for his country whose licence has been suspended altogether for some little time. We all know that licences are often endorsed for very trivial faults. This does not lie altogether with the magistrates, who have no option but to endorse a licence for offences under the Motor Car Act, but an endorsement is a blot for ever.

We, therefore, think that it would be a gracious act if the Home Office would remove the endorsements from the licences of all those who have served their country in this war. This would be some small recompense for their loyalty and valuable services, and it would be much appreciated by the riders themselves, who, in many cases, would take great care that a further list of endorsements would not accumulate against them. Therefore we say, "Let all endorsements and suspensions be removed, and let despatch riders start again with a clean slate."

Petroil Lubrication.

SIGNS are not wanting that the system of lubrication which has come to be known as "petroil" is going out of favour. This method of mixing the lubricating oil with the petrol is commonly used on two stroke engines; indeed, during the current year, it has been easily the most popular form of lubrication system, but it has its shortcomings, as those who have used two-stroke machines extensively will admit. It would appear that the chief objection to the "petroil" system of lubrication is the messy condition in which it leaves the carburetter, both interior and exterior, petrol pipe, and, in fact, everything with which the mixture comes into contact. In short, the best motor cycle loses that clean and neat appearance characteristic of the modern machine by reason of the petrol carrying the oil with it, depositing itself everywhere, then evaporating and leaving a yellow sticky mess.

But almost the same condition of affairs, it is found, applies to the interior of the engine, for carbon deposits form quickly—quicker even than with a four-stroke—and render the inside of the piston, the piston ring slots, and the ports partly clogged. There is also some difficulty with the mixture after a machine has been standing on a cold day, for should the oil used be only slightly too heavy, it settles on the bottom of the tank and forms one homogeneous lump which can and does cause erratic running for a time. All this is extremely unfortunate, it will be agreed, for the "petroil" lubrication is at once the most simple and foolproof system of lubrication ever evolved. A throttle controlled lubricator is surely ideal and perfectly automatic. It relieves the rider of all lubrication worries. From these considerations alone, it is to be hoped that some discovery may be made that will overcome the objections outlined; the two-stroke is essentially the most simple type of motor cycle in existence, and the simple petroil system of lubrication is entirely in keeping with the design.

The Splitdorf Magneto-cum-dynamo.

I am sure British riders were keenly interested in our exclusive announcement (see issue of August 27th) of the new combined magneto and lighting dynamo, placed upon the market by the leading American firm, the Splitdorf Co. For an electrical ignoramus like myself, the surprise lay in the abandonment of permanent magnets. In a cursory perusal of the illustrated description some of our readers possibly omitted to notice that the horseshoes are not permanently magnetised, but require to be "excited" by current from the accumulator. Prior to starting the engine, the horseshoes are magnetised by a few pushes of the kick starter; the motion thus supplied feeds current from the battery *viâ* a centrifugal governor contact to the armature of the lighting dynamo (*i.e.*, the upper of the two armatures, snugly placed under the arch of the horseshoes). This magnetises the horseshoes, and the engine can then be started in the usual way An electrician's comments on the reasons for this design would interest many of us.

Pros and Cons.

This novel arrangement is obviously far neater than the use of a bulky separate dynamo, driven by a V belt off a gear box pulley, or other similar device. On the other hand, it is clear that if the battery should fail for any cause, the engine as well as the lamp will be thrown out of commission. This possibility may arouse the dour suspicion which is one of our principal national characteristics; but it must not be forgotten that modern batteries are far more reliable than those ancient prototypes which made motor cycling such a chancy business prior to the introduction of the high tension magneto; and, furthermore, that a battery which is constantly being replenished by a dynamo works under far more favourable conditions than one which is first charged off the machine, and then rapidly discharged on the machine. Altogether, one would prophesy that the combined device ought to sweep the field eventually; but that the fear of the dual failure will leave room for separate dynamos to enjoy a market during the next year or two. By the way, will the Kaiser (who is sure to be one of our readers!) kindly inform us *viâ* Marconi House what Herr Bosch has in store for us after the Treaty of Berlin?

An Unusual Trouble.

The other day I was riding a 5-6 h.p. twin when my catalogue of experiences was enlarged—there cannot be many troubles which I have not sustained. One cylinder chipped out suddenly, and against the low under hum of the surviving cylinder I heard some frightful backfires, and saw cones of black smoke shoot out of the carburetter air intake. "Back inlet valve gone!" quoth I, as I dismounted; but to my surprise the back inlet valve was as sound as a bell. I was absolutely at a loss for a second or so, but on revolving the engine I noticed that the back exhaust tappet was motionless, its actuating rocker having presumably snapped without affecting any other detail of the valve gear. What I had taken for the spit of half-explosions past a permanently open inlet valve were the results of collisions between the exhaust gases and the incoming charges, producing combustion in the inlet pipe. As the exhaust valve of the back cylinder was permanently shut, the exploded charge in this cylinder could find no egress till the inlet valve opened, when the pent-up flame of the burnt gases hit the next fresh charge head on, and fired it in the inlet pipe. I had no spares for the valve gear, and was on my way to an urgent appointment.

How I got Home.

A great many years have passed since I last found myself by the roadside with but one cylinder of a twin operative, and my memory on such points was a trifle rusty. I took out the sparking plug and compression tap of the useless cylinder, and tried to start up on the other cylinder, but too much air reached the carburetter through the two naked orifices, and the engine would not start. So I replaced the compression tap, and the engine then started readily on the front cylinder, and pulled well so long as I kept the throttle full open, and the air lever shut, but it choked from excess of air if I moved either lever. On the top gear of 3¾ to 1, the machine easily touched 30 m.p.h. on one cylinder, and on the lower gears it climbed hills up to 1 in 12 quite comfortably.

Where the Motor Cycle should Score.

This calamitous run provided me with an illustration of how motor cycle transit scores in some localities. I had covered forty-one miles when the rocker broke, and I may confess without shame or penitence that the distance occupied me no more than seventy minutes, for it was along broad and unpopulous roads, and heavy rainstorms had driven everybody else indoors. The return journey by train occupied me precisely 4½ hours, which included two changes followed by weary waits.

Crystallisation of Single Forks.

Will some eminent metallurgist give us his authority on the subject of ungirded front forks? Most of the current year lightweights had single-blade forks, and one remembers that in the early days of motor cycling several eminent riders were killed by the fracture of such forks. On the other hand, the primitive forks were rigid, and the modern forks are always eased of the main stresses by means of springs, *e.g.*, in the Druid patent. Can the single blade forks of the modern lightweight be trusted not to crystallise within ten thousand miles? I knew of several rigid single blade forks, dated about 1903 or thereabouts, which crystallised and fractured in less than that distance; but one presumes that the addition of springs should at least double the margin of safety.

GRINDON, Littonslack, Cowdale, and other of the test hills in the memorable A.C.U. Six Days Trials of 1914 seem to have left a lasting impression upon those who took part in the event, consequently one or two enterprising trade representatives at once seized upon a suggestion of ours that they should test their new designs on a few of the more severe hills. The demonstration of hill-climbing ability was to be more in the nature of an exhibition of the advance made in gear construction, seeing that among the small party was one of the 1915 Lea-Francis three-speed machines ridden by Norman Lea, and a four-speed Campion sidecar owned by George Hunt. Others in the party were W. H. Carson on a 5-6 h.p. Excelsior three-speed sidecar—the forerunner of the 1915 model fitted with one of the latest design Druid forks permitting longitudinal and vertical movement, and J. Drew on a 2½ h.p. New Imperial-Jap with Albion three-speed gear.

A Well-appointed Sidecar.

The Peak District is readily accessible from the Midlands, and the arranged meeting point was the Royal Hotel, Derby. We made the journey thither comfortably accommodated in W. H. Carson's Millford sidecar—a more luxuriously sprung vehicle one could hardly imagine. It has a hood and screen, too, besides a Thomson-Bennett foot warmer connected to the exhaust. Norman Lea accompanied us, and he had been working like a brick until the wee sma' hours to get a 3½ h.p. machine finished with the new three-speed gear. It took less than two hours for a non-stop trip of forty-four miles from Coventry to Derby, where we found our photographer and his 8 h.p. Matchless all ready for the fray, but after a wearisome wait the other members of the party had to be left to follow our tracks if possible, as we had arranged beforehand to stay the night at Buxton. So, in company with Carson and Lea, we pushed on to Grindon *via* Asbourne and Ilam, and in looking for the "terror" that stopped quite 80% of the competitors in the Six Days encountered in Wetton a farmer whom we asked for the shortest route, but the farmer with a broad smile said he couldn't send us the shortest way, and told us a roundabout route. Asked why we could not go the shortest route, he said that the road was too terrible. We finally discovered that his fear was the descent of the very hill we had come out to climb. Off we went, and in descending at a crawl with the wheels occasionally locked had time to study the nature of the hill. The top portion of Grindon is merely a grass-grown track, but, as one descends the steepest stretch on a cliff side, the surface is composed of soft gravel and loose stones which afford no grip for tyres in wet weather, and this fact accounted for so many failures in the Trials. On the day of our visit the surface was slightly improved, and only just moist from recent rains.

Successful Ascents of Grindon Hill.

Starting from the bridge, the Excelsior led off with three aboard, and had soon successfully accounted for the climb, the middle gear being brought into operation on the grassy slopes. It was now the turn of the Lea-Francis, and this machine, too, made the ascent look surprisingly easy, so much so that all present were constrained to wonder why it was that there was such an outcry against the inclusion of the hill in the trials. Of course, on narrow lanes such as Grindon baulking is prevalent, and probably the most bitter complaints were due to stranded competitors hindering others during the climb. To return to Norman Lea's ascent, this rider was actually able to use the middle gear between the bends, or, in other words, the lowest gear was used only on the abrupt corners owing to a fast rate of speed being impossible. Thus one realises how the three-speed mount scores over the two-speeder, not only in speed on hills, but also in fuel economy, lack of valve troubles due to slower engine speeds, and general comfort of riding.

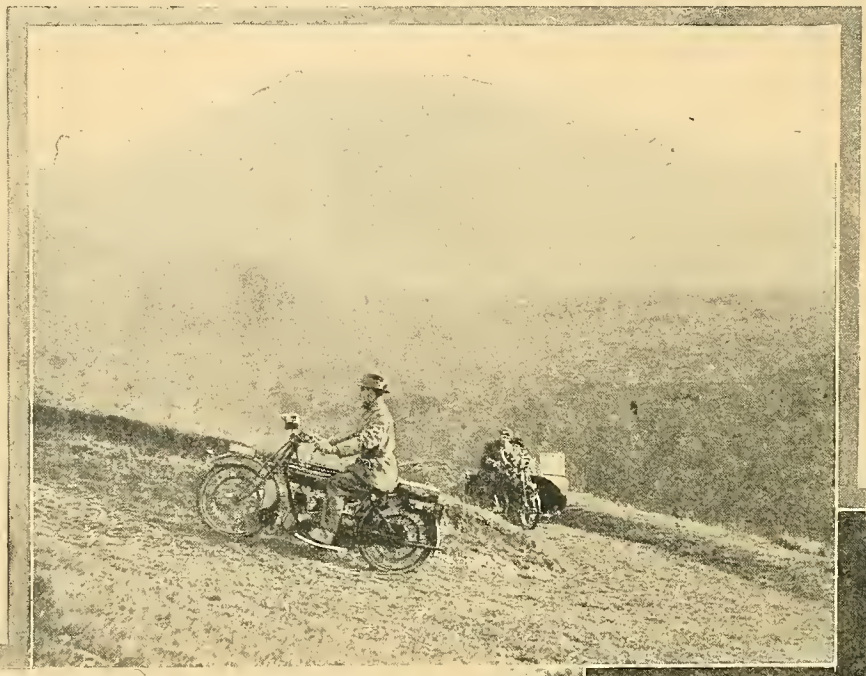
Testing 1915 Models.—

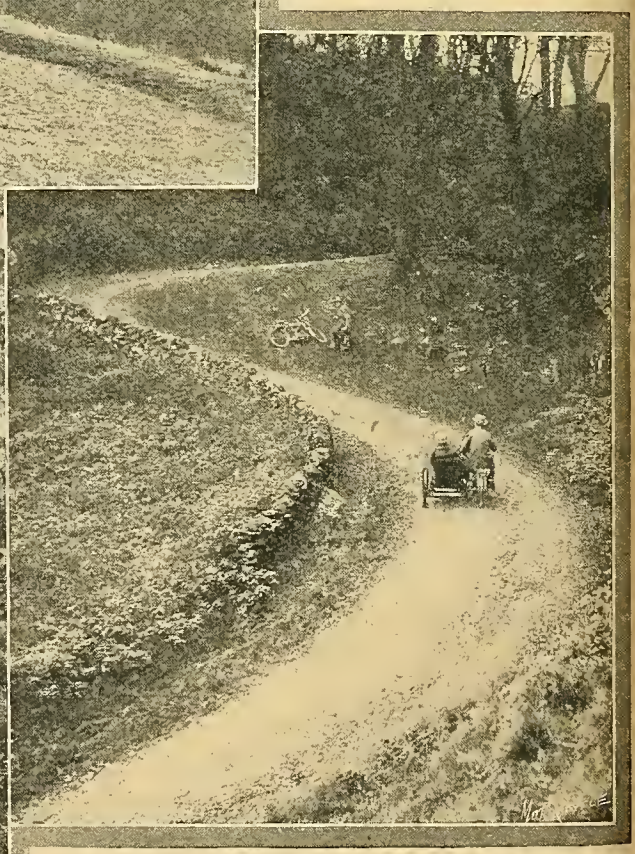
The corresponding ascent from the dale toward Leek is a much easier proposition, and both machines got up on middle gear, except for the corner. We now struck out for the main road to Longnor and Buxton, and among the intricate lanes of this neighbourhood encountered several "knucklesome" stretches. At Longnor we fed the inner man, and trickled into Buxton at lamp lighting time, finding the other members of the party, Hunt and Drew, at the Grove Hotel.

The Terrors of Cowdale Vanquished.

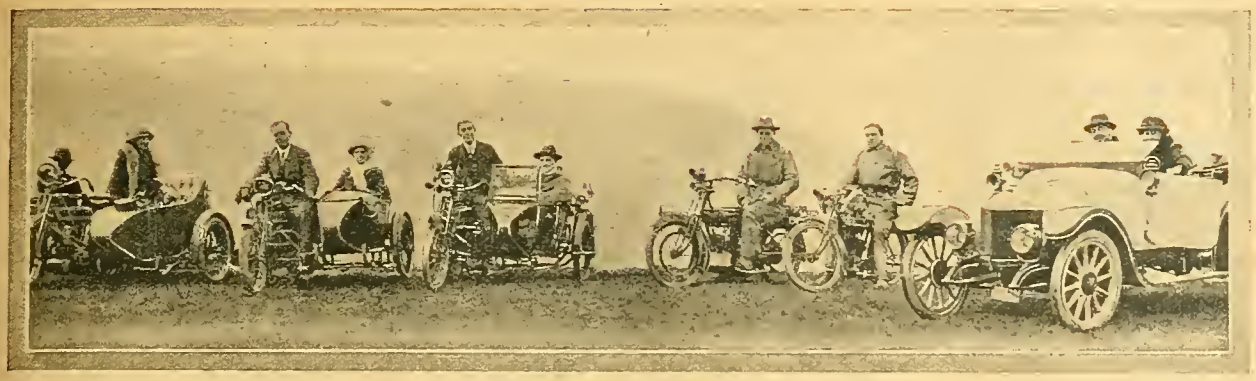
On the morrow we made for Cowdale, a once difficult climb, but, like other noted hills, apparently becoming flatter and flatter on each successive visit. At any rate it troubled none of the four motor cyclists in the party, and before leaving the hill Lea made a successful attempt to climb it on the second gear. To enable this to be done, however, his speed on the corners was faster than anyone except such an expert rider as Lea would care to attempt.

Our next move was along the exceedingly picturesque road to Millers Dale, rendered more beautiful in this instance by the autumn tints on the trees, where the lower road to Litton Mills was followed. Littonslack was in very good condition, with only a little dampness noticeable





(Top) The second bend on Grindon Hill, showing Norman Lea (3½ h.p. three-speed Lea-Francis) and W. H. Carson (Excelsior sidecar)
(Left) Near the top of Grindon
(Right) G. Hunt (8 h.p. Campion with Jardine four-speed gear ascending Cowdale Hill



The hill-climbing party at Monsal Head.

on the grass-covered slopes. This time it was not such a "walk-over" for the party, though the Lea-Francis led off with two ascents in quick succession. Carson followed on his heavy coach-built sidecar outfit with suit cases and petrol tin at the rear, but met his Waterloo fifty yards from the top with the driving wheel churning up a deep trough on the 1 in 4 section. It would, indeed, be a wonder if an Excelsior stopped owing to lack of power. While some of the superfluous weight was being removed the writer tried the L.-F., but came to a standstill near the top owing to a piece of scale choking the jet. This cleared, the ascent was proved to be almost child's play to one mounted on such a machine, though, of course, the stony surface bucketed the machine about. George Hunt followed on his four-speed Campion, but he suffered the same fate as Carson. Twice, however, he managed to restart on the clutch what time two strong men held the machine from running backwards, and thus made the ascent in stages. Descending Litton is really exciting work, for even locking the wheels does not prevent the machine slithering down the precipitous gradient. There is a stone wall at the foot waiting the rider who allows his machine to get out of hand.

A Lightweight Rider's Success.

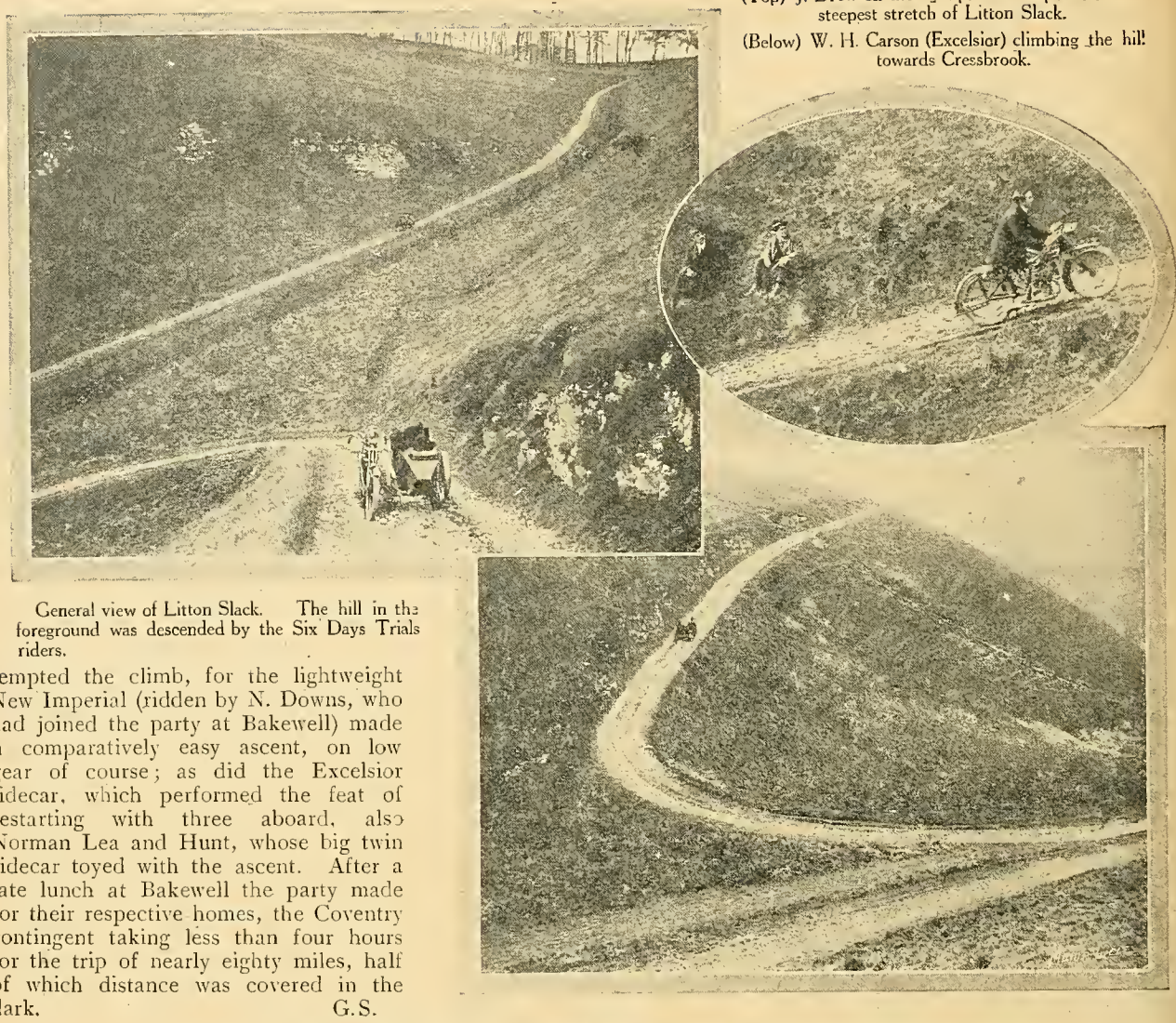
Drew made a very plucky attempt to get up on the little New Imperial, and although success was not his at the first try, he finally got over the top very comfortably, which shows the wonderful capabilities of the modern lightweight. Carson now came along again, and at the first sign of wheel-slip his passenger clambered on to the carrier, and in this wise the big single Excelsior added to its laurels as a hill-climber. Not satisfied, however, he made another clean ascent. Meanwhile Lea gave a remarkable exhibition of clutch manipulation by twice restarting from a standstill on the steepest portion, said to be 1 in 3·3.

The pluck of George Hunt was rewarded, for after tightening up the clutch he made a good ascent on his four-speed mount and could have gone on climbing all day had not his machine been equipped with an all rubber driving tyre. Among the spectators was Mr. Watchorn, works manager of the Jardine Co., who felt sure that a hill he knew at Congreave, near Haddon Hall, was steeper than Litton, so to satisfy the party that nothing was too much for them a move was made for the village named, the hill at Monsal Dale being ascended on the way. Congreave Hill, though steep, slippery, and winding, was no match for the machines, the two soloists continuing up a quarry road with boulders projecting which ninety-nine out of a hundred persons would unhesitatingly deem unrideable. Yokels interested in the performance pointed out still another hill on the opposite bank known as Picture Hill, but their opinions of its severity were not upheld when the party at-

The 8 h.p. Campion driven by George Hunt coming over the crest of Picture Hill.

(Top) J. Drew on the 2½ h.p. New Imperial on the steepest stretch of Litton Slack.

(Below) W. H. Carson (Excelsior) climbing the hill towards Cressbrook.



General view of Litton Slack. The hill in the foreground was descended by the Six Days Trials riders.

tempted the climb, for the lightweight New Imperial (ridden by N. Downs, who had joined the party at Bakewell) made a comparatively easy ascent, on low gear of course; as did the Excelsior sidecar, which performed the feat of restarting with three aboard, also Norman Lea and Hunt, whose big twin sidecar toyed with the ascent. After a late lunch at Bakewell the party made for their respective homes, the Coventry contingent taking less than four hours for the trip of nearly eighty miles, half of which distance was covered in the dark. G.S.

Aero Engines and the Motor Cycle.

AT first sight there does not seem to be any very great similarity between a six-cylinder water-cooled aero engine and a motor cycle engine, and yet the success of the Green Engine Co., Ltd., in carrying off the Government £5,000 prize for the engine with "the greatest percentage of attributes desirable in an aeroplane engine" tempts us to point out some interesting features which the Green motor cycle engine shares in common with its larger brother. We are accustomed to connect the Green motor cycle engine with pannier honeycomb radiators, though a model described in our issue of August 20th, page 248, is constructed with cylinders almost identical with those of the aero engine except in size. In each case the cylinder casting is surrounded by a copper jacket fixed at the top to valve case extensions, and making a watertight joint at the base by means of a square section rubber ring.

The overhead valves are carried in separate cast iron boxes, and may be removed complete by swinging back the operating gear and undoing a single locking nut. The valve heads lie partly in recesses in the cylinder head, and as the guide is extended very far down over an increased diameter of stem, it is to all intents and purposes impossible for a valve to fall into the cylinder in case of breakage; for, unless the stem were to break off close up to the head, where the strength in this design is greatest, the combination of the long guide and cylinder recess would still hold the fractured parts.

The 100 h.p. Green aero engine, which has just added this fresh success to the already long list, is a six-cylinder engine of 140×152 mm. bore and stroke, with the cylinders set in line and slightly *désaxé* to the crankshaft. The valves are operated by an overhead camshaft, and are very accessible. Forced lubrication is employed throughout, and a large bearing lies between each crank throw. Unlike the motor cycle engine, the aero engine has been designed to pull its maximum power at low speeds, as a propeller seldom revolves at 1,100 revs. In spite of its size the engine weighs only 442 lb. Would that our motor cycle engines weighed as little in proportion! The absence of flywheel in aero engines is, of course, responsible for a large part of the difference.

WANTED: EXPERIENCED MOTOR CYCLISTS.

The A.C.U. (Liverpool Centre) wants twenty-eight experienced motor cyclists with or without machines. Ages 19 to 30. Period three years, or duration of the war. The men will be promoted to corporals the day after enlistment. Pay as corporals, 2s. 6d. *per diem*, to which, after training, engineer's extra pay of 6d. a day will be added. Riders must apply personally to Mr. S. W. Phillpott, 60, Lime Street, Liverpool, bringing machines on which their riding abilities can be tested.

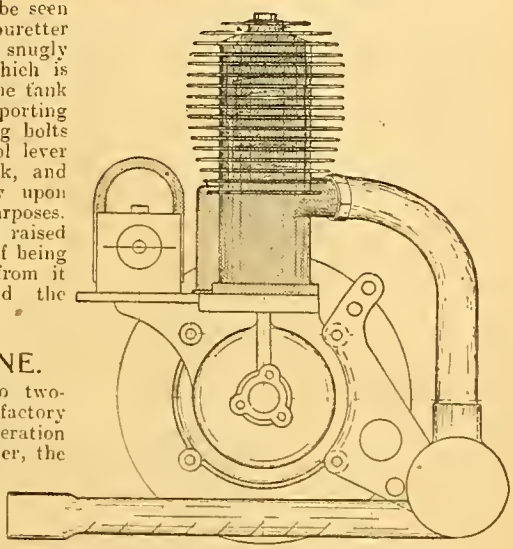
LATEST DESIGNS.

Advance Descriptions and Illustrations of 1915 Model Motor Cycles and Accessories.

NEW 5 h.p. QUADRANT.

THE most notable alteration to the new design Quadrant is the fitting of the B.S.A. counter-shaft three-speed gear combined with kick starter. This gear is controlled by a lever, which is attached to the bottom tube on the right-hand side of the tank, and the clutch is operated by the right foot. The drive is by means of an enclosed chain from the engine to the counter-shaft, thence by belt over a large pulley on the left, while on the right is a dummy belt rim in the V of which works the rear brake. All-chain transmission may be obtained to order. The frame has been lengthened to accommodate the gear, the Quadrant spring forks are retained, and the rear stays and forks made detachable. The engine is rated at 5 h.p., and external cams are used, a separate timing wheel being used for the operation of each valve. The inlet valve timing wheel drives direct on to the magneto wheel.

An excellent point is the provision of a split rear spindle to enable easy withdrawal of the back wheel so that a tube may be readily replaced. As will be seen in the illustration a Senspray carburetter is fitted, and the magneto is very snugly housed behind the crank case, which is most distinctive in appearance. The tank is supplied with special liners supporting it on all sides, to which the fixing bolts are attached. The magneto control lever is placed on the left of the tank, and the makers have decided to rely upon the hand pump for lubrication purposes. The footboards are of aluminium, raised in front. The inlet valve, instead of being beside the exhaust, is separated from it by about 90°, and lies behind the cylinder.



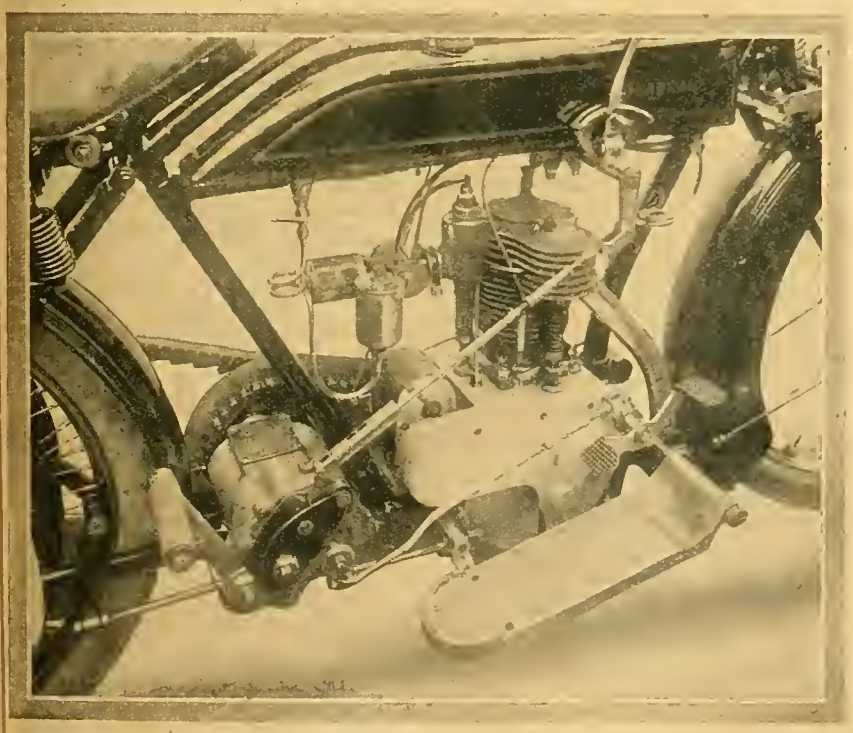
Latest design 2¼ h.p. Peco engine of 210 c.c.

A NEW PECO ENGINE.

AS the present 2¾ h.p. Peco two-stroke has proved so satisfactory there is no reason for alteration for the 1915 season. However, the large demand for a somewhat smaller power plant has induced the firm to construct an engine of 62×69½ mm. bore and stroke, which is rated at 2¼ h.p., and has a cubic capacity of 210 c.c.

Almost every feature of the larger engine is reproduced in the new type. To begin with, an improved type of Hoffmann roller big end is used which is considerably narrower over all, in spite of the fact that the roller surface remains as before. This permits of a narrower crank case and consequently higher crank case compression, so that it has been found that the double or false top to the piston, which is so noticeable a feature of the larger engine, can be dispensed with. The small engine also has a plain piston trunk with two pegged rings at the top, and plain mainshaft bearings are employed instead of rollers. The patented lubrication system is, of course, retained, the oil being led to a ring surrounding the cylinder and passing through holes to the piston, then the surplus is caught by a well below the base of the piston and conducted by separate leads to each main crankshaft bearing. The new engine is neat and light, and can be supplied for either belt or chain drive; in the latter case a dished flywheel can be fitted which allows the sprocket to be mounted on the outside instead of between the engine and flywheel; consequently chain guarding is rendered a much simpler problem, and the chain is more accessible.

Plain piston of the new 2¼ h.p. Peco.



Power unit and three-speed gear box of the new 5 h.p. Quadrant.

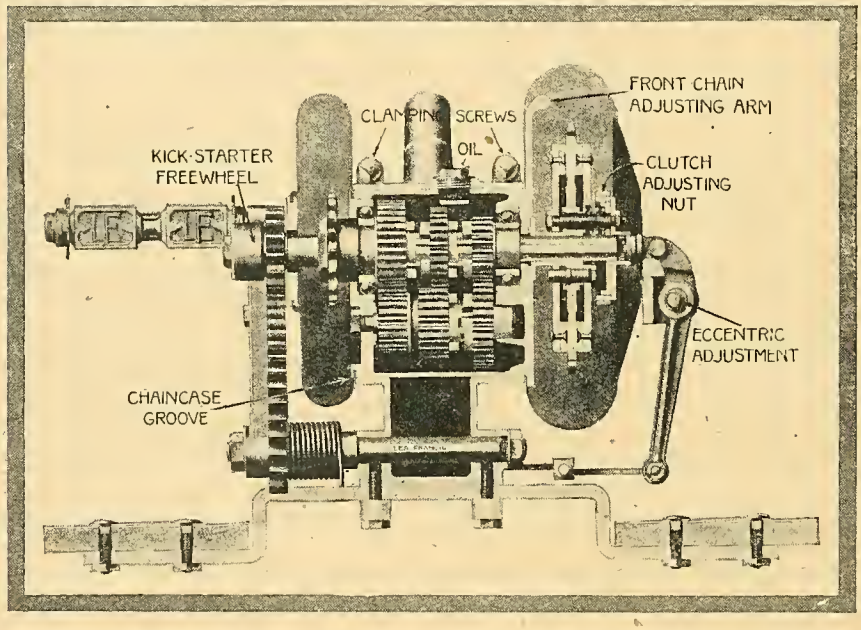
A Lea-Francis Three-speed Gear.

NEW FITTING FOR 1915, INCORPORATED IN ORIGINAL GEAR BOX.

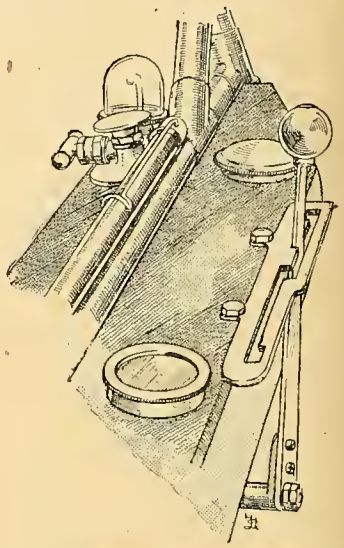
THE 1915 model of the Lea-Francis will be equipped with a three-speed gear. Ever since their first public appearance the Lea-Francis machines have attracted a large amount of attention, not only on account of their fine performances in reliability trials, but also because of their excellence in general design, and particularly detail work. Up to date, the modifications which have been carried out have been comparatively unimportant, but we are now able to describe and illustrate the latest type of gear giving three ratios, which will be a standard fitting in the near future. The gear has been thoroughly tested on the road, and has been proved to be perfectly satisfactory after prolonged trials, so that it is not by any means a new device to rods. These rods are held in position by a plate fixed to the stationary bracket, and formed with a groove for each control rod. In this manner the horizontal movement of the cam plates transmits vertical motion only to the control rods, as can be seen from the appended sketch. The whole selector mechanism is well out of the way of grit and mud, and is as fool-proof as possible.

Gears Always in Mesh.

There are three sets of dog clutches in the gear box—two on the main shaft and one on the layshaft, and the gears are always in mesh. Thus every change is made by means of dog clutches, and, consequently, a very much finer pitch can be used. In point of fact, 16 pitch teeth

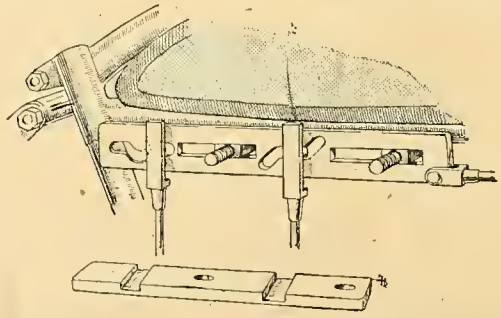


Sectional drawing of the three-speed Lea-Francis gear to be fitted to all future models.



The quadrant and striking gear.

he tried at the expense of the public. Outwardly, the appearance is but little altered, for the new gear is contained in the same shell as before, and is mounted in the same type of bottom bracket lug. The control is, of course, somewhat different, and though the lever and quadrant are on the usual L.F. lines, with an extra notch for the additional ratio, the selecting mechanism is somewhat unusual. Attached to the lower tank tube close to the seat post is a fixed bracket with two extension pieces, which pass through a sliding cam plate, the movement of which is controlled by the change speed lever. The plate slides in a staight line, horizontally only, and is formed with two specially shaped cam slots, into each of which a roller projects from the two vertical striking



Cam selector plate of the new three-speed Lea-Francis.

are employed throughout, which renders the drive very quiet.

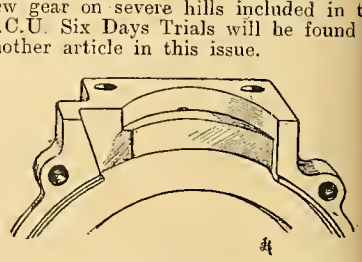
The main driving shaft is splined, and extends right through the box, driving only the centre wheel. When this central wheel is moved to the left (away from the clutch) top gear is engaged, and a similar movement to the right brings the low ratio into action. Middle is obtained by centralising the main shaft dogs and engaging the pair on the layshaft. The layshaft is a steel pin fixed in the gear box on which the driven wheels revolve, carrying with them two phosphor bronze bushes.

Besides the alterations to the gear, the clutch has been modified, with beneficial results. In the latest type the sprocket member is gripped between two material faced plates, and it is found that the new clutch will stand indefinite slipping, and yet grip firmly when home.

We have tried this gear on the road, and it behaved just as one would expect any L.F. production to do. It changed easily up or down, the gears were silent, and the speed and general comfort of the machine on the high gear were most pronounced.

Engine vibration on the top gear of 4.75 to 1 is practically non-existent. Quite a good speed can be attained on the middle gear of 6.9 to 1, whilst the 12.3 to 1 low gear ensures an ascent of any rideable hill, and, moreover, renders the 1915 L.F. a very attractive proposition for sidecar work.

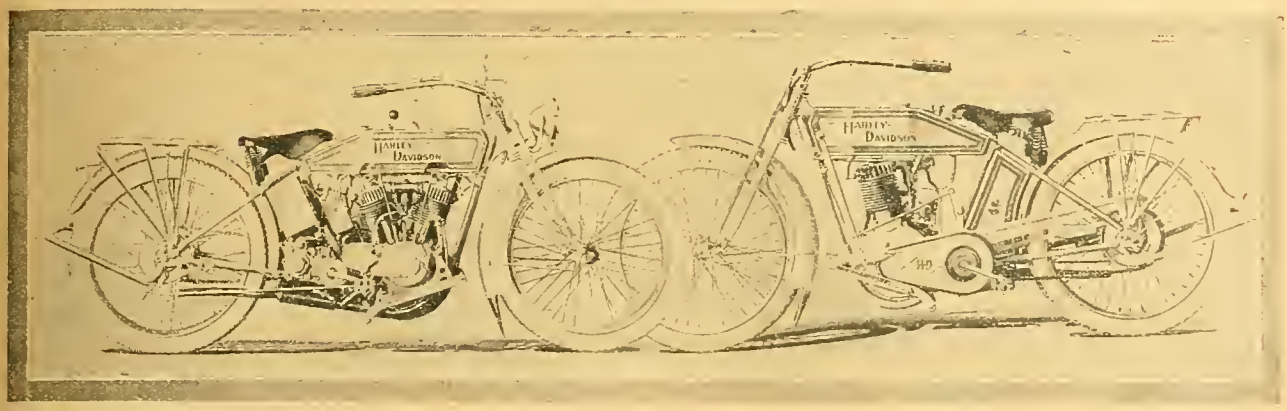
An account of the performance of this new gear on severe hills included in the A.C.U. Six Days Trials will be found in another article in this issue.



Top half of crank case of the 2¾ h.p. Peco, showing the formation of the oil well and transfer pipe lead. (See description on previous page).

New Harley-Davidson Models.

Three-speed Countershaft Gear. Chain Drive. Mechanical Lubrication.



The new 11 h.p. twin-cylinder three-speed Harley-Davidson with Remy system of electric lighting and ignition.

The 1915 model 6 h.p. single-cylinder Harley-Davidson

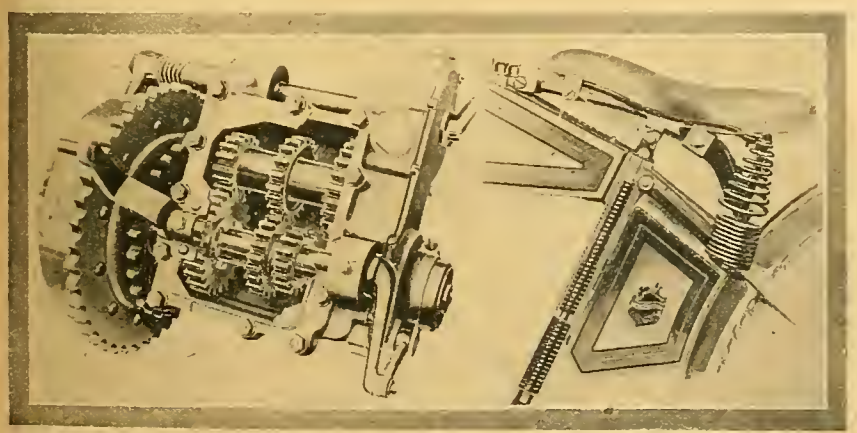
ONE of the finest American productions in the motor cycle line, and one which has already made its appearance in this country, is the Harley-Davidson. Two models of engine are made, a twin of 989 c.c., rated at 11 h.p., and a single of 567 c.c., rated at 6 h.p. These engines are fitted to machines having single gears, two-speed hubs, or three-speed countershaft gears, but the twin three-speed model may be taken as an example which includes nearly all the firm's specialities.

The motor is of the V type, having a bore and stroke of 84.1 × 88.9 mm. respectively. The inlet valve is placed over the exhaust, and the exhaust valve springs are neatly enclosed in tubular sleeves. The valve chests and ports have been re-designed for the 1915 models, and, in conjunction with other improvements, the power of the engine has been considerably increased; in fact, we are told that the standard engines pull well over 16 h.p. The magneto is placed behind the engine and driven by a train of gears, one wheel of this train being utilised to drive an oil distribution pump, which is cleverly arranged, and, though of the plunger type, has no ball valves.

The unit is carried in a strongly reinforced loop frame, a type common in the States, and has stout spring forks with enclosed springs. Twist grip controls are fitted, and the large saddle is mounted on the Harley-Davidson "Ful-Floteing" or spring saddle pin. Besides this a substantial luggage carrier is supplied, a refinement by no means universal on American machines. The three-speed gear is a fine piece of work. It has one sliding member only, but unlike most British gears only one pair of dogs is used, the middle and low gears both being engaged by sliding pinions. The clutch is of the dry plate type, and chain drive is employed throughout. With the gear is incorporated a kick starter, which automatically comes out of gear in case of a back fire. Incidentally, the gears cannot be moved without declutching. The latest type of machine embodies an electric lighting outfit. The Remy system of combined magneto and generator is used, and has many advantages, such, for instance, as the facts that the engine may be started and lamps lit, even if the accumulator be discharged. The head lamp has two bulbs, one for traffic driving, and one, more powerful, for country work, and a very simple switch is employed.

A very large and powerful expanding brake is a feature of this machine, while the foot-boards are both neat and comfortable. Messrs. Harley-Davidson tell us that they make a close study of British machines, and are constant readers of *The Motor Cycle*.

Oil pump which, it is claimed, will positively feed oil against a pressure of 70 lb., although crank case pressure never exceeds 4 lb.



(Left) The Harley-Davidson gear box partially cut away to show the three-speed gears.
(Right) The spring seat-pillar.

ROYAL RUBYS IN 1915.

The 1915 model Royal Ruby lightweight will be similar in specification to the 1914 model excepting that it will be fitted with separate lubrication and magneto control from lever on tank and Mosceley's motor-cyclette 26 × 2in. B.E. rubber studded tyres, also new pattern footrests. A lady's model lightweight with open frame is to be marketed in 1915.

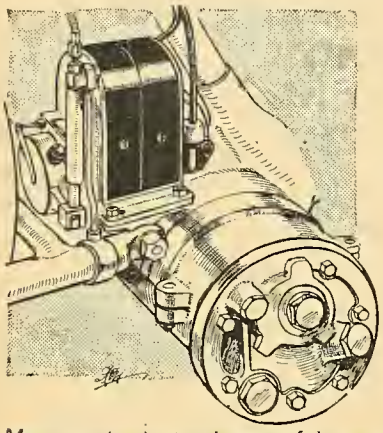
TWO-STROKE RADCOS.

The Radco Company have decided upon a number of alterations to their ladies' two-stroke motor bicycle which should render the machine a very practical mount by reason of its light weight and flexible engine. On the 1914 model the frame was not sufficiently "open" to suit ladies' ideals, but this matter is receiving special attention on the new model, and a registered design of dress-guard has been standardised.

The 1915 Matchless Racing Model.

M.A.G. Engine—Three-speed Counter-shaft Gear—Chain Drive Throughout.

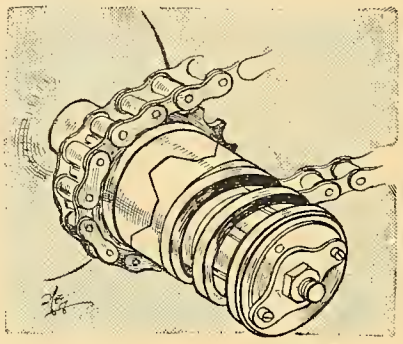
THERE are no men in the motor cycle business who have had greater experience in the use and construction of racing motor cycles than Messrs. H. A. and C. R. Collier. From the very earliest days of the movement we used to watch with interest the wonderful performances of these intrepid riders on Canning Town track, which was only banked for 40 m.p.h., but even in those early days they used easily to exceed the limit of speed on carefully built and well tuned 2¾ h.p.



Magneto on bracket forming part of the gear box casting, showing slotted holes.

racing machines. It is not surprising, therefore, to note that the 1915 3½ h.p. Matchless racer is a beautiful piece of design, capable of obtaining the highest possible speeds, and of standing up under the most strenuous tests. The machine we are about to describe was primarily built for the 1915 Tourist Trophy.

The 3½ h.p. engine, 496 c.c., 64 mm. × 77 mm., remains practically unaltered; it is an exquisite piece of work and beautifully finished. The most important improvements on the machine are the introduction of chain transmission and the fitting of a three-speed counter-shaft gear



New shock absorber.

box, which contains gears of the sliding type.

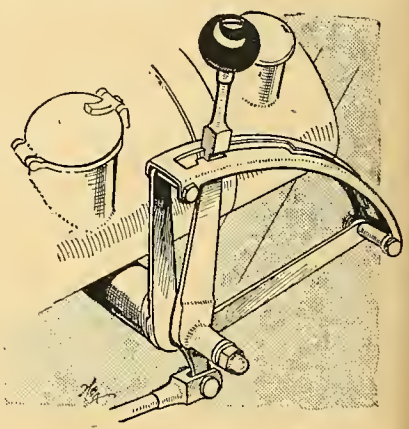
The magneto bracket forms part of the gear box casting, and the bolts holding the magneto on to the bracket pass through slotted holes so that in the event of it being necessary to take down the engine the magneto can be slid backwards, the tailshaft dropped out, and the engine removed without further disturbing the magneto. The magneto itself is in an ideal position, and is well out of the way of mud and wet.

The Transmission.

Reverting to the gear box, it is interesting to note that if the end plate be removed the gear ratios may be changed by removing the layshaft and loose pinion and replacing them, and arrangements have been made to supply three separate sets of gear ratios, which are as follow: 3½, 4½, and 5½ to 1, and two sets in which the third and second speeds remain the same, but in which the low speeds are 6¼ and 7½ to 1 respectively.

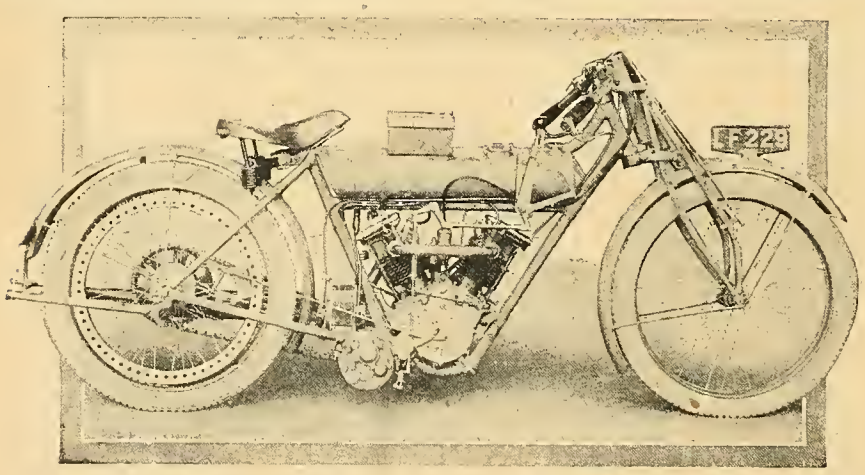
As regards the chain transmission, an ingenious and effective form of shock absorber is fitted to the engine-shaft. The nature of this may be clearly seen from the accompanying sketch. It will be obvious that the sprocket is engaged with the extension of the engine-shaft by means of inclined planes which slide on a feather solidly attached to the shaft. These planes are kept in engagement by means of a strong spring, but on the engine accelerating there is a tendency for the sprocket to force the sleeve on which the inclined planes are cut backwards and so give just the right amount of slip to absorb all sudden stresses on the chains. The bolt at the end of the mechanism acts as a grease cup, and if grease be injected it lubricates the device adequately for a season's running. A further shock absorber is fitted to the back sprocket which takes the form of a rubber cushioned drive, with the result that the transmission in the racing Matchless should be as elastic as if a belt were fitted.

The general view of the machine shows the well designed silencer and the easy sweep of the exhaust pipes, which tend



Change-speed gate on the racing Matchless.

to conduct away the gases with the minimum amount of back pressure. The whole machine is finished in khaki, a serviceable and businesslike colour, even to the back hub. The gear box, we may mention, is practically the same as that fitted to the sidecar combination with the exception that no kick starter is provided. When the time comes to put the racing Matchless to the test we do not hesitate to say that we think it will give an excellent account of itself.



The 1915 racing Matchless, which has a three-speed counter-shaft gear.

TO COMPLY WITH THE NEW REGULATIONS.

One advantage of the new Low generator, to which attention has not been previously called, is that it will allow the flame at the burner to be turned down. This is a most important point, now that the lighting of even motor cycles has to be reduced before they are allowed to enter the Metropolis. As the gas is quite pure, there is no fear of carbonisation with a reduced flame. Last week we heard of cases in which the police actually whitewashed the lamp glasses of motor cycle head lights before their owners were allowed to proceed into town.

MOTOR CYCLING ON GIBRALTAR ROCK.

WE publish below a letter received from Private G. T. Gray, who is well known to our readers as a leading competitor in the different trials, and a regular Scottish Trials participant. Gray is now stationed at Gibraltar with the "C" Company of the 7th Middlesex Regiment. *The Motor Cycle* regularly finds its way out to Gibraltar, even in war time, for Gray writes:

"I have read with interest the experiences of several of my fellow competitors on active service, and thought it might interest you to hear what another of us is doing.

"I joined the 7th Middlesex (Territorials) on August 24th, and proceeded to Sittingbourne on my Rudge. After ten days we sailed on a troopship for the Rock, and arrived after five days' exceptionally smooth passage. I expect the general impression is that a motor cycle in Gibraltar would not be of much use, but such is not the case. There are about ten miles of quite decent roads—hilly, of course, but well graded—and as I am the only motor cyclist in the regiment I am kept busy. The work is not exciting, but this great rock is full of interest, and my work despatch carrying has enabled me to see more of it in a few weeks than would have been possible without the machine. My usual round is to the various companies located at different points, and the distances are, of course, short, the rock being only three miles long and threequarters of a mile wide. It is, therefore, a case of being at my destination almost as soon as I am in the saddle, so that riding consists chiefly in stopping and starting, and it is very necessary to have a machine which is always ready to start at the first push. In this and in every other way my T.T. Rudge is proving a good friend, and never seems any the worse for the awful knocking about it is getting and the many thousands of miles of competition work it went through this season. I am enclosing a photograph, which will show you the light drill uniform and sun helmet being used here."

Private G. T. Gray (Rudge Multi), who is stationed at Gibraltar.

AN AMBULANCE COLUMN.

The Special Ambulance Column, comprising thirty to forty motor cars, and which has been presented to the British Government by Mr. Arthur du Cros, M.P., is now on its way to the fighting line, and is accompanied by ten Ariel counter-shaft three-speed motor bicycles which have been specially completed for this work. The column is under the command of Captain George du Cros and Lieutenant Willie du Cros.

LETTERS FROM DESPATCH RIDERS.

The following are some extracts from letters received from well-known riders at the Front, the first two being addressed to Mr. Victor Holroyd, who kindly sent them on to us:

From S. A. ROWLANDSON, 69 Company, Mechanical Transport, A.S.C.:

"I went to Le Mans on Sunday last, and whilst there collected the two Rudges—a Multi and a fixed gear model—which Pullin and I left for the Grand Prix on July 25th. Up to now Noble and I have ridden these. They are both going well, and will be extremely useful. The captain is glad to get hold of motor cycles, and there is some talk of making me a motor cyclist scout, but it is not yet fixed.

"In 69 Company we now have two Rudges, two Douglases, and six Triumphs. I have met Frank Begley and one or two other despatch riders lately. We get no real news of what actually takes place at the Front."

From VERNON TAYLOR, driver of a Red Cross van:

"I have got a big Talbot van attached to the Red Cross, at present at Chateau d'Annel, a fine old fourteenth century place belonging to an American multi-millionaire called D——, who has turned ball room, music room, and study into a hospital of eighty beds. It is a lovely old place of about sixty bedrooms, and stands in a park of 1,000 acres. Germans have been here (we all scooted, of course,

Panoramic view of Gibraltar Rock from the harbour.

Military Motor Cycling Notes—

about half an hour before), but didn't do any damage on account of American flag. They only took about 1,000 bottles of fizz; all the other stuff, silver plate and china, we have buried in the park. There are six of us with cars, a whole battalion of nurses, supers, etc. D—— is a topping chap and treats us like lords. I have gone some trips to Bordeaux, Nantes, Angiers, Le Mans (an old circuit), any amount of runs to all parts of coast, and generally get into Paris about twice a week. The firing line is about four or five miles from here, and the din is awful from the guns. There was a big battle last night, and we got about twenty in to-day and are pretty full; it is awful to see them coming in, some half blown to bits. A Zeppelin came over two days ago, and every day we see German 'planes."

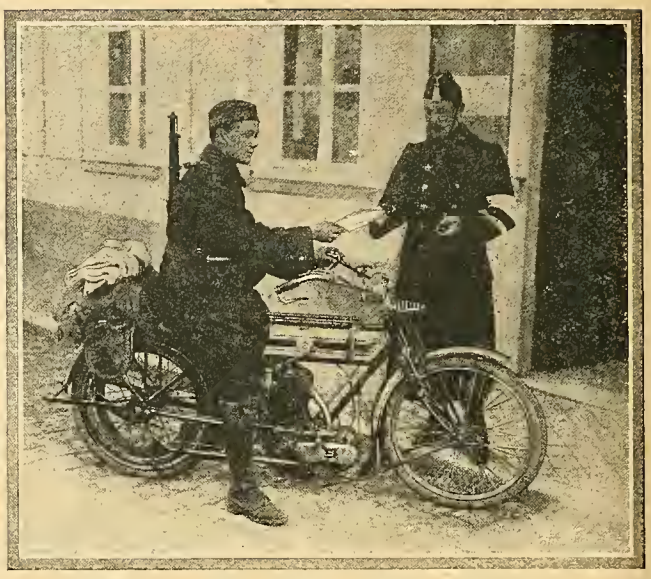
From Corporal A. J. Sproston, Second Signal Company, Second Division Royal Engineers Expeditionary Force:

"The motor cycle has come into its own and has proved invaluable, doing good work under severest conditions. The weather is ideal for the job. We had a very trying time going up country and then back again, but we are doing all right, and for some time have been giving it to them hot; they do not get much peace from us now. The A.C.U. Six Days Trials conditions prepared some of us for awful conditions; muddy and bad roads, dropping into shell holes, and getting over pontoon bridges, etc. We have to thank the trials for the improvement in the machines, that are now able to do the work.

"I started off with a Rudge, and now have a Douglas—both good. You no doubt look anxiously for news of the great battle (Aisne). I am up in the front and I think we are doing well and have everything in our favour. The French are doing well also. I hear there will be no Shows this year; I was looking forward to these. We have been very lucky and have had many narrow shaves, of course; one or two motor cyclists have been killed and a few injured. We have tons of supplies and plenty of motor lorries."

[In another part of this issue another reference is made to this gallant rider. It is hardly surprising that the man who finished the T.T. with a broken ankle should be mentioned in despatches. It may be remembered that the late Prince Francis of Teck specially congratulated him on his extraordinary pluck on the occasion of the A.C.U. dinner after the event.]

Corporal A. J. Sproston, who has been mentioned in despatches He is seen handing a despatch to a French cuirassier.



IN THE FIGHTING LINE.

A Belgian despatch rider handing in despatches at ———. It will be observed that the machine is a three-speed Triumph.

One of the conditions of the Russian Government order was the provision of a handbook, printed in Russian, giving instructions in the care and handling of the motor cycle ordered. We have received from the Rover Co., Ltd., of Coventry, a copy of its handbook, and, judging by the clearness of the illustrations only, no difficulty should be experienced in the handling of the 350 Rovers sent out for the Russian Army.

We have also received a specimen copy of the Enfield booklet, describing in detail the working and adjustment of the 6 h.p. twin-cylinder model Enfield, which should be of great service to the Russian Army motor cyclists.

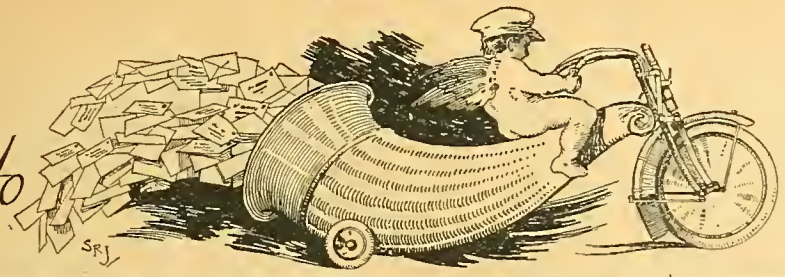
LONDON MOTOR CYCLIST RESERVE COMMITTEE.

We are informed that the headquarters of the London Motor Cyclist Reserve Committee has been transferred from Fulham House, Putney, where the work was carried out under the direction of Lieut. H. B. C. Pollard, 25th Middlesex (County of London Regiment), to the offices of the A.C.U. Therefore, all motor cyclists in the London district who are desirous of enlisting in the Royal Engineers Special Motor Cyclist Reserve, which will probably entail active service, or those desirous of enlisting for Home service, should apply in person to Mr. H. P. Beasley, Inspecting Officer, London Motor Cyclist Reserve Committee, c/o The Auto Cycle Union, 83, Pall Mall, London, S.W.

Only motor cyclists of considerable experience, and able to do their own running roadside repairs, will be accepted, and those able to speak French will be given the preference. It is not essential that a suitable applicant should possess a machine, as he will, if accepted, be supplied with a Government motor bicycle.

Applicants possessing one of the following seven makes of motor bicycles may present them for examination for valuation purposes (an allowance being made by the Government upon taking over the machine if suitable): Triumph, Douglas, Rover, B.S.A., P. and M., Rudge, and James (single-cylinder).

We are informed by Mr. Beasley that the demand for competent motor cyclists is fairly heavy. Upon enrolment, motor cyclists will rank as lance corporals in the Royal Engineers, and receive 1s. 2d. per day pay, and these men should stand an excellent chance of proceeding on active service. Applicants must be between 18 and 30 years of age, and pass a medical examination.



Letters to the Editor.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Some Useful Work for Motor Cyclists.

Sir,—This article interests me very much, and as soon as such a corps is formed I hope notice will be given of it, as I should like to offer my services, if the conditions are reasonable. M. LANDAUER.

Club Men for the Front.

Sir,—It is particularly pleasing to note the response made by the Essex Club members to the call to the Colours, but, good as their numbers are, it is even more pleasing to be able to point out that they constitute by no means a record as suggested. Taking sporting clubs of all kinds, the figures of the Birkenhead Park Rugby Football Club, which is reported to have 258 men out of 500 fighting or in training, will require some beating. Among motor cycling clubs, the North-West London M.C.C. is proud of its thirty-five out of a membership of rather under 100. Probably there are others equally good, and it is cheering to feel what effect this must have in regard to the previously admitted hostile public opinion of our sport. It is an everlasting reproof to the writers who so often abuse the "muddied oaf" argument. H. J. POOLEY.

A Trip in the Peak District.

Sir,—Seeing an article in your issue of the 15th inst., "In the Peak District with a Rover," I think you will be interested to know of my exploit through the same district, and on to Leicester and Melton Mowbray, thence to Market Harborough and Welford, with my two-speed 1914 Bradbury and sidecar, my wife and daughter as passengers. We averaged over 78 m.p.g., and through Leicestershire to Welford, then return and out by Melton Mowbray, Oakham, and several other places, etc., we got over 82 m.p.g. Hills we took splendidly. I had no occasion to use tools of any sort during my whole tour. I think 65 m.p.g. very poor mileage. I have a Binks three-jet carburetter, and I am delighted with it. I may add that I also carried my own petrol (three tins) strapped on chassis of sidecar: this was during the first week of the war, when petrol was rather hard to get. R. GREENHALGH.

A Bradbury sidecar owner who relates his experiences in the letter accompanying.

Revs: A Sermon for Speedmen.

Sir,—Your contributor "Singlecyl," in your last issue, falls into a serious error in the example he gives at the end. He assumes that where an engine will turn over at 4,000, but then develop a lower h.p. than at 3,000 revolutions, it is only necessary to lower the gear in order to increase the maximum possible speed by taking advantage of these extra revs.

This is quite incorrect, as a certain speed will require the same horse-power whatever the gear so long as the load is the same. Thus with a gear of 4½ to 1 he would get a slightly lower speed than he would with a gear of 4 to 1, as he would require about 3,500 revolutions per minute for this speed, and at this his engine would develop, say, 8½ h.p., which is less than the h.p. required for that speed.

The instance he gives can only be correct in the case of an engine giving a slightly increased horse-power with the increased revs. (that is, the extra revs. not increasing the h.p. *pro rata*), and in such a case it would be necessary to find out what number of revs. gave the greatest h.p., and then experiment to find out the highest gear you could use, and still attain the number of revs. giving the highest h.p. P 8595.

Gear Slip on Old Machine.

Sir,—In answer to "B 10," I have had a P. and M. two-speed gear on a 7 h.p. machine for the last three years. With the exception of a slight slip it has always been satisfactory. The slip I cured by inserting on the flat side of one of the wedge bars a steel liner ball ⅛in. thick made from a piece of clock spring. This has cured all slip, and the gear is quite satisfactory. W. J. ALCOCK.

Sir,—It appears to me that the thrust rod requires adjusting. I had a similar experience, and traced it to that. Also make sure it is not slipping at the engine-shaft. If the sides of the sprocket plate, and also the ring which separates the high gear sprocket from the low gear sprocket, are worn badly it will slip, as the lock nuts screw tight up to the flange which carries the sprockets without compressing the spring clip sufficiently. Further, if the teeth on all the sprockets are worn, and the chain is also stretched, that will cause it to slip, owing to the wear on all the parts causing the drive at each explosion to be taken up with a jerk, which also sets up a knock in the engine. C. H. INGAMELLS.

Sir,—In reply to "B 10" in your issue of the 22nd inst., the top gear of my P. and M. began to slip last week, and I found that the set pin securing the outer half of the ball race at the outer end of the sleeve carrying the sprockets had worked loose allowing the ball race also to slacken out. On doing this up the slipping ceased, though exactly why I do not understand. It is more likely that the cause of "B 10's" trouble is that the nut securing the gear handle and sprocket wheel is not tight enough, and that the handle slips back a bit after being pushed into top gear position.

The P. and M. gear is excellent, but it has, I think, three minor faults: (1) The handle should be on the left side of the tank; (2) the position of the handle for free engine is indefinite; and (3) the two gear chains cannot be separately adjusted. MX 4045.

[A NUMBER OF INTERESTING LETTERS ARE UNAVOIDABLY HELD OVER UNTIL THE NEXT ISSUE.—ED.]

TIMES TO LIGHT LAMPS

(GREENWICH.)

Oct.	29th	... ...	5.39
,,	31st	... ...	5.35
Nov.	2nd	... ...	5.31
,,	4th	... ...	5.27

The Buyers' Guide.

The Motor Cycle Buyers' Guide of 1915 models (which will be published on November 19th) is now in course of preparation. Any manufacturer who has not received a copy of our specification form is requested to apply to the Editor immediately.

A Severe Test for New Models.

We continue this week our descriptions of 1915 model motor cycles and accessories. An illustrated article, which will prove of great interest at this juncture, is the account of a test of a number of new models on steep acclivities included in the A.C.U. Six Days Trials course.

First Aid Tricar.

Passing the head fire station at Beckenham, a correspondent noted that the five (or is it six?) year old N.S.U. first-aid tricar is still stationed at the entrance in readiness for service. The veteran certainly does not look its age. So far—according to an actual record—it has attended over a score of fires and run over 2,000 miles, including practice runs.

Motor Cyclists' Lighthouse.

One result of the war is that the powerful revolving lamp on the motor cyclists' lighthouse at the Ruxley Corner cross roads, near Foot's Cray, is no longer in operation according to a Government regulation. Illuminating, as it did, the large and Continental type of direction board, and an important road junction, its presence might be a little too useful to an enemy. Still, the warning is missed, as it had become an object of interest on the Folkestone Road.

Another Attempt on the Life of Dr. Low

That inventive genius, Dr. A. M. Low, has been doing much work for the Government lately, and recently inspected a new rifle and sent a report of it to the War Office. A man of German nationality, purporting to be the secretary of the inventor, called on him the other day and presented him with a cigarette, which, on being subsequently analysed, was found to contain a sufficient quantity of strychnine to be dangerous, if not fatal. It may be remembered that *The Motor Cycle* reported a few weeks ago that shots had been fired at Dr. Low from a revolver while he was working in his laboratory.

Consideration for Despatch Riders.

In our editorial article this week we appeal to the Home Office to wipe off all endorsements on licences belonging to despatch riders, and so after the war allow them to start again with a clean slate.

A Novel Two-stroke.

One of the new designs in course of preparation for 1915 is a two-stroke engine, which will have an exhaust valve of orthodox design. The piston performs the work of the inlet valve, as in the ordinary two-stroke design. Complete scavenging is claimed for this arrangement.

The Shaft-driven Rex.

A short time ago we described and illustrated the details of the new three-speed shaft-driven gear which is to be fitted to Rex machines in the near future. We are now able to give a photograph of the forerunner of the complete 1915 model. The neatness of the gear drive will be observed, and the solid frame construction with duplex "chain" stays is worthy of notice. A very neat kick starter has been devised whereby the rear timing wheel is rotated by means of an internally toothed quadrant, the back of which forms a cover which effectually keeps out mud and grit. The construction will be quite clear from the appended sketch. There will be certain minor alterations to the finished machine, but our illustration conveys an excellent idea of the general lines of the 1915 model.

SPECIAL FEATURES

TESTING 1915 MOD. LS.

MILITARY MOTOR CYCLING NOTES.

"PETROIL" LUBRICATION.

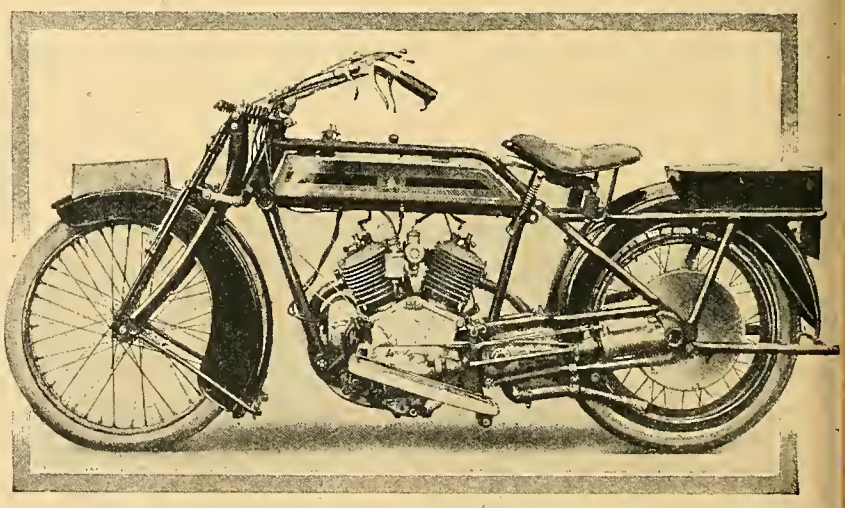
A Government Contract.

A large Government contract will mean that the new Scott will not make its appearance until January, 1915, at the earliest. The contract in question is taking the whole of the Scott Co.'s output at present, and is likely to continue for the next two or three months. Incidentally, Scott machines in 1915 will be obtainable with either a B. and B. or a Scott semi-automatic carburetter.

The Institution of Automobile Engineers

No less than thirty-three graduates of the Institution of Automobile Engineers are at the present time serving in His Majesty's Forces.

In spite of this very considerable depletion of their numbers, however, the London graduates have commenced their session in a very auspicious manner. At the first meeting early this month a very instructive and interesting paper on "Motor Cycles" was read by Mr. E. T. Tapp, who has since joined the Mechanical Transport Department of the Army Service Corps. Following on this paper a visit was paid on October 16th to the works of the Commercial and Marine Engine Co., Hanwell, where among other things, the manufacture of a very interesting two-cylinder horizontal opposed motor cycle engine was seen.



The 1915 model Rex which has shaft drive and three-speed gear.

orth Country Motor Cyclists' Commission.

W. B. Little has obtained a commission in the Durham Light Infantry. He as been in hard training on the North-ast Coast, and expects to go to the 'ront early in December in command of cyclists' company of about eighty men f the Durham Light Infantry.

atriotism at Malvern.

We are informed by the honorary ecretary that one-third of the members f the Malvern and District M.C.C. are erving as despatch riders, while 80% ave enlisted in different regiments.

ew Models in this Issue.

Among the entirely new models llustrated and described in this issue re the new military model single-cylinder ea-Francis, a three-speed L.-F. gear tandardised for 1915, the new 6 h.p. H. three-speeder, a new pilot jet Brown nd Barlow carburetter, the new Match-ss racer with counter-shaft three-speed ear, two new Harley-Davidson machines, 5 h.p. Quadrant, and a two-stroke riel.

olonial Troops and their Mounts.

Our Colonial troops in every case are inging their motor cycles with them, nd many will be their duties as machine un carriers, signallers, and despatch ders. The Australian contingent is, of ourse, no exception, and the Government as placed an order with A. G. Healing nd Co. for the necessary machines, which re fitted with the Precision big four or e 4¼ h.p. engine, as it is generally nown in this country.

xcellent Trading Results.

The Triumph Cycle Co.'s profits for e past year total £74,393 9s. 3d. dding the amount brought forward from st year's account, the amount available r distribution is £89,418 5s. 10d. A vidend of 20% and 2s. bonus on the rdinary shares is recommended, and % dividend on the preference shares. The profits of the firm of Joseph Lucas, td., are, for the year ended August 31st, 14, £25,628 2s. 11d.

e Bulldog Breed.

H.M. the King has been graciously eased to give orders for appointments the Distinguished Service Order and r the award of Distinguished Service rosses in respect of certain officers in cognition of their services. Among ese we note the name of Lieutenant-ommander Max Kennedy Horton, that en motor cyclist who distinguished mself recently by sinking the German uiser *Hela* and the German destroyer *26*. "A Distinguished Conduct Medal s also been granted to Corporal E. J. odhart, Royal Engineers (Motor yclists Second Signal Company), "for nveying messages under very dangerous rcumstances by day and night, and ver failing to deliver his messages." It is with great pleasure that we have record that A. J. Sproston, who is corporal in the Royal Engineers, was mong those motor cyclists who were entioned in despatches last week; but, nfortunately, the authorities printed his me A. J. S. Proston, with the result at few of his friends recognised it.

A Lawn Tennis Champion.

A. F. Wilding, the lawn tennis ex-champion, who, as our readers are aware, is an old-time motor cyclist, has received a commission as second-lieutenant in the Royal Engineers.

An Unfortunate Collision.

A sad accident occurred on the Embankment the other day, when Lieut. Edward Morewood, of the Intelligence Department, riding his motor cycle, collided with a newspaper cyclist and was seriously injured. Both were taken to St. Bartholomew's Hospital, but Lieut. Morewood died shortly after admission. At the inquest his father said he was a crack shot, a splendid horseman, and a motorist of great experience. He was to have gone to the Front almost immediately.

A.A. and M.U. Notes.

Wherever possible, the roadside telephone service, instituted by the A.A. for the benefit of members, is being kept in operation during the war. Members using patrolled roads should note that, although a telephone sentry box on a patrolled road may be locked, the patrol on that particular road will, upon request, proceed to the box with the member, open it, and place the telephone at the member's disposal.

Liverpool Motor Corps.

A corps has been formed in Liverpool with the object of giving military training to motorists, thus rendering them more capable of taking up their duties when called upon. The following classes have been arranged: 1, Swedish drill; 2, map reading; 3, signalling; 4, ambulance; 5, rifle practice. Competent instructors have been engaged. The headquarters and rifle range are situated in Binns Road (off Edge Lane). Information can be obtained from any of the following officials: Chairman, Mr S. W. Carty, 5, Red Cross Street, Liverpool; treasurer, Mr. H. W. Coopland, 26, Islington, Liverpool; secretary, Mr. S. W. Phillpott, A.C.U. Office, 60, Lime Street, Liverpool.

CHRISTMAS GIFTS FOR DESPATCH RIDERS.

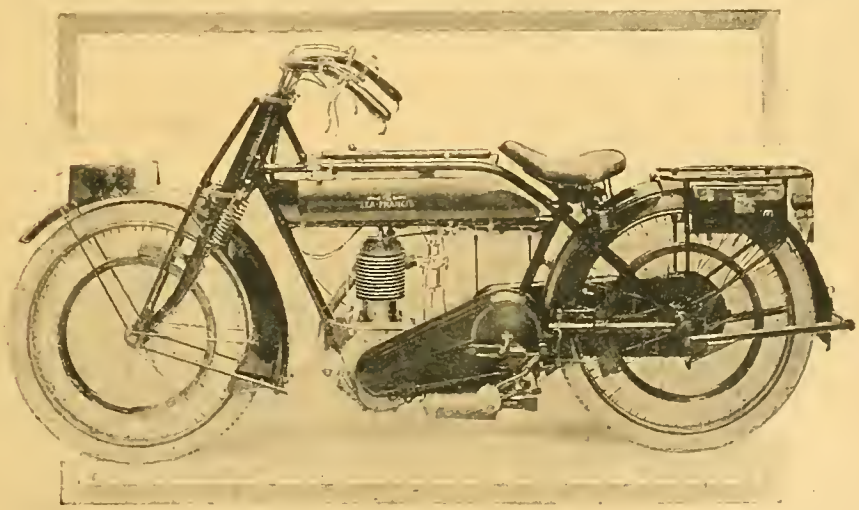
WHEN our scheme to provide useful Christmas gifts for despatch riders at the Front was formulated, H.R.H. Princess Mary's Fund, to provide Christmas presents for all our soldiers at the Front, had not been announced. It is clear that two funds opened with the same object are both unnecessary and undesirable, as the overlapping would be bound to lead to confusion.

The Motor Cycle has interviewed the Secretary of the Committee of the Princess Mary Fund, and has ascertained that despatch riders, motor transport drivers, and, in fact, every branch of the service will be included in the scheme that body has so considerately opened.

It only remains for us, therefore, to ask our readers to forward, in future, their subscriptions direct to the Princess Mary Fund, which has the same objects as the fund opened by *The Motor Cycle*.

There is no question of doubt that this fund is destined to prove one of the most popular yet introduced. The ready response of our readers is some indication of that fact, for every day, without exception, since our announcement appeared, contributions to the fund have been received at our offices. Though mainly in cash, the contributions included offers from prize-winners of the value of prizes due to them. The Princess Mary Fund is a noble and huge scheme, and we commend it to the consideration of readers with just as much fervency as we did the similar scheme which we evolved, singularly enough, just before the national fund was made public. We propose to return all the contributions which readers have been good enough to send us, with a recommendation that the amount be forwarded direct to the H.R.H. Princess Mary Fund.

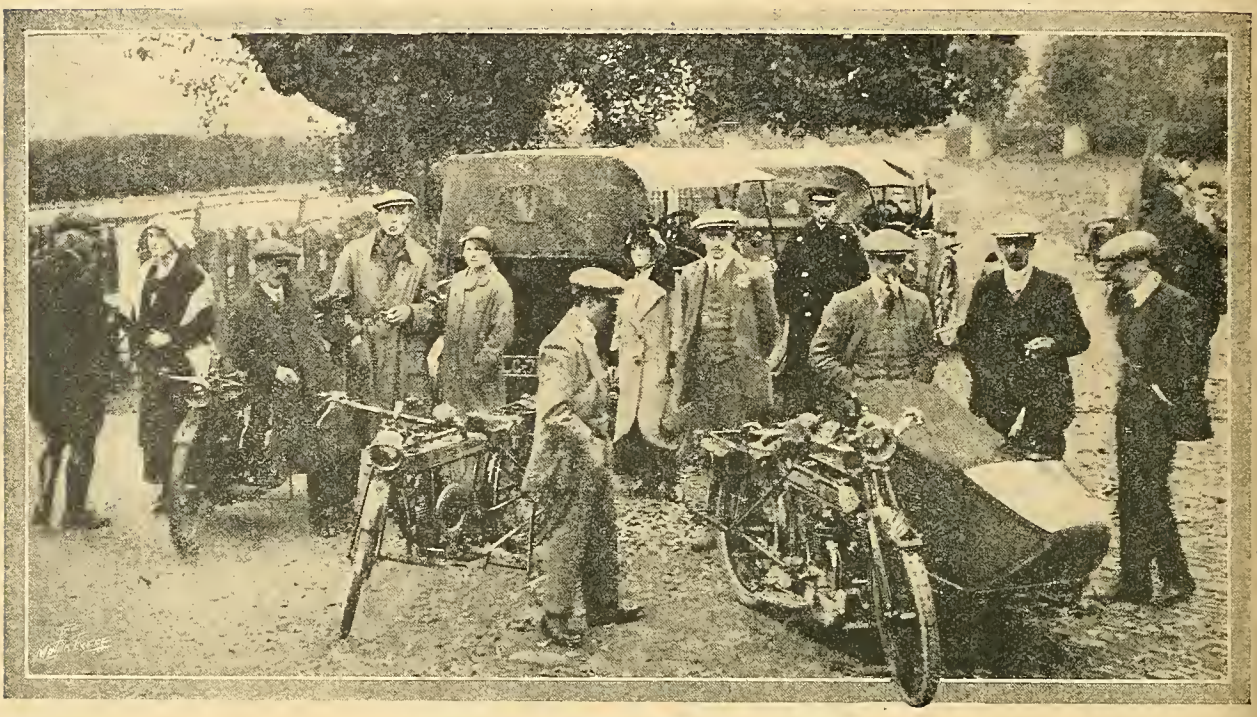
The proprietors of *The Motor Cycle* are forwarding a cheque for five hundred shillings to the fund.



A MILITARY MODEL WITH DETACHABLE WHEELS.

The first specimen of the 3½ h.p. single-cylinder military model Lea-Francis. The engine is a J.A.P., of 85.5 x 85 mm., and the general design is exactly the same as the widely used twin. It has a three-speed gear box, hand controlled clutch, footrests, and semi-T T bars. A section of the gear will be found on page 484 of this issue

The Closing Run of the M.C.C.



THE M.C.C. CLOSING RUN TO HORLEY.

Some of the members and their machines after lunch at the Chequers Hotel. The weather was unpropitious.

UNFORTUNATELY, the morning of the 25th was dull and threatening, but despite the unfavourable prospects there was a very fair attendance at the M.C.C. closing run. About thirty people, who had arrived on motor cycles, sidecars, and small cars, sat down to lunch at the Chequers Hotel, Horley, the appointed rendezvous. Few of the better-known members of the M.C.C. were present, and we missed the familiar faces of Messrs. Jarrott, Head, Jenkins, Gibbons, Dickson, and others. Messrs. C. J. Seed and Southcomb May, the hon. secretary, were, however, present. Lunch was served at 1.30 p.m., and thereafter the party split up and the members went their several ways.

On the occasion of this run we gladly accepted Dr. Low's kind invitation to sample the smooth running of his Adamson cycle car, which pulled well throughout, and climbed Reigate Hill on second speed on the return journey.

It is interesting to note that 140 of the members of the M.C.C. are serving their country in some way or other. So far, the man who has most distinguished himself is Flight Lieutenant Newton Clare, R.N., who took part in the first aerial raid over Germany.

As regards the winter season, it is suggested that a patriotic concert should be held in aid of the Belgian refugees, and that there should be a lecture on the war, illustrated by cinematograph views of the firing line.

CLUB NEWS.

Cyclecar Club.

A number of makers of 1915 model cycle cars and light cars have promised to take part in the rallies arranged for their benefit on November 21st and 22nd at Hatfield and Burford Bridge.

Cork and District M.C.C.

Over a dozen members are now serving at the Front, and the committee have decided to place their names on the Aggregate Challenge Shield for this season. Corp. D. Humphries, R.E., who was mentioned in despatches, is a member of this club. Unfortunately, he has since been reported as missing.

Bristol M.C.C.

A half-day trial will be run off on November 7th from the Queen's Hotel, Clifton, at 2 p.m., distance about fifty miles, for Mr. J. A. King's challenge cup, at present held by Eric Butler. Those interested, especially despatch riders, are invited to attend, as the trial will be of such a nature as to give despatch riders an idea of what they will probably have to encounter. Those wishing to compete may do so, but, of course, no awards will be given, as it is not an open trial. Mr. Grout, the secretary of the Motor Cycle Reserve Committee, will be present, and will note especially the behaviour of the non-official competitors.

BRISTOL M.C.C. ONE-DAY TRIAL.

Entries for this trial, which will take place on November 27th-28th, have already been promised. Entry forms can be obtained on application to Mr. F. G. Cox, 12, Perry Road, Bristol.

It is hoped that the club will be able to secure a large room so that all competing machines can be viewed two days before the trial, and for a few hours afterwards. This will enable manufacturers to show their 1915 models.

The Motor Cycle has suggested to the Bristol Motor Cycle Club that a rule be introduced that all owners of competing machines in the trial be obliged to sell the actual machine at the firm's list prices. This will show that the machines are standard articles as sold to the public and not specially tuned or faked up for competitions.

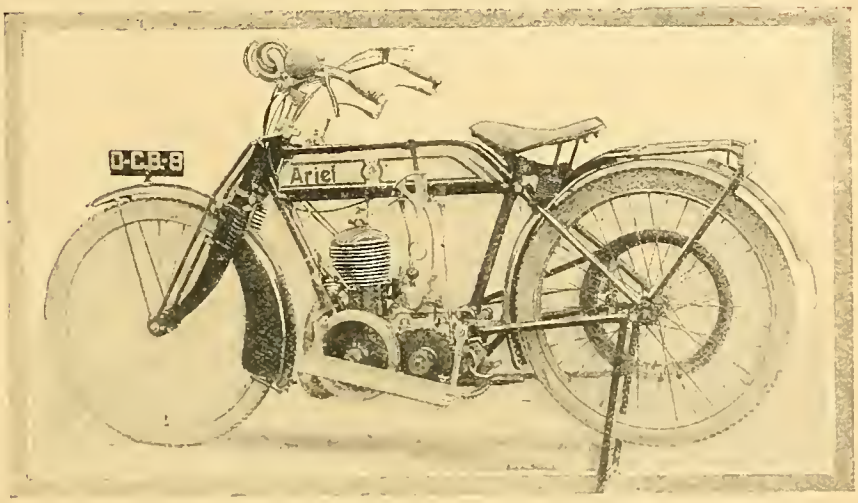
Specifications of all the leading motor cycles on the British market will be included in the annual BUYERS' GUIDE OF "THE MOTOR CYCLE" to be issued on Thursday, November 19th.

An Ariel Two-stroke.

350 c.c. Engine, Two Speeds, Cork Clutch, and Kick Starter.

FOR some time it has been common knowledge that Components, Ltd., of Bournbrook, Birmingham, have been testing various features of two-stroke motors, and therefore the results of their experiments will prove of interest to our readers. We are able to illustrate the machine in its final experimental form, though there is a certain amount of cleaning up in design to be done before the machine will be marketed, such points, for instance, as the substitution of cast aluminium footplates for the wooden footboards shown, and the addition of a neat chain case. The engine is a three-port two-stroke of the usual type, having a bore of 75 mm. and a stroke of 79 mm. (349 c.c.)

A two-speed dog clutch gear box is carried below an extension of the crank chamber, and can be slid longitudinally for chain adjustment. So far no very startling features have been mentioned, but the Ariel is one of the few firms who have realised the value of a clutch on a machine of this type, and, what is more, a simple kick starter is fitted, which renders the machine one of the handiest of its type we have come across. The clutch, it may be mentioned, is of the cork insert type, which is becoming so popular on all types of motor cycle, and it is operated from the handle-bar.



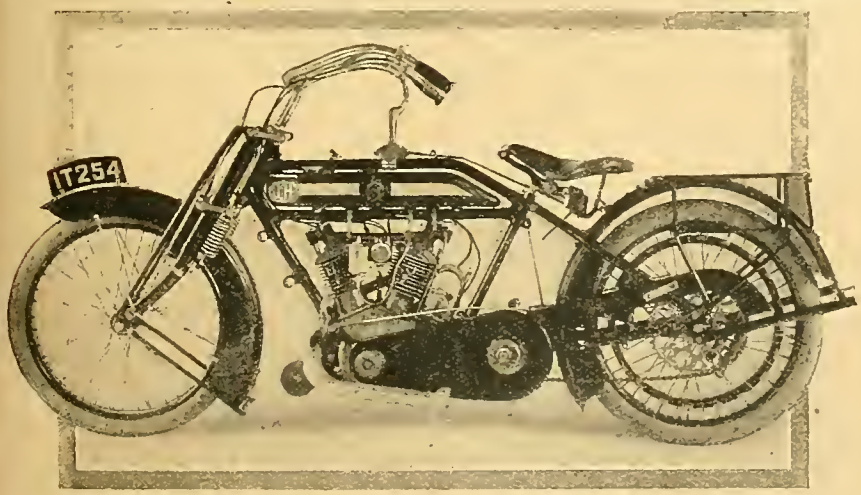
A new two-stroke Ariel with two-speed countershaft gear, clutch and kick starter.

The lubrication is unusual, for a forced drip feed is led to the side of the cylinder and on to the piston, while an auxiliary lead goes direct to the main flywheel bearing, and thence to the crank case by the usual channels. An interesting detail in construction is that the exhaust port is cast with four cooling ribs. The whole machine, with its 26×2½in. tyres and complete specification, will prove a very attractive article at the price of £42.

J.H. Sidecar Models.

WHEN we described the J.H. lightweights in our issue of October 15th we referred to the powerful twin machines of the same make, and we now describe these machines. The 6 h.p. model is turned out with either J.A.P. or M.A.G. engine, the latter being the one illustrated. The engine has a bore and stroke of 72 mm. × 91 mm. (742 c.c.). The inlet valves are overhead, and the enclosed operating gear is lubricated automatically from the crank case. The magneto is carried behind the engine, chain driven, and the B. and B. carburetter is fitted between the cylinders. The three-speed gear box, combined with kick starter and cork insert clutch, operated by the right foot, is placed behind the engine and below the frame, which is raised at this point to accommodate it. The gears are of the sliding dog type, always in mesh, and controlled by a lever on the top tube. The specification includes Druid forks, Dunlop extra heavy or Palmer cord 650 × 65 tyres, voiturette rims, with specially strong spokes, Middlemore and Lamplugh or Lycett saddle, pannier bags, and folding kit of tools, large tank holding two and a quarter gallons of petrol and three pints of oil, and aluminium footboards. The transmission is by ⅜in. chain throughout.

The J.A.P. engined machine is similar in general details but fitted with the 6 h.p. J.A.P. 76 mm. × 85 mm. (770 c.c.), which has forced lubrication and an internal exhaust valve lifter. Only one camshaft is used, and the four valves are operated by two cams. Both these machines are very suitable for sidecar work, and are supplied with the necessary lugs brazed to the frame. To those who require still more power, the 8 h.p. machine (J.A.P. engine, 85½ mm. × 85 mm. bore and stroke, 988 c.c.) will appeal.



The new 6 h.p. J.H. three-speed sidecar machine.

FOR DESPATCH RIDERS.

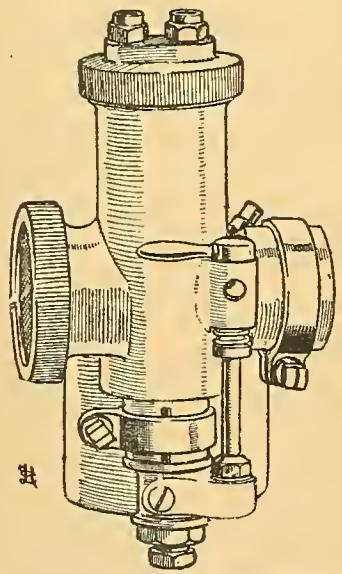
Mr. Philip Grout, secretary of the Motor Cycle Reserve Committee, South Midland Division, will be glad if those riders who desire to enlist in the Royal Engineers (Motor Cycle Section) will register their names with the Bristol Motor Cyclists' War Committee at the Queen's Hotel, Clifton. A form will be provided, which must be filled up and returned. Mr. Grout informs us that he has enrolled some of the most prominent riders in England.

A Pilot Jet B. and B. Carburetter.

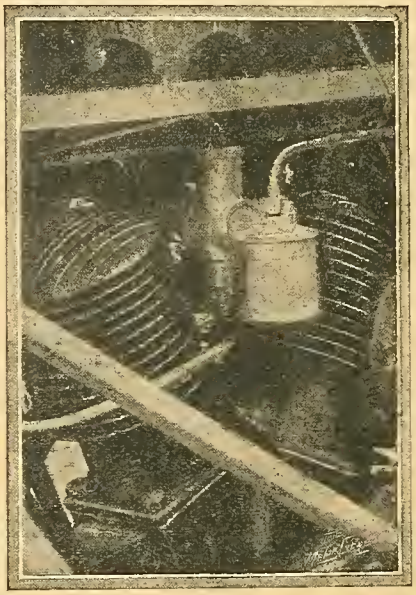
An Easy Starting and Slow Running Device Standardised for 1915.

CONTROLLABILITY at all speeds combined with efficiency is the chief aim of the carburetter designer. There was never any question of the power given off by a B. and B. variable jet carburetter, though starting in temperatures approaching freezing point may have been affected. A new device for 1915 should, however, entirely overcome starting troubles even in temperatures below freezing point. To show the thorough way in which Messrs. Brown and Barlow, Ltd., have prepared for their 1915 design, each type of carburetter has been tested at a refrigerator company's premises for easy starting and general running at all variations of temperature to zero.

The new types of carburetter vary but little in main essentials, but a new design with a pilot, or easy starting jet, forms a novelty that will attract some attention. In all models the float arrangements have undergone considerable alteration, and in future a top feed will be used with the float acting direct on the needle, thus doing away with balance or toggle gear. Besides this an ingenious but simple arrangement allows the jet to be flooded without alteration to the level in the float chamber, with its consequent uncertain mixture. The device is as follows: The usual air vents to the float chamber have been removed and a single hole in the centre of the float tickler takes their place. Consequently, when the finger is placed on this plunger with the purpose of agitating the float, the needle valve is dropped from its seating, but an air lock is formed in the chamber, and, consequently, the level cannot rise, though petrol can flow straight through the jet in a stream.



Showing the pilot jet of the 1915 B. & B. carburetter.



The latest B. & B. pilot jet carburetter fitted to a Matchless-M.A.G.

Except for the addition of a vaporising cap, which is pierced with holes in the top and sides, the single jet model is almost unaltered, and with this type, once the correct position for the air lever has been found, the driving is done almost entirely from the throttle.

Practically the same carburetter can be supplied in the form of the universal carburetter with alternative jet sizes controlled by a small lever at the base.

To Ensure Easy Starting.

Two newer models conform with the usual type of B. and B. carburetter except for the addition of a pilot jet lying close to the vaporising chamber, but on the engine side of the throttle. In one case this jet is only used as an easy starting device, and, once the engine is running, the jet is put out of action by a quarter turn of a small lever placed directly over it.

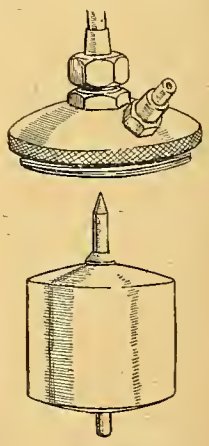
In the other case the operating lever is fitted with a very fine adjustment, so that the pilot jet may be left in action at all times, and can be relied on to keep the engine ticking over when the throttle is closed.

All the latest models are fitted with the air slide enveloped in the throttle slide and moving in dovetail grooves. This gives an easier action, and also, as the air slide is narrow, admits a certain amount of air when the throttle is opened, thus rendering the carburetter more automatic in action. The variable jet carburetter may be set to be controlled entirely by the throttle lever, but the makers recommend the use of the air slide, as a wider range and better consumption can be obtained.

Results of Road Tests.

The new models have been undergoing road tests since the spring, and amongst the results which have been recorded the following may be taken as typical performances: On a very hilly course, with a load of 26 stones, a 6 h.p. Enfield and sidecar travelled 67 m.p.g., a 7 h.p. Matchless-M.A.G. and sidecar accomplished 55 m.p.g., and a 3½ h.p. Triumph bicycle practically 110 m.p.g. These results are with the variable jet model, the single jet carburetter giving a slight increase in consumption in each case. The single jet type is peculiar in that the jet is cupped at the top, which improves starting.

We had the pleasure of a run on an 8 h.p. Matchless-M.A.G. sidecar outfit fitted with the pilot jet B. and B. carburetter, and it was indeed an experience to remember. The engine started regularly at the first dig of the kick starter, and ticked over slowly and quietly like any well-tuned four-cylinder car engine. It was impossible to choke the engine by sweeping open the throttle suddenly, and one could shut it down just as quickly and the engine would continue to tick over without fuss. It was proved to us that the power was in the engine too, and as regards economy we give the makers' test figures above. We must say that we were exceedingly impressed with the exhibition of this the latest B. and B. production, and it is bound to be largely in evidence on the new models for 1915.



The new top feed to B. and B float chamber. It will be noticed that the balance weights have been done away with, and the needle acts direct in the cap.

TWO SPECIAL ISSUES OF "THE MOTOR CYCLE"

are in course of preparation. Both will be considerably enlarged and profusely illustrated. In the absence of the Show they are bound to be in great demand, and early orders should be placed with newsagents.

ANNUAL BUYERS' GUIDE ON NOV. 19th. EQUIPMENT NUMBER ON DEC. 10th.

Question & Replie

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply.

Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Fuel for an Auto-wheel.

I have just purchased a standard Wall Auto-wheel, and I desire to know what fuel to use. Would you recommend me to use petrol or benzole?—BEGINNER.

You will find that the little engine will probably burn almost any fuel, either petrol or benzole. If you use benzole, be sure and get a good quality. Petrol No. 1 gives slightly easier starting in cold weather.

Valves Slightly Pocketed.

I have a 3½ h.p. T.T. roadster machine, of which the valves are slightly pocketed in the seatings—the exhaust about $\frac{1}{32}$in. and inlet about $\frac{1}{64}$in. Would you kindly inform me if this amount of pocket would have any effect upon the engine, and if you would advise the seatings to be re-cut?—G.B.P.

A pocket of $\frac{1}{32}$in. will reduce the area of your valve opening with average sized valves by about $\frac{1}{8}$ of a square inch. This is equal to a circle of approximately $\frac{3}{8}$in. diameter, and would interfere considerably with the passage of the gases. We should most certainly advise you to have the seatings re-cut. It is quite a simple matter.

A Badly Fitting Piston.

I recently had a new piston fitted to my machine, but as the running was still very poor I took the cylinder down and found little or no deposit, but piston and rings quite black all over, except quite small patches near bottom edge of piston and in places on rings, which are quite bright at back and front. All other parts of piston were covered with sticky deposit, which comes off when rubbed hard with paraffin rag. Does this not show that the piston is a bad fit, and account for oil being driven through pulley bearing, as explosion is evidently getting by. I use good oil and plenty of it. The sidecar has a castor wheel, and runs easily.—F.J.P.

It certainly looks as if the piston is a poor fit. Of course, after a new piston has been fitted, a machine will not run as well as it did before, and this state of affairs continues for about the first two hundred miles, but it gets better every time the machine is taken out, and finally the old power returns when the piston has become run in. The leakage of oil through the pulley bearing may be due to two causes. Firstly, that the bearing is a bad fit, and, secondly, the relief valve in the crank case is not working properly, possibly through being stopped up.

The Auto-wheel.

Please tell me your opinion of the Wall Auto-wheel, and also state what speed it should be capable of attaining.—E.C.

The speed of the attachment in question is about sixteen miles an hour. It is quite a handy device for use in town, but you must not expect to get the same results from it as you would from a light-weight motor bicycle.

Loss of Power.

I have a 2 h.p. three-speed Humber, which after running on top gear for about two hundred yards loses power. I change down to middle gear which improves it for some little while, then I find I cannot get along on that and change to bottom gear, and after a little time (a quarter of a mile and less) the engine loses power completely, slows down, and stops, but if I let the clutch out and in I can proceed, but it is impossible to do more than twenty miles per hour on top gear, and the machine will never look at a hill. The timing is absolutely correct. The machine has only behaved quite recently like this. Can you please tell me the remedy?—G.H.M.

The trouble seems to be rather a puzzling one, but it may be due first of all to overheating, which, of course, may occur through a variety of causes, such as too strong a mixture, exhaust valve mechanism not working properly, want of lubricating oil, lubricating oil of poor quality, etc. We think it is more likely, however, that something is binding either in the cycle part of the machine or the engine. The trouble is one which is exceedingly hard for us to diagnose without actually seeing the machine.

Wellingborough to Glasgow.

I should be very much obliged if you would inform me of the best route from Wellingborough to Glasgow. The distance, I believe is 300 miles (approximately). I hope to do this, if possible, in one day. My machine is a 4¼ h.p. Precision, Sturmey-Archer three-speed hub. I do not object to hills, but dislike traffic.—J.T.M.G.

We should recommend the following route: Wellingborough, Kettering, Rockingham, Uppingham, Oakham, Cottesmore, Grantham, Newark, Tuxford, Retford, Bawtry, Doncaster, Ferrybridge, Aberford, Wetherby, Boroughbridge, Leeming, Scotch Corner, Barnard Castle, Middleton-in-Teesdale, Alston, Brampton, Longtown, Gretna Green, Lockerbie, Beattock, Crawford, Abington Inn, Hamilton, to Glasgow. To do this journey in a day you would have to start very early in the morning, and drive fairly hard. You may expect a good deal of unavoidable traffic on entering Glasgow.

Sidecar Alignment.

(1.) I have a sidecar the tyre of which always wears away quickly, and yet I think everything is in line, as on a straight road I can loose the handle-bars and steer straight. (2.) Should a sidecar wheel be level with the back wheel as on a motor car? (3.) Do you think a slightly bent spindle would cause the trouble, as I think I have bent mine when turning sharply to the left?—T.P.

(1.) It is exceedingly difficult for us to account for the trouble to which you refer in your letter. If the machine steers well on a straight and level road the alignment should be correct, and there is no reason why the tyre should wear unduly. (2.) It does not matter very much if the sidecar wheel is level with the back wheel or not. (3.) If the spindle is bent it would cause the trouble. The bent spindle should be heated and then trned up.

OUR ADVICE TO CLUBS.

At a time when every motor cyclist is anxious to serve his King and Country, and when all army vacancies are for the present filled, the advice of "THE MOTOR CYCLE" to Club Committees is to encourage members to cultivate assiduously an intimate knowledge of their own particular localities, to become well versed in the art of map reading, and practised in the handling of a rifle, as well as a revolver, so that, should their services be required, they will be as useful as possible.

Ordinary competitions having been cancelled, Clubs might well arrange map reading contests and reconnaissance tests in districts not occupied by troops.

Cyril Williams (A.J.S.), second in the 1914 Junior T.T. Race, and winner of the Junior T.T. Race at Brooklands, 1914, now on active service in France. His namesake, Eric, who won the Junior Race, went to France at the same time.

Magneto Lubrication.

I have bought a 2½ h.p. Jap-Wolf, and do not know how to oil the U.H. magneto. Does this enclosed type require oil, and, if so, where does one put it in? I understand Bosch magnetos, but have never had a U.H.—G.F.B.

The bearings of the U.H. magneto are packed with grease, and require no further lubrication. The magneto, in general principle, is not dissimilar to the Bosch.

Tight Piston Rings.

I have a 1914 Triumph, and thought I would take the cylinder off and clean it. When I tried to put the cylinder on again I had a fearful job to get it on to the piston, and when on it took both hands as hard as I could pull the wheel to get it to budge; so with great difficulty I took the cylinder off again to see the reason, and at the same time oiled the piston and cylinder well, but still I cannot get the cylinder on.—J.J.

You have probably got some dirt under the piston rings which prevents them from bedding properly in their grooves. Take the piston rings off very carefully (they are very brittle) and clean the grooves and the inside of the rings, then oil and replace carefully, pressing the rings down into the grooves as the cylinder is slipped over the piston. No force should be necessary.

General Lack of Power.

Could you kindly inform me the reason why my engine has lost its power? It is a 4 h.p. single-cylinder Peugeot. I have just had it re-bushed, and it will not take sidecar on the level with top gear in. I have tried it on hills with bottom gear, but it is quite as bad. I have had the cylinder off, and I find that the weight of the piston will not cause it to fall to the bottom.—J.R.C.

We should say that the loss of power is probably due to the re-bushing of the engine, which is not yet quite free enough. This, however, will get better after a little running. If not, the parts must be dismantled and examined for a tight bearing.

Petrol Level.

I have a 1913 4 h.p. L.M.C., fixed gear, with sidecar, which previously used to slow down and then pick up; this I put down to the carburetter, and sent it to the makers to fit new balance weights, needle, float, etc. Now when the petrol is turned on it drips at the bottom of spraying chamber, and the engine gets very hot while running at normal pace, gear 5 to 1. A new plug has been fitted, carbon has been cleaned out of the cylinder, and new rings fitted.—A.S.H.

The trouble is due to the petrol level being too high, or to grit under the needle. Either would account for the flooding of which you complain, and also the overheating, but the latter may be caused by the new rings being rather too tight a fit.

Hill-climbing Power of Auto-wheels.

I think of buying an Auto-wheel to fix to my three-speed gear Raleigh, and should feel much obliged if you would answer the following questions: (1.) Would it take me up any reasonable hill without severe pedalling (I am 11 stone)? (2.) Is registration, licence, and taxation same as for motor cycle? (3.) Is there much vibration to rider? (4.) Would it be likely to shake any of the cycle parts loose, or otherwise damage machine? (5.) Would it be likely to give any more trouble than an ordinary motor cycle engine? (6.) Is there any difficulty as regards oiling? (7.) What speed could I get out of it without damaging the engine?—J.W.

(1.) The attachment referred to would take you up any reasonable hill with a certain amount of pedalling. (2.) The registration, etc., are the same as for a motor cycle. (3.) There is no vibration from the engine, but as a pedal cycle is ridden, the road vibration is worse than when riding a motor cycle. (4.) We do not think a pedal cycle would be damaged by the use of the attachment. (5.) It should not give any more trouble than a motor cycle engine. (6.) No; the lubrication is efficiently carried out. (7.) The speed is about 16 m.p.h.

READER'S REPLY.

Experience with a Two-stroke.

I have now run my machine some 1,200 miles, and have had no engine trouble or punctures to date, and have ridden in all weathers and over all surfaces. I have friends who have other makes of lightweights—fixed and variably geared—but not one that can equal me at hill work. The little engine simply delights in a stiff climb, and I have climbed Bury Hill, Arundel, against a strong head wind, when a friend on a 3½ h.p. "conked out." Another point in favour is that it really does two-stroke, either at 5 or 35 m.p.h.—a feature that is conspicuous by its absence on many other two-strokes, and one, I think, that counts in the number of miles obtained to the gallon. Surrey is not a flat county by any means, but I can easily get 125 m.p.g., and have lately been using benzole, which adds, roughly, another 10 m.p.g., and improves the running considerably. A variable gear is an improvement to any machine, but is not a necessity to the Radco, as one can easily throttle down to walking pace for traffic, and it will climb anything to 1 in 4 with ease.—A. E. JACKSON.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"G.H." (London).—2 h.p. Calthorpe Junior. General efficiency, power on hills, silence, and weight of rider that it will comfortably carry.

"H.K.S." (Derby).—2¼ h.p. Sun-Villiers and 2 h.p. Precision Junior. Reliability, hill-climbing, petrol consumption, wearing qualities, and gear.

"H.L.J." (Herts).—2¼ h.p. two-stroke New Ryder. Suitability for touring and retention of compression in crank case after reasonable mileage.

The French Government recently issued a requisition for all motor vehicles likely to be of service in the war, and the above reproduction shows a corner of the group, which collected in response to the appeal, in the Place des Invalides, Paris. Quite a number of motor cycles were included in the gathering.

Expressions of Delight

A great proof of the real quality of Clinchers lies in the vast number of users who have written us testifying to the extraordinary durability and reliability of these tyres. Another great point is they are constantly telling their friends. So the tyre army of Satisfied Users is growing daily, and on every make of machine, on every road, the man who gets the best service is the man who rides Clinchers. They are

ALL-BRITISH

and their service is summed up in the following—Extraordinarily Long Life—Consistent Reliability from first to last—Superb Resiliency and Freedom from all tyre troubles and skidding.

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THE NORTH BRITISH RUBBER CO., LTD.,
Clincher House, Gt. Portland Street, LONDON, W.
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CLINCHER

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"The Tyres that are Superior"

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

Abingdon.

ABINGDON, 1913, 3½h.p., 3 speeds and clutch, Dunlop tyres and belt, P. and H. lamp set, horn, and tools, splendid order; £30. — Elce and Co.. 15, Bishopsgate Av., Camomile St., London, E.C. [0491

A.J.S.

1914 6h.p. A.J.S., done 100 miles only, absolutely as new; £66.—Box 6,808, *The Motor Cycle* Offices, Coventry. [X1942

A.J.S., new 1914, 6h.p. (750 c.c.); combination £78, or without sidecar £63/10; no exchanges.—Crow Bros., 190, High St., Guildford. [8282

A.J.S., late 1913, 6h.p., lamps, Veeder, Canoelet sidecar, drip feed; selling owing to active service, £65.—W. Cocker, Barracks, Pontefract. [8249

A.J.S., 1913, 2¾h.p., 2-speed, free engine, lamp, horn, speedometer, and spares, in good order; £33, or near offer.—Lieut. Brooke, 3rd Wilts. Regt., Weymouth. [8339

A.J.S., 1912, 2-speed, just thoroughly overhauled, with new cylinder, big end bush, small end bush, main bushes, gudgeon pin, crank pin and nuts; 23 gns.; this machine is absolutely perfect, and practically as good as new; most wonderful bargain; honestly worth several pounds more.—Julian, 84, Broad St., Reading. [X1731

Alldays.

ALLDAYS, 1914, 2½h.p., 2-stroke, lamp, horn, new July; £22.—Terry, 6, Chaucer Rd., Herne Hill. [8361

THE BARGAINS AT WAUCHOPE'S

ARE FAMED FOR SATISFACTORY DETAILS.

Call and make your choice from the largest stock of New and Second-hand Motor Cycles, Sidecars, and Light Cars of newest models and best makes at lowest prices. Most satisfactory in all details of quality, class, and condition. Every machine in perfect running order, and fully guaranteed.

GET TO-DAY'S BARGAIN LIST. IT INCLUDES :

8914.	8	h.p. 1912 3-sp. **CHATER-LEA** and Sidecar	40 Gns.
8915.	6	h.p. 1911 2-sp. **MATCHLESS** and Sidecar	30 Gns.
8917.	3½	h.p. 1913 3-speed **SINGER**	£35 0
8919.	8	h.p. 1913 Standard **MORGAN**	£57 10
8921.	2¾	h.p. 1914 2-speed **DOUGLAS,** Model W	£44 0
8924.	3½	h.p. 1912 2-speed **REX**	£17 10
8905.	6	h.p. 1913 **A.C.** Sociable	£65 0
8904.	3½	h.p. 1913 T.T. **PREMIER**	£27 10
8903.	2¾	h.p. 1913 2-speed **DOUGLAS,** Model O	£35 0
8899.	3½	h.p. 1913 T.T. **RUDGE**	£27 10
8897.	8	h.p. 1914 **G.W.K.**	£110 0
8887.	2¾	h.p. 1911 2-sp. Lady's **DOUGLAS**	£25 0
8885.	3½	h.p. 1911 2-sp. **HUMBER** & Sc.	£27 10
8876.	8	h.p. 1913 2-sp. **WILLIAMSON** Combination	£57 10
8871.	6	h.p. 1914 2-sp. **ENFIELD** Combination	60 Gns.
8858.	3½	h.p. 1912 **HOBART**	£22 10
8842.	6	h.p. 1912 **ZENITH-GRADUA**	£37 10
8834.	8	h.p. 1914 W.C. **HUMBERETTE**	£97 10
8832.	1½	h.p. 1909 **MOTOSACOCHE**	£9 0
8809.	8	h.p. 1913 T.T. **ZENITH** and Sc.	£50 0
8798.	2¾	h.p. 1910 **DOUGLAS**	£16 10
8795.	2¾	h.p. 1914 2-speed 2-stroke **CONNAUGHT**	£28 10
8784.	3½	h.p. 1909 **BRADBURY**	£16 0
8782.	3½	h.p. 1912 T.T. **TRIUMPH**	£25 0
8776	6	h.p. 1913 2-speed **ENFIELD** Combination	50 Gns.
8772	6	h.p. **ROVER** Light Car	£25 0
8762.	6	h.p. 1913 3-speed **BAT**	£45 0
8737.	6	h.p. 1912 **ZENITH** and Canoelet	£45 0
8718.	3½	h.p. 2-sp. **FAFNIR** and Sidecar	£22 10
8708.	2¾	h.p. 1910 **DOUGLAS**	£17 10
8706.	6	h.p. 1913 2-sp. **ENFIELD** & Sc.	£55 0
8705.	3½	h.p. 1912 F.E. **RUDGE**	£25 0
8702.	2	h.p. 1912 **MOTO-REVE**	£12 10
8682.	6	h.p. 1913 2-sp. **V.S.-J.A.P.** & Sc.	£45 0
8654.	3½	h.p. 1910 Standard **TRIUMPH**	£22 10
8619.	2¾	h.p. 1911 Standard **DOUGLAS**	£20 0
8592.	3½	h.p. 1908 **QUADRANT**	£15 0
8568.	3½	h.p. 1910 **BRADBURY**	£18 10
8561.	3½	h.p. **VINDEC** and Sidecar	£17 10
8551.	2¾	h.p. Twin **FAIRY**	£10 10
8502.	3½	h.p 1908 **TRIUMPH**	£20 0
8412.	3½	h.p. 1908 **TRIUMPH**	£18 10
8367.	8	h.p. 1912 3-speed **CHATER-LEA** and Sidecar	£55 0
8359.	6	h.p. Twin **BROWN** and Sidecar	£20 0
8338.	3½	h.p. 1910 **BRADBURY**	£20 0
8336.	2¾	h.p. **F.N.**	£10 10
8335.	3½	h.p. 1909 **TRIUMPH**	£20 0
8323.	3½	h.p. 1912 **LINCOLN-ELK**	£20 0
8320.	3½	h.p. 1911 **ARIEL,** variable gear	£20 0
8306.	3½	h.p. 1907 **TRIUMPH**	£17 10
8277.	6	h.p. 2-sp. **N.S.U.** and Sidecar	£25 0

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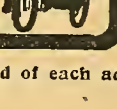

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'Phone: Holborn 5777.
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MOTOR CYCLES FOR SALE.

Alldays.

ALLDAYS Matchless 2-stroke models stock £26/5, or £7 down and 12 monthly instalments of £1/14/3.—Lamb's, 151, High St., Walthamstow [

ALLDAYS Matchless, 1912¼, 3½h.p., 2-speed, comfortable wicker sidecar, 3 Lucas lamps, generators, speedometer, horn, tools, numerous spares, recently overhauled, unpunctured, completely equipped for road; £35.—Jeffery, 70, High St., Walthamstow [9

Ariel.

ARIEL, 3½h.p., variable gear, decompressor, spares, perfect condition; £22/10.—140, Rd., Catford. [1

ARIEL, 3½h.p., 1910, coach sidecar, Bosch, B B., footboards, powerful; £23, or sell separate Skure, 101, Boundary Rd., Leyton. [X2

ARIEL, 1913, 3½h.p., kick-starter, 3-speed, little, perfect order; worth £40, Layton's price £33.—Layton's, Bicester, Oxon. [X5

Auto-Wheels.

AUTO-WHEEL, not done 300 miles, equal new; —36, Cambridge Rd., Gunnersbury. [6

1913 Auto-wheel, in good condition, been little accept £5/10, a bargain.—Settrington, Eton lege, Windsor. [X

AUTO-WHEEL, fitted to Premier 10 gn. cycle, 2 months old, like new; 17 gns.—Auto Mart, Hammersmith Rd., W. [6

AUTO-WHEELS, 1914; on gentleman's 3-speed lady's Rover cycles, new condition; 14 gns.— Evans, John Bright St., Birmingham. [5

AUTO-WHEEL, this year's, practically new, posit of £4 and 9 payments or £1. Fitted to cycle free.—Colmore Depot, 31, Colmore Row, Birham. [X7

Bat.

1911 3½h.p. Bat-Jap, spring frame model, new and tyres; £20.—Joe Beever, Brook St., Hufield. [X1

BAT, 1914, 4½h.p., 2-speed, No. 1 model; catalprice £57/10, brand new, cash price £49.— ton's, Bicester, Oxon. [X4

6h.p. Bat-Jap Combination, bought new 1914, kick start, 2 speeds, perfect; £48.—Blenca Highfield Rd., Walton-on-Thames. [X5

1913 8h.p. Bat, with Gloria sidecar; £45. Uxbridge Motor Co., Ltd., 101, High Uxbridge. 'Phone: 184 Uxbridge. [X7

BAT, 1912, fixed gear, spring frame model, in order; bargain, £23.—The Exeter Motor Cycle Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, stock Rd., Plymouth. [6

BAT, 1913, 8h.p., overhead valves, terrifically fast overhauled, absolutely perfect condition, 38 or with torpedo sidecar 40 gns.; honestly worth pounds more.—Julian, Broad St., Reading. [X9

Bradbury.

BRADBURY, 4h.p., sidecar, 2-speed, late 1912; —H. Hodgson, Matlock. [X1

4h.p. Bradbury Sidecar Combination, 3-speed, free gine, etc.; quick sale £25.—79, King George Greenwich. [X6

BRADBURY Motor Cycle, 3½h.p., 2-speed gear, late 1911; bargain, £19/10.—Brown's, 12, Ring, Birmingham. [X6

BRADBURY, 1913, 4h.p., semi T.T., very fast liable, perfect condition; £32.—E.M.H., Portsc Hatch End, Middlesex. [6

BRADBURY 1913 Combination, 2-speed, F.E. accessories, perfect order; nearest £28.— Clements, 5, Clifford Rd., Blackpool, N.S. [X4

BRADBURY, 4h.p., standard, 1912, excellent dition, new belt, lamp, good tyres, accesse £24, with £12/12 sidecar, as new, £29.—5, Devon St., Islington, London. [

BRADBURY, 3h.p., F.E., perfect, £11; Antoine h.p., F.E., low, perfect, £15; Rover, 1912, 3½ F.E., not ridden 20 miles, beauty, £40; all sent for spection; anything in exchange.—Daley, 50, West Chester. [X

OWNER on War Service.—Bradbury, 4h.p., 3-s honght April, 1914, Gloria sidecar, hood, s apron, carrier, lamp, horn; £60, originally £85, o change smart cycle car.—312, Christchurch Rd., combe, Bournemouth. [X

Brough.

BROUGHS.—Immediate delivery from stock of 500 c.c. horizontal twin 2-speed overhead models.—The West Lancashire Motor Co., Southp [6

BROUGH, 1914, 3½h.p., horizontally opposed 2-twin, condition absolutely as new, picked er very fast and powerful, won gold medal last Lo Edinburgh, hardly ridden since; stringent exper amination invited; £40, a real bargain.—Lovel Rossmore, Wharncliffe Rd., Boscombe. [

MOTOR CYCLES FOR SALE.

Indian.

1914 Indian, T.T., 7h.p., used only 12 weeks, looks as new, guaranteed perfect; must sell, lowest bargain.—M., 35, Southmoor Rd., Oxford. [8388

James.

JAMES, 1913, 2-speed, chain drive, topping order; £37/10, or £10 down and 12 payments of £2/9.—Lamb's, 151, High St., Walthamstow. [8289

JAMES 1914 2-stroke Lightweight, 2-speed countershaft gear, new month ago, guaranteed perfect; £3.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0481

1914 3½h.p. T.T. Twin James, 3-speed, kick starter, complete with foot bell, watch, pump, tools, spare tyre, etc., in new condition, little used; bargain, 48 gns.—King, Shelley House, Wigan. [X1910

1914 James Combination, complete with apron, full set of lamps, horn, kit, etc., used for demonstration purposes only, and in splendid condition; £55, or very close offer.—Apply, Manager, James Cycle Co., Ltd., Pond St. Corner, Birmingham. [X1392

JAMES, 1914, 4½h.p., big single, and Canoelet sidecar, 3-speed, list price 73 gns., new, special price 58 gns.; new 3½h.p. 3-speed twin, 54 gns.; also James 2-stroke, 35 gns., for immediate delivery.—Stevens (James Specialist) Gooch St., Birmingham. [0432

J.A.P.

J.A.P., 2½h.p., mag. ignition, low built, fine order; £7/10.—Specchley, 45, Church Rd., Acton. [X1994

J.A.P., 1912, 6h.p., 2-speed, 650×65 tyres, ideal sidecar machine; £35.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0593

Kerry.

KERRY-ABINGDON and Sidecar, perfect condition; £20.—Andrews, 7, Howley Rd., Croydon. [8235

KERRY-ABINGDON, 1912, 3½h.p., F.E., adjustable pulley and upholstered wicker sidecar; bargain, 14.—Jakins, 18, Rolt St., Deptford. [8262

Kynoch.

1912 Kynoch-Precision, 3¾h.p., coachbuilt sidecar, Roc gears, B. and B., Bosch, Lucas lamp set; £34, bargain.—Davis, South St., Coseley, Staffs. [X1616

Len-Francis.

LEA-FRANCIS, 1914, the aristocrat of motor cycles; early delivery; easy paymeats; second-hand machines in part.—London agents, Sproston and Grace, 14, Gt. Titchfield St., W. Regent 4999. [0448

Levis.

HARRY WALKER'S for Levis's. More business as usual. The £25 Popular supreme.—Muswell Hill, [7721

ON Sale, new Baby Levis, 2-stroke, bought June, 1914, giving up riding.—Rigby, Liverpool Rd., Longton, Preston. [X1830

1914 (Sept.) Levis, 2¾h.p., Model de Luxe, 2-speed, free engine, brand new; accept £37.—King, Sunnyside, Stapleford, Cambs [X1922

LEVIS, 1913, accessories; cost over £40; absolutely faultless; bargain, £19/10, honestly worth £30.—Bradley, 11, Brownlow St., Holborn. [8085

LEVIS Popular Models, £25, stocked, or E.P. £7 down and 12 monthly payments of £1/12/1.—Lamb's, 151, High St., Walthamstow. [8286

LEVIS, 2¼h.p. Baby model, overhauled, refinished, enamelled, etc., at cost of £7, lamp, horn; cash price £17/10.—Layton's, Bicester, Oxon. [X1902

LEVIS, 1914, 2¼h.p., little used, capital order, lamp, horn, speedometer; cost £37/10, worth 30, Layton's cash price £25. — Layton's, Bicester, Oxon. [X1897

Lincoln Elk.

LINCOLN-ELK, 1911, 3h.p., lamp, horn, practically new engine; £12/10.—Baker St Garage, Handsworth, Birmingham. [X1981

M. and M.

M. and M., 2-stroke, completely equipped; £28; all British, including magneto.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X1952

Martin.

1913 3½h.p. Martin-Jap, 3-speed gear, and brand new Bramble coachbuilt sidecar; £45; any trial given.—Colmore Depot, 31, Colmore Row, Birmingham. [X1816

Matchless.

1912 3½h.p. Matchless, by Collier, fast, just overhauled; £26.—Parker and Son, St. Ives, Hunts. [8251

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

MATCHLESS 1913 3½h.p. Twin, 3 speeds, thoroughly good condition; £35.—P. J Evans, John Bright St., Birmingham. [8346

MATCHLESS 1914 Sidecar Outfit, new, unused; owner enlisted; must sell; 80 gns., or very close offer.—11, Anglesea Rd., Woolwich. [X1913

MATCHLESS, 1914 model 8B., as new, speedometer, 3 lamps, horn, tool cases, etc.; cost £105, bargain, £80.—Arthur Mylam and Co., 42, High Rd., Streatham, S.W. [8376

A FACT.

NEW MACHINES AT SECOND-HAND PRICES.

2½ h.p. 1914 **WOLF**, J.A.P. engine, **2-speed countershaft gear**, spring forks, magneto, etc. Usual price, £33. Our price £26

4 h.p. 1914 **WOLF**, J.A.P. engine, **2-speed countershaft gear**, combined belt and chain drive. Usual price, £44. Our price £34

4 h.p. 914 **WOLF**, J.A.P. engine, **2-speed countershaft gear**, all chain drive. Usual price, £46. Our price £36

These are shop-soiled only.

FARLOW SIDECARS
at
SPECIAL WAR PRICES
From **£6 15 0** From

Write us your requirements.

SECOND-HAND BARGAINS.

1912 4 h.p. 2-speed **TRUMP-J.A.P** £23
1914 6 h.p. **ENFIELD**, combination, speedometer, etc. £88
1913 3½ h.p. 3-speed **HUMBER** combination £35
3½ h.p. 1914 **MOTOSACOCHE**, Enfield gear, fine order £35
3 h.p. **EXCELSIOR**, vertical engine, spring forks £8
2-3 h.p. Twin **MOTO-REVE**, magneto ignition, Druids £11
3½ h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb. .. £16
3½ h.p. **N.S.U., 2 speeds and free engine**, Bosch magneto £17
3½ h.p. **PREMIER, Bowden 2-speed gear**, Bosch £18
5 h.p. **VINDEC, 2 speeds**, kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds**, handle starting .. £19
3½ h.p. **TRIUMPH**, ball bearing engine, M.O.V. £18
5 h.p. 1908 **REX** de Luxe, **2 speeds**, handle starting £19
5 h.p. 1908 **REX, 2 speeds**, kick starter, Bosch, Amac £19
6 h.p. 1912 **REX** de Luxe, **2 speeds**, handle starting £25
8 h.p. **Cycle Car**, Chater-Lea engine, **3-speed gear** box and worm drive, speedometer, screen, etc. £60

SPECIAL SIDECAR COMBINATIONS.

3½ h.p. 2-speed **HUMBER** and Torpedo Sidecar.....£20
4 h.p. 2-speed **ROC** and Torpedo Sidecar £20
3½ h.p. 2-speed **N.S.U.** and Torpedo Sidecar £20
5 h.p. 2-speed **REX** and Torpedo Sidecar.....£20

All in good running order.

NEW 1914 MACHINES.

1914 1¾ h.p. **TRUMBULL** Cycle Car ..... **What offers?**
1914 2¾ h.p. **DOUGLAS**, Model V. ..... **What offers?**
1913 3½ h.p. **ARIEL**, 3-sp counter-shaft gear **What offers?**
1914 6 h.p. **NEW HUDSON**, 3 speeds ..... **What offers?**
1914 6 h.p. **ENFIELD** Combination ..... **What offers?**
1914 6 h.p. **A.J.S.**, 3-sp. counter-shaft gear **What offers?**

SPECIAL BARGAINS IN NEW ENGINES.

5-6 h.p. **BLUMFIELD** Engines, complete with inlet pipe, exhaust pipes and silencers, magneto bracket, valve lifter, magneto sprocket, variable pulley, and magneto chain cover, all new and unused £11 11

SIDECARS.

GLORIA, spring wheel, cane body, fit Triumph £5
FARLOW, 1913 underslung, cane torpedo body £5
FARLOW, 1914, demonstration wicker model £5
FARLOW, 1914, reed cane, underslung, demonstration model, condition like new £6
FARLOW, 1914, coach-built, underslung, demonstration model, condition like new £7
FARLOW, 1914, lightweight model, used trials only .. £5
Also several New **FARLOW** Sidecars at big reductions.

NEW MOTOR CYCLE FRAMES.
Fully Guaranteed.
25/- each.

FARRAR'S MOTORS
(Telephone 919)
Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

Matchless.

1913 Matchless, 6h.p., clutch model, kick starter, engine and clutch very good condition, horn, lamp, and generator, and tools; dirt cheap, £36.—King, Sunnyside, Stapleford, Cambs. [X1921

1913 (July) Matchless Combination, 8h.p., chain, guaranteed sound throughout, all accessories, every spare, Palmer tyres; any trial; £55, no offers; private owner.—31, Queen's Mews, Salem Rd., Moscow Rd., Bayswater. [8277

Minerva.

MINERVA, 3½h.p., Bosch, B. and B., new belt, tyres splendid; bargain, £13.—Allen, 19, Roselyn Crescent, Wealdstone. [8217

MINERVA, 2¾h.p., 2 speeds, free, Hellesen, perfect order; £3; exchange higher power, 4h.p. Stevens preferred.—67, Wantage Rd., Reading. [X1958

Motosacoche.

1913 Motosacoche Motor Cycle, second-hand; price £15; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea, also at Cardiff. [0548

MOTOSACOCHE, 1911, 2½h.p., free engine, lamp, horn, watch, not used during 1912 or 1913, fine appearance; approval, deposit.—J. Hill, Boreham St., Hailsham, Sussex. [8215

New Hudson.

3½h.p. New Hudson, 1913 model, 3-speed gear and free engine; £38/10. — Wauchope's, 9, Shoe Lane, London. [X1872

NEW Hudson, 1913, 3½h.p., Canoelet sidecar, 3-speed, splendid condition; £37; appointment.—Jakeman, 58, Junction Rd., N. [8328

NEW Hudson, 6h.p., 3-speed model, brand new; list price 68 gns., clear at 54 gns.—Maude's, 136, Gt. Portland St., London, W. [8392

WHAT Offers for 1914 New Hudson, 6h.p., 3-speed Armstrong gear, new July, condition guaranteed as new, cost £71?—41, Osmaston Rd., Derby. [X1973

NEW Hudson, 1913, 3½h.p., 3-speed, kick starter, decompressor, perfect condition, all complete; £30.—Baylis, Brooklyn, Osborne Rd., Farnborough. [X1855

NEW Hudson, 3h.p., 1914, 3-speed, free engine, accessories, hardly used; exceptional bargain, £40, cost £55.—18, Churton St., Victoria Station, S.W. [8305

NEW HUDSON, 3½h.p., Oct., 1913, 3-speed, clutch, new condition, semi-T.T. bars, lamp, horn, speedometer, tools, etc., suit W.P. overalls; £63, accept £40, a bargain.—Moore, 13, Leamington Terrace, Edinburgh. [X1783

New Imperial.

1914 New Imperial-Jap, light tourist, 2½h.p., new last June, new Dunlop studded tyres, P. and H head light, Mangin lens, all perfect, condition as new; 25 gns.—John Leach, Winsford, Cheshire. [8367

New Ryder.

NEW Ryder. — Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley 1745 Finchley. [0572

Norton.

3½h.p. 3-speed Norton, quite new, fully guaranteed by makers; list £59, accept £53 cash, bargain.—Parker and Son, St Ives, Hunts. [8254

NORTON Big Four, long stroke, 3-speed, handle starter; list £62, to clear £55; other models in stock greatly reduced.—Parker and Son, St. Ives, Hunts. [8255

N.S.U.

1914 3½h.p. N.S.U., 2-speed, new; list £57, accept £50.—Parker and Son, St. Ives, Hunts. [8253

3h.p. N.S.U. Twin, variable gear, thoroughly overhauled, like new; £16.—20, Chaucer St., Leicester. [X1878

6h.p. N.S.U., and coachbuilt sidecar combination, 2-speed, free engine; £17, a bargain.—79, King George St. Greenwich. [X1987

N.S.U., 1914, 2h.p., 2-speed, brand new; listed £36, accept £26; sent carriage paid.—Macrae, North Bridge Arcade, Edinburgh. [8250

1914 Brand New 2h.p. Lightweight N.S.U., 2-speed gear, free engine; list price £36, accept £31.—Parker and Son, St. Ives, Hunts. [8252

1914 N.S.U., with 2-speed gear, done under 300 miles; £35.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1803

N.U.T.

EARLIEST deliveries of the famous N.U.T. — The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—West Lancashire Motor Co., Ltd., Southport. [0573

N.U.T., 1914, 3½h.p., 3-speed touring model, brand new, unridden; listed £60/10, will accept first offer over £50; reason for sale excellent and urgent.—W. S. Life, The Cliffe, Cumberland Rd., Southport.

P. and M.

P. and M., with sidecar, 1911, 2 speeds; £18.—Hadfield, Chemist, Matlock. [X1193

P. and M., twin-cyl., 5-6h.p., 2-speed and free engine, chain driven; offers.—Phillips, 19, Richmond Buildings, Brighton [X1822

MOTOR CYCLES FOR SALE.

P. and M.

P. and M., 1912, Montgomery sidecar, Cowey, all accessories, just overhauled by makers; £40.—75, Bangalore St., Putney, S.W. [8355

P. and M., 1913, and sidecar, thoroughly good order, lamps, horn, tools, spare tyre; £50.—Coombs, 98, Sutton Court Rd., Chiswick. [X1609

P. and M. 1910-11 Combination, cane torpedo sidecar (nearly new), new chains, tyres perfect, lamp, little used; £30 cash.—Barron, 60, High St., Croydon. [8280

P. and M., late 1911, and Montgomery sidecar, 2 speeds, chain drive, Cowey, lamps, etc., splendid condition; £33.—Arthur Mylam and Co., 42, High Rd., Streatham, S.W. [8377

Peugeot.

FOR Sale, excellent 7h.p. Peugeot motor cycle, 1912 model; £30.—King, South View, Holmwood, Surrey. [X1854

Premier.

PREMIER, 3½h.p., 1911, free engine, overhauled; £18.—Summers, 76, Peabody Rd., Farnborough, Hants. [8296

PREMIER, 1912, 3½h.p., 3-speed, and new coach sidecar; £37, or £10 down and 12 instalments of £2/7/8.—Lamb's, 151, High St., Walthamstow. [8294

PREMIER, 1912½, 3-speed, with coach sidecar, lamp, horn; £37/10, or £10 down and 12 instalments of £2/9.—Lamb's, 50, High Rd., Wood Green. [8291

PREMIER, 1911, 3½h.p., excellent condition; expert examination; £22, or exchange for lightweight to value.—Fallow, 54, Grange Rd., W. Hartlepool. [X1945

PREMIER, 3½h.p., 3-speed counter-shaft, brand new; £61, sacrifice £55 for cash.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth [0571

PREMIER, 1913, 7-9h.p., 2-speed counter-shaft gear and clutch, chain-cum-belt drive, Canoelet sidecar, Watford speedometer, large P. and H. lamp, Lucas mirror, electric tail lamp, storm apron, tools, and spares, splendid order; £45.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0552

P.V.

P.V., 1912, 3½h.p. twin, perfect, Bosch, B.B., Dunlops; enlisting.—96, Elmers End Rd., Beckenham. [8222

Quadrant.

FOR Sale, 3½h.p. Quadrant, 1908 make; £5/10.—Westen Maybury Rd., Woking. [8261

3h.p. Quadrant, Bosch watertight mag., B. and B., spring forks; £9.—15, Curzon St. Leicester. [X1916

Regal.

REGAL-GREEN, water-cooled, 4h.p., Sturmey 3-speed gear, fitted with handsome coachbuilt sidecar, 1913 model; cost £85, sell turnout £42.—Brown's, 12, Bull Ring, Birmingham [X1967

Rex.

REX, 3½h.p., T.T., nearly new, very sporty; offers; photo sent.—20, Chancer St., Leicester. [X1879

REX, 5-6h.p., Bosch, B. and B., built low; £12, or exchange lower power.—122, East St., Walworth. [8383

REX 6h.p. Twin, 2-speed, free engine, and sidecar, magnificent condition; £32/10.—73, Church St., Camberwell. [8269

REX de Luxe, 4h.p., 1911-12, handle starting, 2-speed, and sidecar; £20, lowest.—Fitzgerald, 52, Burton Rd., Brixton. [X1846

REX Sidette, 1911, 6h.p. twin, complete with Rex sidecar; sell turnout £27.—Brown's, 12, Bull Ring, Birmingham. [X1960

REX, new 1913, 2-speed twin, and new sidecar; £59/15; fully guaranteed.—Motor Exchange, Westgate, Halifax. [0390

REX 1910 6h.p. Combination, 2 speeds, clutch, good condition, accessories; bargain, £22/10.—31, Cowper Av., Sutton. [8205

A 1908 Rex, 3½h.p., in good condition; what offers? Money wanted.—C. White, 33, Dover Rd. East, Northfleet, Kent. [8375

REX 6h.p. Twin, 1911 model, free engine, spring forks, in excellent condition; £20; exchanges.—Beacon, Brancaster, Norfolk. [8279

REX Sidette, new 1914 6h.p. twin, 2 speeds, coach built body; real bargain, £65.—228, Pectonville Rd., King's Cross, London, N. [8156

REX, 1914, T.T., 6h.p., very powerful machine, in excellent condition; accept £32, or exchange lower power.—87, Highland Rd., Coventry. [X2004

REX Combination, 6h.p., 2 speeds, handle starting, 1911, late, £2 spares and overalls; after 7 o'clock; £32.—30, Bloomfield Rd., Burdett Rd. [8369

REX 1914 Sidette, twin, with coachbuilt sidecar, brand new, shop-soiled only; listed £77, sell £62.—Brown's, 12, Bull Ring, Birmingham. [X1961

3½h.p. Rex Motor Cycle, perfect, £8; comfortable sidecar, adjustable fittings, complete, £2; Rudge cylinder and valves, cheap.—29, Old Lane, Bloxwich. [8315

REX Combination, late 1913, large luggage box, tyres nearly new, splendid condition throughout; any trial; must sell; £47.—Wilkinson, Weelsby Rd., Grimsby. [X1923

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VICTOR-PRECISION Light Car, complete	£115	0
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MORGAN W.C. Grand Prix	£106	0

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WILLIAMSON, 8 h.p., w.-c., and Sidecar	£98	10
REX-J.A.P., 8 h.p., 3-speed	£77	14
SUN-VILLIERS, 3½ h.p., 2-speed, F.E.	£42	0
DOUGLAS, 2 speeds, Model U	£48	0

PERFECTION, BRAMBLE, and GLORIA SIDECARS.

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Fully guaranteed by Makers.	Makers' Price.	Our Price.
6 h.p. 2-speed twin	£62 10	£53 2 6
1912 new 4 h.p. 2-speed chain drive, handle starting	£61 5	£49 10 0
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1912 5-seater **FORD,** well equipped	£70	0
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BEDELIA 8-10 h.p., twin, very speedy	£39	10
1913 3½ h.p. 2-speed **L.M.C.,** fine machine	£35	10
1913 3½ h.p. 3-speed **TRIUMPH**	£39	10
1913 **SINGER,** 2½ h.p., 2-speed, F.E.	£29	10
1913 6 h.p. **REX** de Luxe, and Sidecar	£49	10
1913 7-9 h.p. 2-speed **F.E. INDIAN**	£52	10
1913 4½ h.p. 2-speed **LINCOLN-ELK** and Sc.	£39	10
1912 New 6 h.p. **REX** de Luxe, reduced to	£45	10
1912 3½ h.p. (Bowden 2-speed) **BRADBURY**	£31	10
1912 2¾ h.p. F.E. **REX,** almost as new	£24	10
1912 6 h.p. 2-speed **REX,** chain drive	£39	10
1912 6 h.p. 2-speed **DOT-J.A.P.**	£32	10
1912 3½ h.p. 2-speed F.E. **ALLDAYS**	£29	10
1911 3½ h.p. 2-speed **HUMBER**	£22	10
1911 2-speed **SCOTT,** late model	£29	10
1912 3½ h.p. 3-speed **BRADBURY** and S'car	£33	10
P. & M., 3½ h.p., 2-speed, grand condition	£32	10
1911 3½ h.p. 2-speed **HUMBER**	£25	10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar	£29	15
1911 7-9 h.p. 2-speed **REX** and Sidecar	£29	10
1911 5-6 h.p. 2-speed **REX** de Luxe	£27	10
1911 3½ h.p. 2-speed **REX** 84½×89	£27	10
1911 3½ h.p. Tourist **REX,** spring forks	£19	10
1911 2¾ h.p. 2-speed Free Engine **A.J.S.**	£22	10
1911 T.T. **TRIUMPH,** Brampton gear	£29	10
1910 3½ h.p. 2-speed **TRIUMPH**	£24	10
1910 5-6 h.p. 2-speed **REX** de Luxe	£26	10
1910-11 5-6 h.p. 2-speed Twin **REX**	£25	10
1910 **V.S.** 7-9 2-speed and sidecar	£29	10
V.S., 6 h.p., P. & M. gear, and Sidecar	£27	10
SCOTT, w.c., 2-speed, F.E., excellent order	£24	10
F.N., 2½ h.p., 2-speed, mag. Lightweight	£23	10
CHATER-LEA-J.A.P., 8 h.p., 3-speed, chain drive, Turner coach-built Sidecar	£47	10
PEUGEOT, 5-6 h.p. 3-speed Twin	£29	10
MINERVA, 3½ h.p. magneto	£15	10
N.S.U., 4 h.p., twin, very powerful	£18	10
N.S.U., 4 h.p., 2-speed, twin	£22	0
N.S.U., 3 h.p., 2-speed, as new	£27	10
N.S.U., 3½ h.p., 2-speed spring forks	£19	10
N.S.U., 3 h.p., 2-speed, spring forks	£16	10
EXCELSIOR, 3½ h.p., 3-speed, free engine	£24	10
REX, 5½ h.p., 2-speed, magneto	£24	10
REX, 3½ h.p., 1909 Tourist	£19	10
REX, 3½ h.p., 1908, Roc clutch	£19	10
REX, 5½ h.p., twin, magneto, and Sidecar	£19	10
REX, 5½ h.p., magneto, twin, handle starting	£17	10
REX, 5½ h.p., magneto, 1908 model	£19	10
MOTOSACOCHE, magneto, lightweight	£13	10
3½ h.p. **VINDEC,** magneto ignition	£15	10
2¾ h.p. magneto **ARIEL** lightweight	£15	10
TWIN KERRY, 6 h.p., and sidecar	£19	19
TRIUMPH, 3 h.p., magneto, F.E.	£19	10
3½ h.p. **HUMBER** Tricar, chain drive	£6	15
ROVER, 3½ h.p., 2-speed, and Sidecar	£17	10
ARMSTRONG 3-speed Gear, NEW	£5	19
AVON 26×2 Studded Covers for Douglases	11	/9

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Rex.

REX, 1914 6h.p. 3-speed Combination, chain drive, coachbuilt body, condition as new; £58; exchange 3½h.p. or lightweight.—37, Clarendon St., Coventry. [X2005

REX, 5h.p. twin, Bosch mag., B. and B. carburetter, h.b.c., new Rom tyre on back; a bargain, £15.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

REX de Luxe, nearly new, 1913 Sidette, 2 speeds, 6h.p., complete with Rex sidecar; sell turnout £39/10, exceptional bargain.—12, Bull Ring, Birmingham. [X1959

REX, 6h.p., brand new 1914 combinations, coachbuilt, never been on the road, special clearance price, £66/10, list price £77/10.—Maude's, 136, Gt. Portland St., London, W. [8391

REX Combination, 2-speed, belt drive, 1914, brand new; £77/10, sacrifice £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 29, Tavistock Rd., Plymouth. [0604

REX 1914 6h.p. 3-speed Sidette, chain drive, complete with lamp, generator, Cowey speedometer, clock, and all fittings, not ridden 400 miles; £53.—Box 6,800, *The Motor Cycle* Offices, Coventry. [X1728

Rex-Jap.

REX-J.A.P., 1914, shop-soiled, sidecar combination; cash buyer, or exchange wanted.—Motor Exchange, Westgate, Halifax. [0445

REX-J.A.P., 6h.p., Mills-Fulford sidecar, 2 speeds; trial run; good condition; £38, or near offer.—Apply, Garland, 2, Finstock Rd., Notting Hill, N. [X1826

6h.p. Rex-Jap, late 1912, 2-speed, coachbuilt sidecar, splendid condition, just overhauled; owner going abroad; £40.—E. F. Miles, Sunnydale, Victoria Rd., Sutton Coldfield. [X1821

REX-J.A.P. 1913 6h.p. De Luxe, with coachbuilt sidecar, complete with lamp, horn, generator, little used, perfect running order; £48.—Box 6,799, *The Motor Cycle* Offices, Coventry. [X1727

REX-J.A.P., 1913 8h.p. De Luxe model, 2-speed, free engine, 650×65 Kempshall tyres, coachbuilt sidecar; £50; guaranteed perfect.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0596

REX-J.A.P., 1913, 4h.p., Armstrong heavy Mark VII. 3-speed gear, 26×2½in. Kempshall tyres, machine equal to new; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0592

REX-J.A.P.—We have several second-hand 1912 and 1913 combinations which we have taken in part payment of 1914 models. We are offering same at very low prices. Full list free upon request.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Rover.

ROVER, 3½h.p., £12, perfect order.—1, Mornington Place, N.W. [8311

ROVER, 3½h.p., Bosch, new tyres, engine lately overhauled; £10/10.—Speechley, 45, Church Rd., Acton. [X1993

ROVER, 3½h.p., mag., h.b.c., good tyres, reliable; £16/10.—2, Derby Villas, Trewint St., Earlsfield. [X1990

ROVER, 1912-13. 3½h.p., 3-speed, absolutely new condition, with smart sidecar; £35.—Longman, 1, King St., Acton. [8152

1912½ 3-speed Rover, perfect, new tyre, lamp; must realise, bargain, £27.—Chauffeur, Longstowe Hall, Cambridge. [8283

ROVER. 1913, 3½h.p., 3-speed, with torpedo cane sidecar, guaranteed in perfect condition; £45.—Kerr, c/o Kirkpatrick, Annan. [X2001

1913 3-speed Rover, in first-class condition; £38.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1801

ROVER Combination, late 1913, guaranteed perfect, cost £82, lamps, horn, also wicker body; £43, or near offer.—Shepherd, 21, Hillview Rd., Rusthall, Tunbridge Wells. [8318

1914 Rover Combination, 3 speeds, footboards, condition perfect, little used; expert examination and trial invited; cost with extras £80, accept £58.—Collinson, Chapel St., Bridlington. [X1887

ROVER, 1913, 3-speed, and Chater-Lea wicker sidecar -very little used, excellent condition throughout fast, silent, and reliable, all accessories; £41.—At Stourwood Garage, Stedman Rd., West Southbourne, Bournemouth. [8012

Royal Ruby.

ROYAL Ruby Lightweight, as new; £24; lamp, horn —Hornby, 107, Higher Bridge St., Bolton. [X1930

ROYAL Ruby, 2-stroke, 1914, ridden only 200 miles £20.—The Exeter Motor Cycle and Light Car Co. Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd. Plymouth. [0609

Rudge.

RUDGE, 1912, F.E., good condition, new back tyre £30.—Milligan, Raunds, Northants. [X1620

RUDGE, 1912-13, excellent order, fast, new belt; £25 —Davies, 59, Piccadilly, Manchester. [X1847

RUDGE, 1913, T.T. model, very fast; bargain, £19/10 —Brown's, 12, Bull Ring, Birmingham. [X1962

1914 3½h.p. Rudge Multi, suitable despatch riding £42.—Lawnswood. Huguenot Place, Wandsworth [X1988

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Miscellaneous.

SECOND-HAND Motor Cycles.—We have a large stock of machines in excellent condition at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

THE South-Eastern Garage, Herne Hill Station, London, S.E., offer the following bargains at special wartime prices: 1912 Kerry-Abingdon, 2-speed, and sidecar, £32; 6h.p. 1914 counter-shaft Zenith, £56, with sidecar, £64; 1913 lady's Douglas, 2-speed, £33; 4h.p. Roc, 2-speed, and sidecar, £22; 1909 3½h.p. Triumph, 2-speed, £25; 1912 3½h.p. Ivy-Precision, £23; 1913 3½h.p. T.T. Ariel, £30; 3½h.p. Antoine, £10; Kendall cycle car, 8h.p. J.A.P., hood, screen, £65, or exchange for motor cycle; sidecars from 50/-; 2h.p. Minerva engine, £3; also many other motor cycles and accessories. Write for lists. [8457

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PERFECTION Sidecars, from £5/5; trade supplied; best value out.—Motor Exchange, Westgate, Halifax. [0488

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CANOELET, Swan, and Middleton record breaking Sidecars; trade supplied.—Sole wholesale agent London, Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6609

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794.		6	twin **CHATER-ANTOINE**, magneto, 2-speed, and Sidecar; wants looking over	£12 10
563.	1910	2¼	**MOTO-REVE**	£15 0
582.	1909	3½	**REX**	£18 0
858.	1914		**JENBRO** Sidecar	£20 0
			£20 TO £30	
792.	1911	4	2-speed **BRADBURY** and Millford Sidecar	£25 0
744.	1912	3½	**ROVER**, free engine	£30 0
564.	1912	3	**WANDERER**	£22 10
547.	1913	2½	**MOTOSACOCHE**	£25 0
587.	1912	2	**HUMBER**	£28 0
633.	1914	2½	**CONNAUGHT**	£27 0
802.	1913	3½	**SINGER**, free engine	£29 0
808.	1912	3½	**ALLDAYS-J.A.P.**, Sidecar, 2-speed gear, magneto	£22 10
791.	1913	3	**NEW HUDSON**, 3-speed	£29 0
			£30 TO £40	
601.	1911	3½	**SCOTT**	£32 10
180.	1912	6	**CLYNO**, 2-speed	£35 0
1030.	1912	3½	**P. & M.**, 2-speed	£40 0
721.	1911	6	twin **ZENITH-J.A.P.** and Sidecar	£33 10
684.	1913	3½	**B.S.A.**	£35 0
694.	1912	3½	**HUMBER**, 2-speed	£32 10
250.	1912	4	**ZENITH-J.A.P.**, re-enamelled	£35 10
	1914	2	**O.K.** Junior	£29 0
559.	1911	3½	**P. & M.**, with Swan Sidecar, 2-speed	£40 0
599.	1912	3½	**TRIUMPH**	£32 10
756.	1912½	2¾	**DOUGLAS**, Model "O," 2-speed	£30 0
757.	1912	3½	**PREMIER**, 3-speed	£30 0
770.	1913	3½	**RUDGE**, free engine, like new, lamp, horn, speedometer	£35 0
			£40 TO £50	
776.	1913	3½	**NEW HUDSON**, 3-speed, belt and chain drive, and Montgomery Sidecar, complete with lamp and horn	£45 0
738.	1913	2¾	**DIAMOND**	£40 0
505.	1912	6	**ZENITH** and Montgomery Sidecar	£43 0
	1912	6	**CLYNO**, with Millford Sidecar and accessories	£42 10
793.	1914	3½	**OVERSEAS**, 3-sp. Sturmey (soiled only); cost £49	£42 10
404.	1912-13	8	**WILLIAMSON**, with Forward coach-built Sidecar	£47 10
			OVER £50	
269.	1914	5-6	**RUDGE** Multi, soiled only	£59 0
513.	1913	6	**CLYNO**, 3-speed	£57 0
736.	1914	6	**ENFIELD** Combination, 2-speed	£60 0
717.	1913-14	6	**ZENITH**, clutch model, with 1914 Gloria projectile car	£60 0
714.	1913	8	**MORGAN** Cycle Car	£65 0

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Slightly shop-soiled, but otherwise new. Cost.

1914	**CONNAUGHT**	£30 0	£33 10
1914	**CLYNO**, 2-stroke	2S gns.	£30 0
1914	**Empire Sidecar** (enclosed chassis)	£12 0	£14 10
1914	3½ **CALTHORPE**, 3-sp.	£47 10	£55 0
1914	**O.K.** Junior, 2-speed	£27 0	£30 0
	DIAMOND, 2¾ h.p., 2-speed, enclosed chain drive	£37 10	£52 10

(Two only of these left. Ideal for solo or light sidecar work.)

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SIDECARS AND FORECARS.

SIDECAR Combinations.—A few left to be cleared at keen prices. Write for full particulars. Cash or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X1814

SPORTING Aluminium Sidecar, 52 lbs., apron, lamp, jack, locker, run 800 miles only, unpunctured; cost £14, accept £6/15, bargain.—Write, Hudson, 33, Leinster Sq., Bayswater. [8216

1914 Oakleigh Sidecar, coachbuilt, 4 Millford fittings, apron, carrier, patent underslung chassis, been 300 miles; £7.—Smith, Architect, Victoria Rd., Oxford. [8301

1914 Kerry Underslung Chassis, quick detachable, torpedo, wicker, Michelin, very low and comfortable; cost £9/12, accept £5/10, no offers.—Royston, Camborne Rd., Sutton. [X1938

WELDED Sidecars. — Purcells' art catalogue of welded sidecars is the most detailed list issued; 30 models; trade quoted.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [3760

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HUMBERETTE, 1913, 8h.p., air-cooled, just overhauled and re-painted; £75.—P. J. Evans, John Bright St., Birmingham. [8351

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2-SEATER Cycle Car, converted from Wolf 7-8h.p. tricar, very strong; cost 100 gns., not ridden 500 miles; £20.—North View, Heath Rd., Runcorn. [X1972

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A.C. Sociable, fitted with lamps, hood, screen, and several extras, a very smart turnout; price £65; any severe trial given.—Wauchope's, 9, Shoe Lane, London. [X1867

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CARDEN, 1913 (Nov.), 3¾h.p. Precision engine, Albion clutch, chain drive, finished green, splendid order; £35.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0479

A.C. Pattern Cycle Car, 4½h.p. De Dion engine, mag., new, wants dash and guards to complete; what offers?—Morgan and Maxwell, The General Motories, 80, High Rd., Streatham. [X1957

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10-12h.p. Humber, 2-seat., completely equipped, perfect order and condition; £50; exchange for sidecar combination.—G. G. Williams, Crowland, Peterborough. [X1944

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CLYDE, 10-12h.p., 3-speed, gate change, mag., live axle, 2-seat., scuttle dash, new tyres, screen, etc., perfect; £36, or exchange for motor cycle.—Fernlea, Hillcrest Rd., Acton. Tel.: 1678 Chiswick. [8154

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BASTONES.—New Rex 6h.p. twin engines, with pulley, silencer, and pipes, complete, less magneto; £12/10.

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BASTONES.—Rex 5-6h.p. twin engine, with Bosch mag., £9/9; 3½h.p. single, with Bosch mag., £8/8. —228, Pentonville Rd., King's Cross, London. [8160

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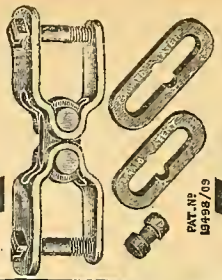

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24 Hours Magneto Repair Service.—All makes o magnetos, coils, or accumulators repaired by ex perienced mechanics, and returned within 24 hours a efficient as new. Spares for all makes stocked.—Simm Motor Units, Ltd., 191, Wardour St., London, W. [063

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BASTONES.—Balata and chrome belting, ⅞ 10d., 1in 1/-, 1⅛in. 1/2 per foot.

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CLEARANCE Dunlop Belting, 7ft. 6in.×⅞in., with fastener, 7/-.—Layton's, Bicester. [X189

SPECIAL Line Balata and chrome belts for autumn and winter use, ⅞in. 10d., 1in. 1/-, 1⅛in. 1/2 per foot, post free.—Pollin, V Belt Specialist, Shepherds well, Dover. [816

ELITE.—Special clearance line in Lyso belts, fully guaranteed by the manufacturers (the Avon Rubber Co.), 7ft. 6in.×⅞in., suitable for Triumph, etc., 7/- each; only a few left.

ELITE.—Continental belts, rubber and canvas, 1in. 1/6 a foot (list price 2/2), ⅞in. 1/3 (list price 1/11), ¾in. 1/1 (list price 1/7), ⅝in. 11d. a foot (list price 1/5).

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ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria (one minute from Victoria Station), and 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phones: Victoria 6553, and Brixton 2042. [9069

TYRES.

BASTONES.—Special clearance line of brand new Englebert and Collier covers.

BASTONES.—Englebert plain ribbed covers, 26×2¼; 14/-.

BASTONES.—Englebert rubber studded, solo model, 26×2¼; 16/6 (list price 30/6).

BASTONES.—Englebert touring rubber studded, 26×2¼; 19/6 (list price £1/17/6).

BASTONES.—Englebert Passenger, rubber studded, 26×2¼; 25/- (list price £2/1).

BASTONES.—Englebert super reinforced rubber studded, 28×3; £1/19/6 (list price £2/19/6.

BASTONES.—Collier heavy square tread small car covers, 650×65; 23/-.

BASTONES.—Henley oversize covers, heavy, 700×80, fit 650×65 rim; 25/6.

BASTONES.—Midland heavy ribbed and studded, clearance, 26×2¼; 18/6.

BASTONES.—Hutchinson Brooklands rubber non-skid, 26×2, 12/-; ribbed pattern, 26×1¾, 10/6.

BASTONES.—Hutchinson 1913 T.T. rubber studded, 26×2½, to fit 2¼ rims, 24/-; passenger, 26×2½, 25/-.

BASTONES.—Michelin covers and tubes. See previous adverts.

BASTONES.—Guaranteed red tubes, 26×2 4/9, 26×2¼ 5/6, 26×2¼ 6/-, 28×2 6/-.—228, Pentonville Rd., King's Cross, London, N. [8155

TYRES.

NET Prices for tyres, best goods; lowest trade prices.—City Rubber Co., Peterborough. [8259

6×2½ Spencer-Moulton Cover, beaded, new; 17/6.—58, Lessar Av., Clapham Common. [8260

HOLYOAKE'S, 92, Battersea Rise, S.W., for re-tread motor cycle tyres, inner tubes, vulcanising, treading. [X1982

IGA Plain Tread Cover, 26×2½, only ridden 60 miles will accept 15/-.—Box No. L6,155, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0589

FOR Sale, two Hutchinson T.T. rubber-studded new covers, 26×2½, fit 26×2¼ rims, 20/- each; also two ditto passenger, 24/- each.—Rossiter, Draper, Kingswood, Bristol. [X1848

1,000 New Motor Cycle Covers, any size, from 9/- each. Our speciality, bursts, re-treads. Butts fitted in 30 days.—Premier Tyre Repairing Co. (1914), Newman Passage, Oxford St., W. 'Phone: 47 Museum. [8008

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ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Send for price list, together with free sample of Elite Sticktight patches.

ELITE.—Kempshall clearance covers, heavy non-skid, 26×2¼ 35/-, list price 45/-; 26×2½ 40/-, list price 50/-; 650×65 45/-, list price 67/6; 28×3 69/-, list price 97/6.

ELITE.—Kempshall clearance covers, heavy anti-skid, 26×2¼ 24/6, list price 32/6; 26×2⅜ 26/6, list price 37/6; 28×2½, suitable for Indian, 30/-, list price 42/-; 28×3 35/-, list price 57/6; Kempshall sidecar covers, 28×3 25/-.

ELITE.—Special clearance lines of Wood-Milne covers, 28×3, heavy grip rib pattern, 25/-.

ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 27/-.

ELITE.—Dunlop Pillion covers, 1913 stock, 650×65; 25/-, list price 50/-.

ELITE.—Midland heavy ribbed and studded covers, special clearance line guaranteed for 3,000 miles, 26×2¼ 25/- (list price 37/6), 26×2½ 27/6 (list price 40/-).

ELITE.—Clincher A Won covers, 26×2, B.E., 13/6; Hutchinson Brooklands, 26×2, B.E., 12/-; Michelin light, B.E., 26×2, 8/9. Special clearance lines.

ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2½, 28/- (list price 41/3), 26×3 to fit 2½ rims 26/- (list price 44/-).

ELITE.—Hutchinson covers, wired on, Passenger 26×2¼ 20/-, 26×2 18/6, T.T. 26×2¼ 18/6.

ELITE.—Hutchinson small car covers, 650×75, to suit 650×65 rims, 25/- (list price 39/5).

ELITE.—Clincher heavy rubber studded covers, 26×2¼ 17/6 (list price 34/-).

ELITE.—Dunlop heavy rubber studded covers, 26×2¼ 14/3 (list price 30/-), old 1913 stock.

ELITE.—Clincher 700×80 covers, plain tread 21/6. Clincher tubes, 700×80, 6/6, suit 650×65 rims.

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ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26×3 7/6, butted 1/3 extra.

ELITE offer a rebate of 7/6 off new motor cycle covers costing not less than 40/-, providing old covers are returned with order, and 15% off covers listed at less than 40/-. This offer does not apply to clearance lines mentioned above.

ELITE.—Motor cycle covers re-treaded by special process; treads guaranteed not to come loose; special heavy 15/-, heavy 12/6, medium 10/-; sections to application.

ELITE.—It is impossible for us to advertise all the special lines which we have in stock; therefore, if there is anything which you require which is not mentioned in our advertisement we shall be pleased to quote you upon receipt of a postcard.

ELITE Rubber Co., 264, Vauxhall Bridge Rd., Victoria, and 260, Coldharbour Lane, Loughborough Junction, Brixton, S.W. 'Phones: Victoria 6553, and Brixton 2042. [9072

CLEARANCE Tyres.—Clincher de luxe studded, carries makers' guarantee, 26×2⅜, to fit 2¼, 35/-, listed £2/1; 26×2¼ ditto, 24/-; 26×2in. Clincher ribbed, 12/6; Clincher inner tube, 26×2in., 2/3; 26×2½ Palmer heavy fabric, 19/6; one Hutchinson, 26×2¼ passenger type, slightly worn, 14/6; one 1913 Dunlop, new, 26×2½, 14/6; partly worn 26×2½ Dunlop, 8/6; 26×2¼ W.E. Dunlop and 26×2in. beaded Dunlop, 8/-; 650×65 partly worn Clincher Treadnought, 12/6; new but soiled 26×2⅜ to fit 2¼ Palmer cord, 25/-; Dunlop 700×80, fit 65 mm. rim, heavy plain, 25/-; 650×65 steel-studded, 32/6; new but patched Dunlop tubes, all sizes, in 26in., 4/3; approval against cash.—Pitts, Redditch. [8401

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Being universally recognised as the ONLY PERFECT device for totally absorbing vibration and road shock, to INSIST on the presence of the "DRUID" in the construction of the machine you purchase is surely only wise and reasonable!

We will gladly send you full particulars of the "DRUID."

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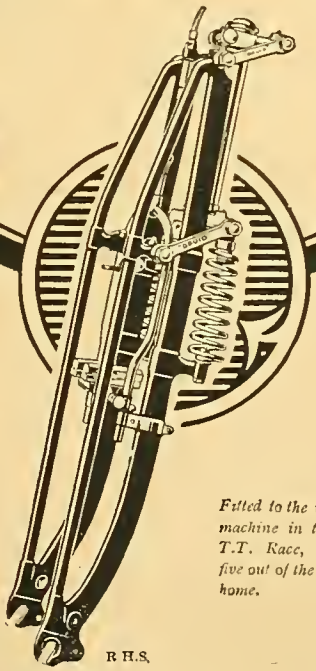

Fitted to the winning machine in the 1914 T.T. Race, also to five out of the first six home.

R.H.S.

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LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchers, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

LEGGATE, Edinburgh.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6; 26×2¼ 32/6, list £2/7/3; 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10. An experienced sidecarist says: "Dreadnought le undoubtedly IT."

LEGGATE, Edinburgh.—1914 Clincher De Luxe heavy 6-ply fabric, rubber studded, beaded covers; 26×2⅜, to fit 2¼ rims, 27/6, list £2/1; 26×2½, 29/6, list £2/2/9. A customer writes: "The De Luxe tyre is truly marvellous value."

LEGGATE, Edinburgh.—1914 Clincher A Won, heavy rubber studded, bearded covers, 26×2 21/-, list 31/6; 26×2¼ 23/-, list 34/-; 26×2½ 23/-, list £2/1/6.

LEGGATE, Edinburgh.—1914 heavy Clincher made, rubber studded, beaded edge covers, 26×2 17/6, 26×2¼ and 26×2½ 20/-; exceptional value.

LEGGATE, Edinburgh.—Heavy tubes, brand new, 26×2 6/6, 26×2¼ 6/6, 26×2⅜ 6/6, 26×2½ 7/-; worth double.

LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against remittance. Should a customer, for any reason, wish to return a tyre we pay carriage both directions, and refund cash in full.

LEGGATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh. [X1841

TYRES, second-hand.—650×65 8/-, 26×2½ 8/6.—53, Brownhill Rd., Catford. [8330

ECONOMIC Tyre Co., 137, Lewisham High Rd., S.E.—Economic.—Dunlop heavy 1913 26×2¼, 14/3. Economic.—Hutchinson T.T. clearance 26×2½, 25/-. Economic.—Non-skid clearances Kempshall 26×2¼, 35/-. Economic.—Ditto 650×65, 45/-. Economic.—Rubber belting, ⅞in 1/-, 1in. 1/3, guaranteed leading British manufacture. Economic.—Get our terms for special M.U. insurance. [8331

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£2/2 Secures Course Driving Lessons on modern car until proficient and satisfied; mechanical instruction and driving, £3/3, continuous instruction until satisfied. Car will be lent to pupils free to demonstrate driving ability to employer after expiration of training.—Palmer's Garage, Tooting. [8337

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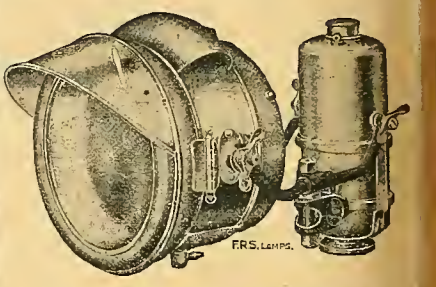

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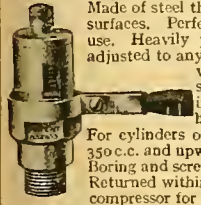

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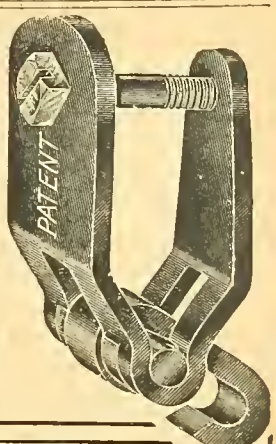

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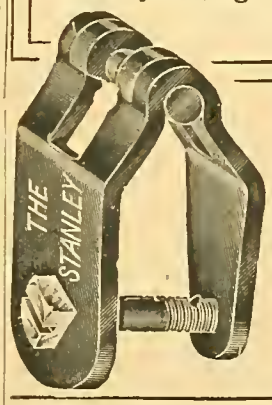

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COMPRESSION.—Cylinders re-bored and ground, new pistons, rings, and gudgeons, complete, 16/-; overhauling, re-bushing, efficiency guaranteed. —Reliance Motor Engineering Co., Spon Lane, Smethwick, Birmingham. [7282

F.N. Owners Note.—W. Earl, late foreman at the Highbury repair works, is at your disposal for all repairs. Our special engineering plant and the personal attention of a recognised F.N. expert will ensure best results at minimum expense.—Below.

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3-SPEED Gears for any model 4-cyl. F.N. Special offer during war period only. We will make liberal allowances for older pattern gears in part exchange for our latest 3 or 2-speed gears. Particulars and quotations gladly on application.—Earl's Engineering Works, 5, Heath St., Hampstead. 'Phone: Hampstead 3287. [X2002

LOWEST Prices Quoted for any repairs or complete overhauls to motor cycles, cycle cars, or cars, or work done on the premises and fully guaranteed; cylinders cleaned by oxygen process, 2/6 single, 4/6 twin.—Maudes, 136, Gt. Portland St., W. [7348

WAR, because of it we need work. Our need is your opportunity. To keep our factory going we shall sell at virtual cost. Cylinder re-bored, fitted complete new piston, rings, and gudgeon, 15/6; re-bushing equally cheap; frames altered and repaired, welding successfully executed, and every description of motor work undertaken. Each job finished in Tennant's irreproachable style, and bears full guarantee; thorough satisfaction assured. Present quotations hold good only if work is sent immediately. Our standard rates will be charged as soon as normal times return.—Tennant Engineering Co., Pershore St., Birmingham. Official repairers A.C.U. [X1888

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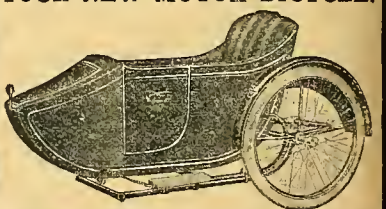

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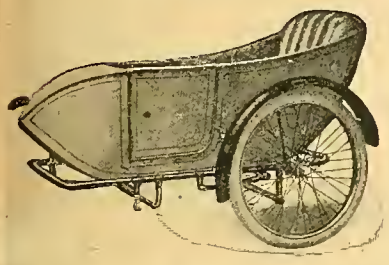

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No Jockey Pulley.
No Belt Slip.

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GODDARD'S MOTOR CYCLE HOUSES

Ft.	Ft.	Ft.	£	s.	d.
6	x 4	x 6 high	1	17	6
7	x 5	x 6½	2	7	6
8	x 6	x 7	2	15	0
9	x 6	x 7½	3	2	6
10	x 7	x 8	4	6	0
12	x 8	x 8½	5	5	0

Wide double doors 2/6 extra.
Carriage Paid.

These houses are made in sections to bolt together. Easily erected. Made of well-seasoned ⅞in. T. and G. and V-jointed matchboards, and complete with floor and window. Roof covered with Patent Vulcanite Roofing. New illustrated catalogue with prices of other houses post free.

Copy of Testimonial.—Audley Range, Blackburn, 11th Sept., 1913. Sirs.—Glad to say received "Gem" Motor House all in order, and it justifies its name. Am well satisfied, it was erected in less than a quarter-of-an-hour. Yours faithfully, J. S. HOLMES.

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IT'S CERTAIN TO SATISFY

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MORMAN and Bliss, London Rd., Hounslow.—Reduced prices during war. C.I. pistons, rings, and gudgeons, from 9/6; bushes, 2/-; valves, 3/-. Simplex steel pistons, hollow connecting rods, supplied to order. Special silencers, aluminium ends, steel barrel, and extension pipe, smart, efficient; twins 18/6, singles 14/6. Illustrated list free. [7541

MISCELLANEOUS.

A

WRITE P.C. for 1914 catalogue, 180 pages, 1,000 illustrations; all the latest accessories, lower prices than any other house. The Juno 2-stroke, £26/5, 46/3 month, with 2-speed £33, 58/4 month; the Juno 5-6h.p., for sidecar or tradesman's carrier, £61/15, 106/8 month; Auto-Wheels, £16/16, 30/10 month; flags with number plate clip, 9d.; number plate flag clips, 4d.; fork girders for Auto-Wheels, 5/3 pair; mudguard extensions with stays, 1/-; Auto-Wheel shock absorbers, 7/6; sidecar lamp brackets, 8 patterns, from 1/6; silencers, 3/3 to 25/-; valves from 2/6; accessories to value of £4 supplied on monthly payments; engines, any make, cash or monthly payments; sidecar wheel shields, 1/6; side-car rear lamps, 3/6, 5/6, 8/9, 10/6, 11/6; wheels, 26×2¼, with Villiers free engine hub, 105/-; leather helmets, 4/3; portable vulcaniser, 15/-; belt rim brakes, 8/-; decompressors, 8 patterns, from 5/-; lathes, £5/10; counter-shaft geare, 105/-; pannier seats, 10/6; kick starters, 14/9; Philipson pulley controls, 15/-; Fitall gears, 105/-; Ucito couplers, 21/-; oilskin suits, 11/10; tanks or pulleys made, any size or pattern; handle-bars, 7 patterns, from 5/-; knee grips, 4/-; sidecar bodies from 25/-; side-car aprons, 6/-; sprieg shackles, 7/6 set of 4; Mangin mirrors, 5/-; any make of machine or sidecar bought, sold, or supplied on monthly payments; belting and tyres all makes; head lamps, 20 patterns, from 8/6 to 60/-; belt rims, 5/6; side wings, 2/6 pair; Stewart speed indicators, 50/-; Watford, 63/-; Jones, 63/-; post horns, 9/6; sidecar gongs, 6/9; motor cycle houses from 32/6.—M.C. Department., Metropolitan Machinists' Co., Ltd., 248, Bishopsgate, London, E.C. Phone: Central 12357. [6615

THE Bancroftian Co., the cheapest house to the United Kingdom for motor accessories.

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BANCROFTIAN Co., 64, Bishopsgate, E.C. Tel.: 9897 London Wall. T.A.: Chaikel, Loodon. [2989

SENSPRAY, 28/-; black Lucas horn, 14/-.—Williamson, North St., Ashton-under-Lyne. [X1935

FRAMES, tanks, and wheels built to order.—Bright and Hayles, 73, Church St., Camberwell. [8273

TRIUMPH Rear Frame and wheel, £1; Cowey speedometer, 35/-.—Ormand, Beelsby, Grimsby. [X1829

2¾h.p. Kerry, accumulator ignition, splendid tyres; 7 24 gns.—Ellison, Harlton Rectory, Cambridge. [X1808

FOR Sale, Zenith 1913 Tank, complete, or exchange for speedometer.—2, Park Terrace, Pontypool. [8210

1914 B. and B., new, 19/6; ¾ gallon Barthel brazing lamp, new, 32/-.—9, Caxton St., Middlesbrough. [8363

CARBURETTER, Binks, 3-jet, new condition; approval; 18/-.—Wilkinson, Weelsby Rd., Grimsby. [X1924

1914 Sturmey-Archer 3-speed Wheel, 26×2¼, brake drum, controls, new.—Stocks, Thurlstone, Sheffield. [X1481

OILSKINS.—Poncho's 15/6, overalls 7/6, cap covers 3/-. Sou' Westers 2/6. D.B. coats 9/6, reproofing from 2/6.

WATERPROOF Repairs.—We repair our garments free of charge, accidents included; other makes at nominal charges.

SOLDIERS' Clothing.—Helmets, waistcoats, etc.; send for special list; waterproof handle-bar muffs for despatch riders 5/6.

MOTOR Suits.—Tri-breasted coats and overalls, 21/-, complete; repairs free.—Para Rubber Co., John Bright St., Birmingham. [0602

N.S.U. 2-speed Gear, fits Triumph, 8 gn. model, condition perfect; £4/10, offers.—England, Dixon St., Featherstone, Yorks. [X1845

CYCLE Car Chassis, complete, except engine, £6; small fan, 6/1; oil pump, 3/-.—MacEwen, 60, Montgomery St., Edinburgh. [X1825

LOOP Frame, forks, tank, 26 wheels, tyres complete, carrier, handle-bars; first £1 P.O.—Coates, Church St., Holbeach, Lincs. [X2006

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WILL do.

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ROBERT H. PATTERSON (Manchester), LTD.,
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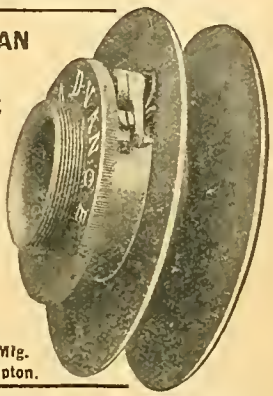
12/6 BUYS AN "ADVANCE" ADJUSTABLE PULLEY



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CYCLE AND MOTOR CYCLE SIZES:

Sizes. Approx.	Ordinary Steel Pins.	Plain Stout Pins.	Screwed Staff & Nuts with brass base piece.	With Handle-bar or Number Plate Clip. Stout Pins
106BS. 6″×3″	4½d.	6d.	7½d.	9½d. "Scilka"
106GS. 9″×4″	—	7½d.	9d.	1/- ,,
106FS. 6″×4″	Special Combination Flag, printed all in one— E., F., R., & B.	6d.	7½d.	9½d. ,,
106BC. 6½″×4″	4d.	4½d.	6d.	6d. Stout Cotton. With handle-bar clips only
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All Flags mounted on Rustless Staffs, with Solid Brass Ornaments.

NO HATPINS USED.

SPECIAL THIS WEEK.

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No. of Flags on one Clip.	Size of Flags. 4″×2″	6″×3″
Three.	1/6	2/6
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Five.	2/9	4/-

Can be supplied with Handle-bar Clips, Number Plate Clips, or for fitting to Mudguard or Radiator Cap, all one price. Post. 2d.

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Double doors 2/6 extra.

Prices are on rail Staines Station.

These houses are tenants' fixtures, and can be bolted together in a few minutes. They are made of sound, well-seasoned matchboard, and complete with floor. Window in any desired position. Roofs of Stoniflex Felt. We treat each house with Brown Sideroleum Catalogues with particulars of other sizes Free.

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With free air passage. No butt ends to burst

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MISCELLANEOUS.

COWEY Speedometer, guaranteed. 29/-; N.A.B. spring seat pillar, 5/-.—Bleacathra, Highfield Rd., Walton-on-Thames. [X1886

MAGNETO Twin, perfect, also 9h.p. Riley car, and quantity motor goods; cheap.—Davies, 1, Hillside, Stonebridge Park, N.W. [X1856

DURING the war, to stimulate business, great reductions in accessories. Send for price list.—Scholes, Pasture View, Armley, Leeds. [X1876

CARBURETTER?—Badcock's By-pass will make yours better than the best; see displayed advertisement in last or next issue. [0261

N.S.U. 2-speed, fit Bradbury, used solo only, new pulley fitted, not since used, equal to new; £4/10.—Hallworth, Midway, Poynton, Cheshire. [X1932

SHED, suit combination, lamp set, 28×3 cover and tube, T.T. bars, speedometer, Klaxon and Lucas horn, etc.—Stoner, 110, Highgate Rd., N. [X1812

LUCAS King's Own Lamp Set, as new, used once, perfect condition; cost £1/12/6, accept 25/-, bargain.—F. E. Johnstone, Westcott, Wantage. [8352

BOOTS.—Save nearly 50% buying from factory direct. Agents wanted. Send postage 2d. for list and particulars.—British Boot Co., 274, Portland Sq., Bristol. [7617

MABON Clutch, adjustable pulley, ¾ bore, fit Rex, little used, 37/6; forecar frame, 26in. swivel wheels, springs, 7/6.—Chevill, Willingham, Cambs. [8284

SIDECAR Hood, new, with fittings, 28/-; pair Druid spring forks, 25/-; new twin magneto, watertight, £3/18; Bosch single, £3.—Brown's, 12, Bull Ring, Birmingham. [X1969

MOTOR Castings, attachments; castings, 2b.p., 24/- upwards; repairs, boring, new pistons. Model ½h.p. tooled motors, 9/9; catalogue, stamp.—Littleover Motors, Derby. [X1726

PAIR Electric Side Lamps, torpedo, cycle car or small car, 16/-; 26×2½ Palmer, good cover, 10/6; 26×2¼ ditto, 9/6; 700×85, also 700×80, 12/6.—Day, 84a, Newark St., New Rd., Stepney. [X1975

50 Leatheries De Luxe Large Size Saddles, fitted patent anti-vibrating springs, 8/6, list price 15/6; Binks 1913 2-jet carburetter, to suit big-powered engine, 15/-.—Pitts, Redditch. [8402

REX Frame, girder forks, mudguards, tank and fittments, saddle, handle-bars, Bosch mag., splendid condition; £4/5; 3½h.p. Rex engine, £3; lot £7; offers considered.—Teesbridge Brickworks, Stockton. [X1949

26×2½ Tube, 4/6; 1913 Senspray, 16/6; 26×2¼ steel-studded tyre, £1; tool kit, 6/6; splendid large brass head light and generator, as new, less bracket, 25/-.—Curd, 35, North Rd., Brighton. [8362

COMPLETE Head Light, perfect, 12/6; 3½h.p. Humber cylinder and piston, 15/-; sidecar wheel, new, plated, 10/-; adjustable pulley, 4/6; motor suit, new, 22/6.—Fearn, Drapery Stores, Alfreton. [8385

MISCELLANEOUS.

FOR Sale, complete electric light house plant, £35; Sherborne engine, petrol driven, 14 glass cells, 250 candle-power, 30 volts, 8 amperes; or exchange motor cycle combination.—Druids Head, Herne Bay. [8243

XL'ALL Pan Saddle, cost 50/-, as new, 35/-; B.B carburetter, 15/-; coachbuilt Pillion seat, cost 25/-, never used, 16/-; valve grinder, new, 3/6, or offer; no use to owner.—Bran, 20, Foulton Rd., Earlsfield. [8244

FIRST Remittance £3/10 secures 3½h.p. Rex engine, nearly new B.B., coil, dry battery, frame, wheels, and tyres, and numerous accessories, ready to make into good motor bike.—B. Shorter, 1, Audley Rd., Saffron Walden. [8227

MOTOR Oil, highest viscosity, non-acid, non-gumming, impossible to obtain better; sample gallon 2/3, 5 gallons for 10/-. Don't pay fancy prices.—Aldridge, Islington Green, London, N. Established 100 years. [7408

VERY Low Up-to-date Frame, 25/-; 2-speed and F.E. counter-shaft gear, 35/-; B. and B. carburetter, 14/-; ditto lightweight, 13/-; J.A.P., others; 28×2 wired Michelin, 6/-.—Riley, 17, Stockport Rd., Ardwick, Manchester. [X1833

PULLEYS for any motor.—Dion, 6/-; Motosacoche, Moto-Reve, 4/-; others 4/9 each; adjustable pulleys, 10/6, plated, guaranteed, carriage paid.—J. Perkins, 455, High Rd., Leyton. 'Phone: 248 Walthamstow. [8196

VILLIER'S Free Engine Hub, built into 26×2¼ B.E. rim, with brake rim attached, 19in. belt rim, for ⅞in. belt, complete with all controls, perfect; accept 30/-.—Dene Motor Cycle Co., Haymarket, Newcastle-on-Tyne. [X2000

N.S.U. 2-speed Gear, equal new, £3/15; high tension magneto, perfect, 30/-; Rex frame and tank, 7/-; lamp and generator, 7/-; carburetter, 3/-; Rex torpedo £15 cane sidecar, £3/10; 1913 torpedo cane body, 35/-.—138, Catherine St., Leicester. [X1927

N.S.U. 2-speed Gears in stock to fit all known makes at 1914 reduced prices. The easiest gear on the market to fit, no alteration to the motor cycle necessary, ideal for sidecar work. Trade enquiries invited; specialists in repairs to these gears; all spares stocked.—Eagles and Co., High St., Acton. [X1917

MAUDES.—Any of the undermentioned sent on 3 days' approval against remittance: Pillion seats, 3/3; tool kits, 9 tools, 4/-; various toolbags, 2/- each; second-hand belts, various lengths and sections, 3/6; Pillion seat and footrests, new, 10/-; shop-soiled lamps, back fixing, 5/- each; horns, various, 3/-; new 4-cyl. Ruthardt magneto, 85/-; new 1913 Binks carburetter, 25/-; P. and H. shop-soiled complete lamp sets, large size, 20/-; Powell and Hanmer ditto, 14/6; Cowey speedometer, new, 57/6; ditto, second-hand, 37/6; valves, all engines, 2/- each; shop-soiled N.S.U. gears, £5/5 each; torpedo wicker sidecar bodies, like new, 25/-; second-hand carburetters, B. and B. 12/6, Lukin 15/-, lightweight Senspray 20/-.—136, Great Portland St., London, W. [8395

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Standard BELT FASTENERS

are before all else Simple, Safe, and Sure. A belt fastener that has unique features yet is not complex and has no freakish ideas embodied. Just a plain, straightforward, serviceable fastener made on correct principles, and that has proved its worth in Trials and private service everywhere. Users write: "....have found yours the most reliable and satisfactory...." "....most satisfactory of any I have used." Over 365,000 were sold in 1913. Think of it—a thousand every day of the year—and all giving satisfaction. Now why not do away with your belt trouble once and for all. We guarantee all our fasteners for ever. We couldn't do more, could we?

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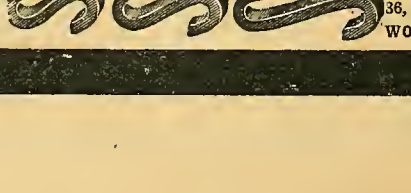

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An index to advertisements will be found on the page facing the back cover.

Why does an Engine Konk?

ONE of the most interesting problems in connection with internal combustion engines is the cause of pounding in an engine, or what is commonly known among motor cyclists as "konking."

In this issue we publish an article on the subject, in which the writer differentiates between konking as applied to motor cycle engines, pinking as applied to cars, and piston tapping, a term used by gas engineers on the one hand and knocking (due to a loose bearing) on the other. The article forms interesting reading, and will, we hope and expect, lead to an interesting and instructive discussion on the subject. Most of the arguments apply to the "T" or gamma-headed types of engine as on cars, the rock of the piston due to the side thrust of the explosion being, briefly, the cause of konking. The conditions in the case of a motor cycle engine are, however, somewhat different, as the valve pockets, in the majority of cases, are at the side, and consequently the angularity of the connecting rod does not tend to drive the piston toward the valve pockets. This fact somewhat destroys the weight of our contributor's arguments, and it is clear that a motor cycle engine requires special treatment. The writer's conclusions favour the overhead valve type of engine, the hemispherical cylinder head and a central position for the sparking plug. It is certain, however, that an engine conforming to the ideals laid down would not be entirely immune from konking, and as the theory of side thrust of the piston due to the valve position causing konking is somewhat destroyed by the fact that the valves are not in front of the engine in the case of a motor bicycle, though the argument may apply to cars, we must seek further for the true causes of konking. We are, of course, dealing with a clean engine. The formation of carbon deposit will quickly lead to pre-ignition and consequent konking if the engine is given hard work for any length of time.

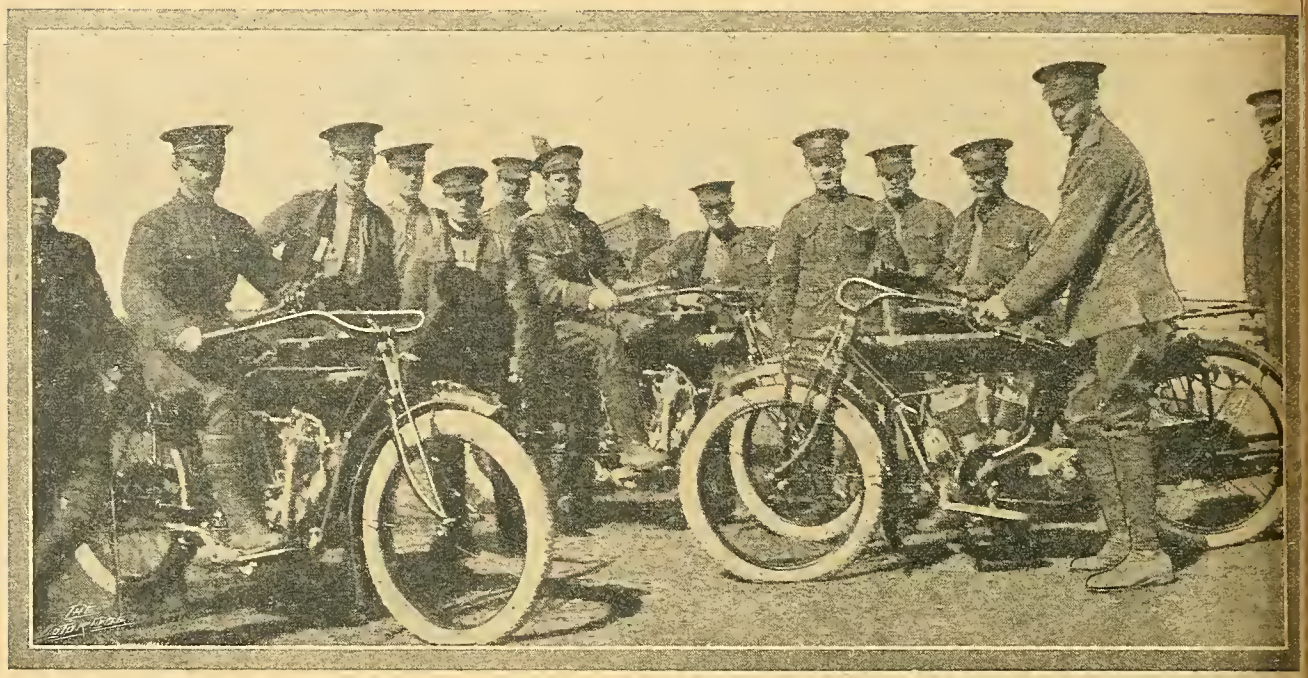
To Encourage Two-strokes.

THE ever-increasing number of two-stroke motor cycles on the road shows that the movement has gained a firm hold, and that the advantages of this form of engine in the way of simplicity, even torque, lightness, and low cost of manufacture are being more and more appreciated. Trials have shown that even the lightweight two-strokes are thoroughly reliable, and machines of under 300 c.c have obtained maximum awards in both the Scottish and English six day events of 1914.

The experience of many of our present day designers is founded on launch work, and in consequence our present types of motor cycle engine are likely to be subject to very considerable improvement before long. The question of the best and quickest method of hastening forward these improvements arises, and it appears that a special class or classes for two-strokes only in the various reliability trials, hill-climbs, and speed tests at Brooklands (especially the latter) would be an immense help in this respect. At the present moment few two-stroke motor cycles would stand much chance against engines of the four-stroke type in their respective classes, and for this reason they do not appear on the track. Now it is generally admitted that Brooklands has provided some of the most valuable experience possible, and manufacturers of four-stroke engines have not been slow to embody the results of such experience in their standard designs, consequently it would seem wise to encourage two-stroke engines on the track to the greatest possible degree, so that designers may have every opportunity of picking up such knowledge as cannot be obtained by drawing office and test shop work. On the score of simplicity alone the two-stroke is well worthy of encouragement, and when the many other advantages of this type are considered it becomes a matter of some importance that the brains of some of our cleverest designers are turned towards the light and cheap two-stroke engine.

Motor Cyclists in the Canadian Troops.

Their Up-to-date and Complete Equipment.



Some of the motor cycle squad of the Canadian Field Force at ease.

WITH the exception of aeroplane equipment, the first Canadian Expeditionary Force of 32,000 men, now on Salisbury Plain, is probably as completely fitted as any of the allied troops engaged in the European conflict. The mechanical section includes automobile gun batteries, motor ambulances, officers' cars, repair shop vehicles, and, last but not least, an efficient motor cycle and bicycle corps. In addition, the Ninetieth Regiment from Winnipeg has a decidedly interesting fighting accessory in the shape of a motor cycle machine gun unit, consisting of a 7 h.p. two-speed motor cycle and sidecar upon which is mounted a modern quick-firer. This machine was illustrated in *The Motor Cycle* of September 10th.

Motor Cycle and Bicycle Squad.

Wild rumours always accompany or follow extraordinary events, which is the reason why the report has been heard that Montreal patriots were equipping a motor cycle brigade of 200 machines to accompany the Canadian Army. Such is not the case, and, incidentally, it may be mentioned that there are not 200 motor cyclists in the whole city of Montreal. But the motor cycle and bicycle squad that has recently arrived in England will undoubtedly prove its mettle when the supreme test comes.

The squad is made up of thirty-two motor cyclists, mostly from Toronto (the real centre of riding in Canada), and about 300 push cyclists gathered from many points. The Toronto motor cyclists are made up of crack dirt track racers and competition riders of note, several of whom are very prominent in local club circles. For obvious reasons it is not permissible to give a list of the members of the squad.

Properly Equipped and—

These staunch riders have the best of equipment for this, their greatest test of endurance. The thirty-two men have fifty brand new Indian 7 h.p. two-speed machines at their disposal, eighteen of which were not even uncrated before they reached England, and are being held in reserve in case of emergency. No less than 500 Canadian-made bicycles have been supplied for the Canadian cycling soldiers. This means about 200 bicycles in reserve. In addition to the usual equipment to the machines, a great stock of tyres and other necessary fitments has been brought.

The Toronto branch factory of the Hendee Mfg. Co., from which the fifty Indian motor cycles were purchased by the Canadian War Department, gave up several of its expert repair men and mechanics to look after the machines at all times. These men will not be handicapped for lack of machinery, because the Russell Motor Car Co., of West Toronto, was called upon to supply several travelling repair shops, the machinery of which includes lathes, drills, reamers, etc. One of these will be at the service of the cycle brigade.

—Well Fitted for Arduous Work.

While the duties of the Canadian riders will not be more than the usual work of men attached to the British Intelligence Service, "Jack Canuck" can be relied upon for a bit of rough-riding when occasion demands. Accustomed to rotten roads and wintry weather (in season), the Dominion bicycle-punchers will surely give a great account of themselves, especially during a winter campaign. And they're prepared! Last winter these self-same stalwarts were riding in and around Toronto in near-zero weather *for pleasure*. They wouldn't be Canucks if they didn't like snow and frost.

At the time of writing Canada is making ready for a second contingent of 22,000 fighters, and there will be no difficulty at all in raising a second motor cycle and bicycle squadron.

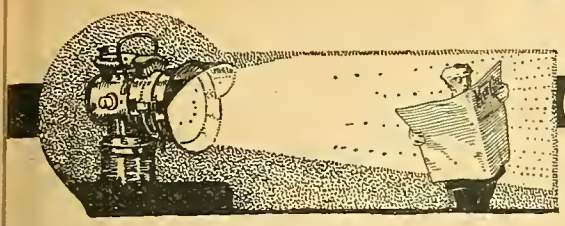
One of the most prominent of Canadian motor cyclists now seeing active service is Lieut. Miles, of Napanee, Ontario, a graduate of the Royal Military College, of Kingston, Ontario. Lieut. Miles is with the Intelligence Corps attached to the headquarters staff of General Sir John French.

Another well-known North American who has already crossed the wide sea to fight for Britain is W. Reid, son of Hon. W. D. Reid, former Premier of Newfoundland. He left with the intention of enlisting as a motor cycle despatch rider.

Even while keeping the trade flag flying, a number of Toronto's motor cycle tradesmen have allied themselves with the Motor Trades Rifle Club of Toronto, which has been organised for the purpose of home defence, and for service abroad if necessary.

A WELL-KNOWN RIDER WITH THE COLOURS.

John Gibson, whose face and name are familiar to all keen followers of motor cycle events, writes us from West Hartlepool where he is quartered. He is attached as motor cyclist to the 7th Battalion Devon Regiment with the rank of lance corporal.



Occasional Comments

"By Ixion"

A Timid Tip!

After the *exposés* by which several venerable tips have recently been humiliated, I should hesitate to quote another, if I had not just proved its worth. The other day a short spin on my wee two-stroke unconsciously developed into quite a lengthy journey, and on the return I hustled the baby along at 35 m.p.h. for a prolonged distance over rough roads. I was just murmuring to myself, "Something is bound to go soon," when I felt a wet spray on my leg, and looking down saw that petrol was pouring out of the tank, and that the petrol pipe stub had come unsoldered. I was out of the saddle and had the machine flat on its side on a grass bank in a jiffy, thus saving as much of the precious juice as possible. A visit to a cottage procured a cake of soap and some string. The string was lashed round the tank so as to tug the stub up into the tank hole, and the joint was then caulked with soap, and bound with more string. When finished, there was no leakage at all; and during the five miles home the improvised repair only shed a few petrolic tears. Thrice since Easter have I had petrol pipes come adrift from lightweight tanks, and in each case the petrol pipe embodied but a single whorl. The new pipe shall have three whorls, but I wonder why makers do not fit the petrol pipe vertically under the petrol filler hole, and put a locknut on a screwed internal extension of the stub?

A Reminiscence.

Some years ago, when variable gears were in their infancy, a leading firm of motor cycle manufacturers "tried out" a light compact two-speed hub gear devoid of any free engine clutch. It weighed about 4 lb., cost about 50s. in quantities, and entailed no changes in the size, design, or construction of the frame. It was interchangeable with the standard wheel of the machine in question, and the gears were changed by a tiny tank lever, the exhaust valve being lifted during all gear changes. The firm in question built up half a dozen of these gears into their wheels and set as many testers to knock the hubs about (entrusting one machine to me for the season). They proved too weak for the weight of their load and for the pull of a somewhat crude 500 c.c. engine, and the firm dropped them. Such a hub is just exactly what is wanted for the lightest and cheapest types of two-stroke "babies"; and I sincerely hope that the leading gear makers will place such a hub on the market before next season opens. A three-speed hub is not wanted in this class; it is too heavy and too costly. The men who buy the type of machine under consideration do not go hunting for freak hills, neither do they set a high value on speed. They simply require the lightest and cheapest accessory which will enable their wee engines to scramble up such hills as the Fish at Broadway, or Birdlip; and a luxurious and expensive gear will not appeal to them.

A Doctor's Complaint.

A middle-aged doctor asks me to recommend a decompressor for use with his 3½ h.p. Sunbeam. All through the summer he has been able to "walk his machine off" in a yard or two on middle gear, but now that the atmosphere is colder, he cannot do so, and he finds it difficult to operate the kick-starter, whilst he dislikes a run of several yards in his overalls. As the Sunbeam Company consider a decompressor unnecessary, he should be able to find a cheaper and simpler escape from his difficulties. I should advise the following expedients:

1. Practise with a kick-starter, aided by a demonstration from the supplying agent.
2. Use of a thinner engine oil.
3. Petrol injections.

I am not *certain* that a decompressor will help him very perceptibly. The sluggish starting may be ascribable to one or two causes. Either the piston is gummy with chilled oil, in which case his difficulty may be to get the magneto revolving fast enough for an easy start; in this case, a decompressor will certainly facilitate matters. Or his petrol may be slow to volatilise, in which case a decompressor will be of very little service, for a decompressor requires a rich starting mixture. In this case a readjustment of the carburetter or a petrol injection might be of the best service. If he experiences difficulty in restarting after *short* stops, a thinner oil should solve the problem. He will find several excellent decompressors advertised in our columns weekly.

A Warning about Modern Tyre Solutions.

We are all duly grateful to several inventors for the excellent tyre repairing solution which forms part of most modern outfits. My experiences this season indicate that the latest solutions perish far more rapidly than their less efficient prototypes, especially when they are put up in collapsible tubes, which are liable to air leaks. I doubt whether the modern solutions retain their fluidity very long even when they are stored in substantial screw-lidded "flasks," but I should advise users to prefer the strongest containers, to keep the lids as tight as possible, and to verify the condition of the contents from time to time. Two motor cyclists, who, on a recent occasion, paused to help me repair a puncture, discovered that their solution had dried up. Of course, it is usually possible to soften the solution with a little petrol.

THURSDAY, NOVEMBER 19th,

THE MOTOR CYCLE ANNUAL BUYERS' GUIDE

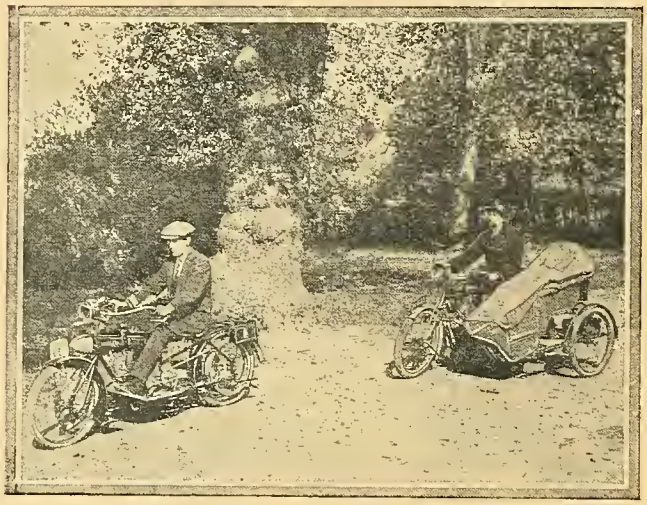
OF

1915 MODELS.

ENLARGED ISSUE. NUMEROUS ILLUSTRATIONS.

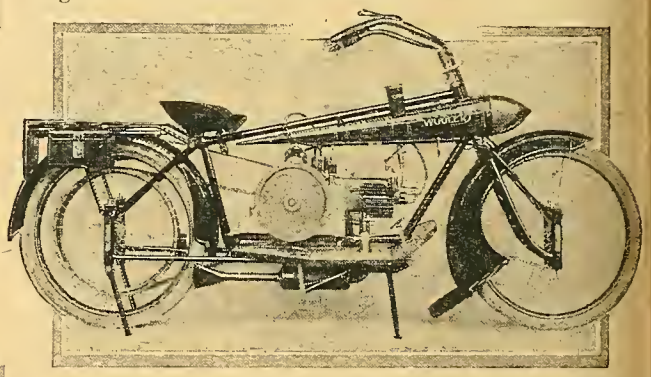
The Wooler Two-stroke in Town and Country.

A Trip into Surrey, Hants, and Sussex on a Machine of Unconventional Design



The Wooler two-stroke on the road at Park Royal.

IN our issue of July 30th an illustrated description of the Wooler two-stroke lightweight motor cycle was published, and we have been able since then to test the capabilities of this machine during a tour of about 170 miles. Real originality in design is rare where motor cycle design is concerned, and there is a decided display of grit in a firm which flouts conventions and does not cater solely for fashion. That the Wooler is unconventional can be demonstrated by summarising its most salient features. Its single-cylinder two-stroke power unit with horizontal cylinder and displacer piston, the unique transmission comprising a variable gear of sound construction, the front and rear springing which works so well in practice—all are of exceptional design, and we were glad to become acquainted with its behaviour on the road. The route selected led to South Harting, near Petersfield, but before reaching the Portsmouth Road it was necessary to make a journey across London, and only in one case was it necessary to "keep going" by the use of the lowest gear. Hyde Park Corner, Hammersmith Bridge, and Kingston were soon left behind, and then on the open road a steady 25 m.p.h. average could be maintained with comfort. Cobham was passed through with caution, for the Wooler looks, and is, a fast machine. It should be mentioned here that, although the carburetter was slightly out of adjustment, there was never any tendency for the engine to overheat or four-stroke, which shows the efficiency of a displacer piston in ensuring a good charge being forced into the working cylinder. A few miles before Hindhead was reached firing suddenly ceased and investigation revealed the total absence of any petrol in the tank. Apparently we were in for a somewhat strenuous time, for the nearest town was two and a half miles, but things looked brighter when an A.A. scout appeared in the distance. This worthy man rode five miles in all for a gallon of petrol. In spite of the strong head wind the ascent to the Devil's Punchbowl, Hindhead, was made on top gear. Petersfield and South Harting were soon reached, and the machine created much interest among the spectators at a hill-climb which was being held there. When this was over, with the wind behind, London was reached in very good time, with only one stop to replenish at Guildford. The XL'All pan saddle, in conjunction with the excellent rear springing device, was most comfortable.



The latest model 2¾ h.p. horizontal-engined Wooler

Ascending Hangar Hill, Park Royal.

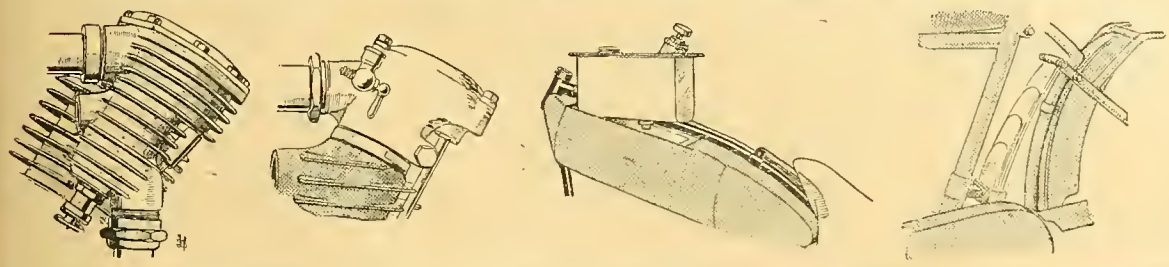
"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints, half-plate, 1/6 post free; mounted, 1/9 post free. This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance should be addressed to the Photographic Department—Iliffe and Sons Limited, 20, Tudor Street, London, E.C.

The Trend of Design in America.

A Technical Survey from a British Motor Cyclist's Point of View.



(1) Thor enclosed inlet valve mechanism. (2) Enclosed overhead valve gear on Yale twin. (3) Dayton tank with separate oil compartment. (4) The Cyclone spring frame.

AS America is the only country which can be considered a serious rival to British supremacy in the motor cycle industry, a few notes on the 1915 designs as exhibited at last month's Chicago Show should prove of interest to both the riding public and trade of this country.

First and most important comes the adoption by several of the leading firms of the three-speed countershaft gear, a feature which the American designers have been slow to adopt. Its necessity on medium-powered mounts and its desirability even with high-powered engines have been proved in this country long ago, and some fine examples have been on the market for years, while for 1915 almost every machine designed for sidecar work will be fitted with three or four speeds. Sliding gears of the two pair of dog type are fast coming into vogue, though modifications in detail are, of course, to be seen. Cork insert clutches are the most common type, and kick, or (as they are known across the water) step, starters are generally incorporated.

High-powered Twins the Rage.

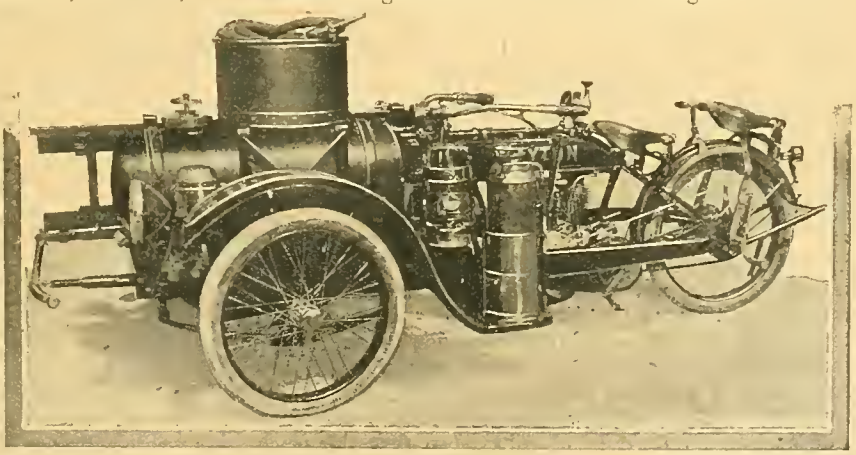
Big twins are the rage, and colossal engines rated at 8 h.p. and over are commonly in use as solo mounts. To British minds this would seem ridiculous, especially as in some parts the roads preclude high speeds. We must remember, however, that the general run of big American twin is not such a high efficiency engine as we are accustomed to in England. For the most part, a certain amount of efficiency is sacrificed for flexibility and smooth, quiet, slow running, a feature which has much to commend it, and which might reasonably be studied more by our own designers.

Overhead inlet valves are almost universal, and in the 1915 models the overhead rocking gear is frequently enclosed, something after the manner of the M.A.G. valve gear. More attention has been given to the design of valves and ports, with the consequence that engine power per capacity has increased somewhat. Chain drive is almost universal, though chain guarding has improved but little, and totally enclosed chains running in oil baths are almost unknown.

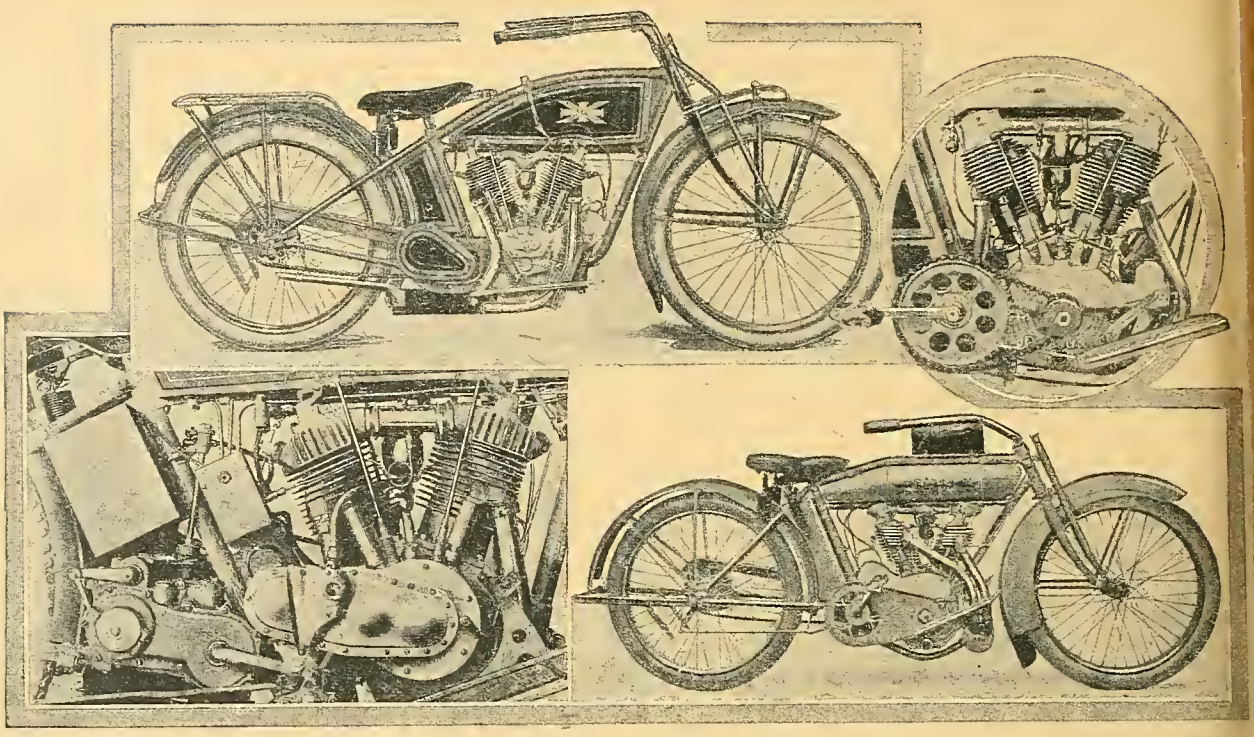
Forced Feed Oiling the Rule.

As regards engine lubrication, some form of forced oil circulation is usual, and in this respect we are sadly behind our friends across the water, though in passing it would seem that the Americans do not make anything like the full use of their oil pumps, and frequently only lead the flow to the front cylinder and do not force through to the bearings.

We find one or two fresh instances of dynamo lighting, but there is no sign of its general adoption, probably on account of the excellent service obtained from the dissolved acetylene cylinders which are in general use. Frames remain much as before. In the eyes of Britishers they are mostly very ugly, but they are also undeniably strong and are reinforced by liners in all important places. The loop frame is popular and has much to recommend it. Spring forks differ largely from our own, and are frequently of the cradle type, such as the Indian, Excelsior, etc. Rear springing has received a certain amount of attention, the Indian, Merkel, and Pope being possibly the most typical examples. As regards detail work British manufacturers are years ahead. Many American machines, for instance, have no carrier or else a poor crude arrangement which would be laughed at in this



Tricar fire engine just placed on the market by the manufacturers of the Dayton motor cycle. This "fire fighter" is equipped with a large chemical tank, as well as hand extinguisher, ladders, lantern and hose. It has electric lights, and tandem seats are provided—quite a healthy load for an air-cooled twin.



TYPICAL AMERICAN TWIN-CYLINDER MACHINES.

The top illustrations show the 1915 model Excelsior and the twin-cylinder De Luxe engine with enclosed inlet valves. The lower illustrations show the latest Harley-Davidson fitted with Remy electric lighting installation, and the new Yale.

country, while front wheel stands in America are looked on almost as freaks, and the makers who fit them can probably be counted on the fingers of one hand. Mudguarding leaves much to be desired. Another instance of what would here be considered almost criminal design is the fact that in many even of the most popular makes the whole engine has to be removed from the frame to get a cylinder off for cleaning purposes. Automatic carburetters are as common in the States as the two-lever type in England, and sprung saddle pillars are very common.

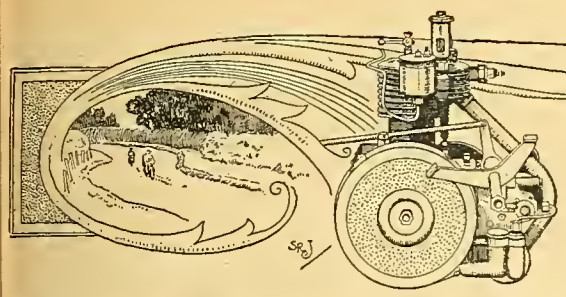
Electric Lighting Installations.

The chain-driven Merkel has a two-speed epicyclic gear on the countershaft. The 1915 Dayton has a detachable oil tank, dropped into a rectangular well in the petrol tank. The Remy Electric Co. share the Splitdorf Co.'s belief in a combined magneto-cum-dynamo-lighting installation, but have arranged their system so that if the battery should become completely destroyed, the dynamo can be used to "excite" the magneto. The head lamp provided with the apparatus has two bulbs—a high candle-power bulb in the centre of the reflector, and a less powerful bulb near the top of the reflector; the latter is used wherever brilliant head lamps are prohibited or unnecessary; *e.g.*, it would be useful when the machine is left standing by the roadside. The new Harley-Davidson sidecar has a telescopic wheelbase, so that the track ("tread," as its makers phrase it) can be adjusted to suit the gap between the ruts on country roads.

An American company is going to manufacture Auto-wheels under licence. An Ohio rider has patented a new rough weather windshield, which looks like the longitudinal section of a hen's egg, the thin end being split, and terminating at the front hub, whilst the fat end protects the rider's person. It is made of mohair (*i.e.*, black Cape cart hood fabric) attached to a light steel framework by turnbuttons and brass eyelets, and is provided with a moon-shaped mica window in the bulge of the egg. Shall we see one in the next Boxing Day 24 hours rides?

Forged head lug of the American Excelsior.

Probably the most striking comparison between British and American machines is that while we are trying to turn out a light machine that will go anywhere and withstand hard work, the Americans continue to pile on weight and use huge engines, with the consequence of heavy gears, frames, large tanks and heavy fittings. The result is usually a cumbersome and unwieldy mount. There is one notable exception to this generality, and that is the Indian, the makers of which, in accordance with British ideas, are marketing 3½ h.p. and 5 h.p. twins, the latter built on the lines of the excellent little machine raced in the T.T. Perhaps now that three-speed gears are coming along, the lighter and handier type of machine will become more popular in the States. American two-strokes are represented by the Schickel, a large machine with a 6 h.p. single-cylinder engine, a three-speed countershaft gear, and chain drive throughout, and the only British mount in the Chicago Show was a solitary specimen of the two-stroke Triumph, staged by the agents for the Coventry Chain.



WHY AN ENGINE KONKS.

By E. WATCHORN.

SOONER or later in the life of an internal combustion engine, whether of the gas, oil, or petrol type, there will be heard issuing from the engine a harsh metallic hammering when the engine is opened out when labouring under a heavy load. This noise is known to the motor cyclist as konking, to the motorist as pinking, and to the gas engineer as piston tapping. It is sometimes known as knocking, but this term is wrong, as knocking is really the correct term for the sound given out by a loose big or little end.

Now there are several questions to consider.

What causes this noise?

Why are some types of engines practically immune from it?

Why (assuming the ignition is correctly set) is this noise only heard from a dirty engine?

The Cause of the Noise.

Now as regards the first question, this noise is caused by the piston being violently blown from one side of the cylinder to the other by the rush of the explosive gases. It is difficult, considering that the piston clearance has only a few thousandths' play, to see how the piston can gain such a momentum, the arresting of which gives off such a sound, but it must be noted that the blow given to the piston, although delivered at an angle, is of terrific violence, the initial pressure of the gas being about 300 lb. to the square inch.

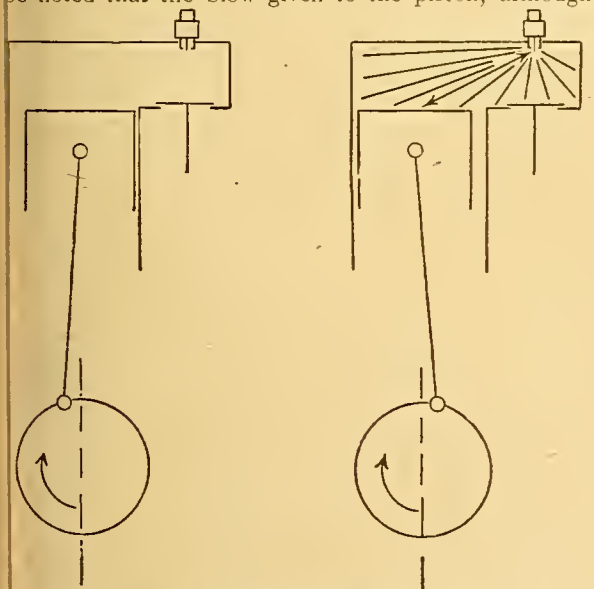


Fig. 1.—An engine with a Γ-headed cylinder nearing the end of the compression stroke.

Fig. 2.—The same engine commencing the firing stroke.

N.B.—For the sake of clearness the pistons are shown with a large clearance.

The following diagrams will readily show how the action of the gases in a standard Γ-headed cylinder cause the blow.

The Why and Wherefore.

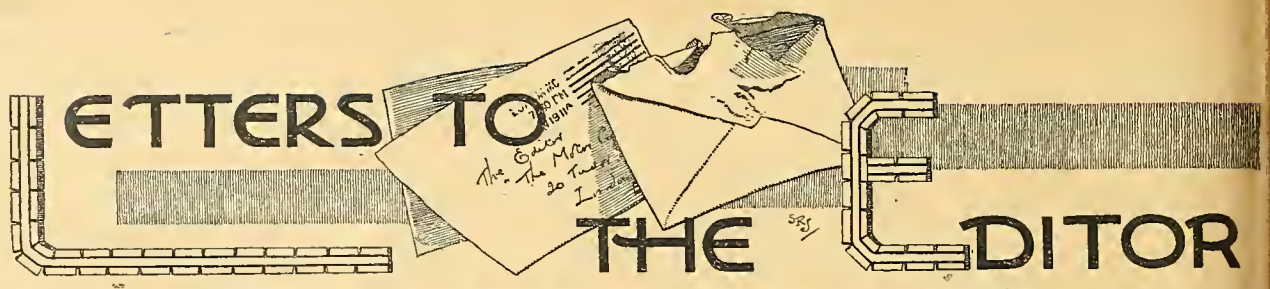
Diagram 1 shows the piston on the finish of the compression stroke It will be clearly seen that, owing to the angularity of the connecting rod, the piston is forced on to the valve side.

Diagram 2 shows the beginning of the firing stroke. Now, it is well known that the firing of a mass of gas is not instantaneous, but occupies time, hence the use of a variable ignition control. It will clearly be seen from the diagram that the gas ignites first in the valve chamber, then rushes across the piston top into the cylinder. Now, if the piston is too high up in the cylinder when the gas is fired, either through the ignition being too far advanced or by pre-ignition, it will be clearly seen that the piston will be violently blown from one side of the cylinder to the other, and so cause the sound we know as pinking.

Fig. 3.
An engine with a hemispherical cylinder head soon after the commencement of the firing stroke.

Now, after this explanation, it will readily be seen that an engine with hemispherical cylinders does not pink to anything like the extent of a Γ or T-headed cylinder. Diagram 3 shows such a cylinder on the firing stroke. It is plain that in such a cylinder the rush of the gases is practically dead on the top of the piston, and not across as in the case of the Γ-headed cylinder; consequently, the only force which throws the piston from one side of the cylinder to the other is simply the reaction of the angularity of the connecting rod.

Now, as regards the last question, Why is a dirty engine noisy? the answer is, simply because such an engine suffers from pre-ignition. Owing to the valve chamber being left rough from the foundry without machining, the carbon gathers in spots on various rough projections, and remains in a more or less incandescent state, causing the engine to fire before the piston has advanced far enough on the firing stroke. This is easily proved by the fact that if such an engine is driven "all out" up a long hill and switched off at the top, it will fire for several moments before stopping.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Standardisation of Controls.

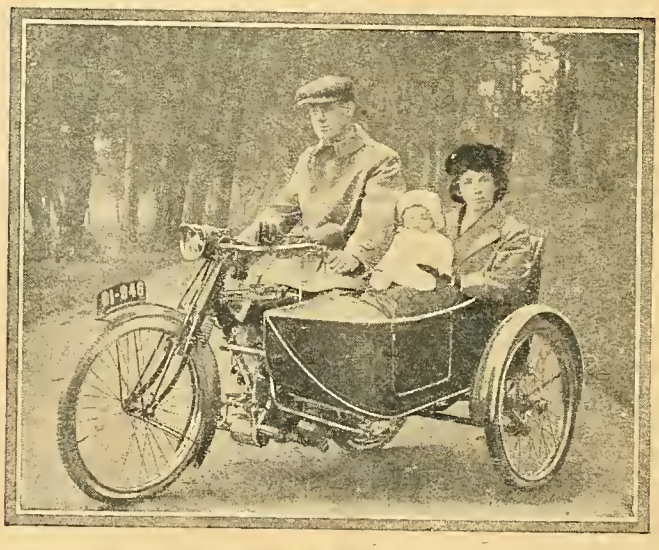
Sir,—I would like heartily to endorse all you say on this subject. I would even go further and have the words "air" and "gas" printed on the levers, and some safety arrangement, such as an arrow or label, showing direction in which to shut off.

Does it not also seem to you to be time for some International arrangement standardising the rule of the road? Within the limits of our own Empire the rule varies. In Canada (if I am not mistaken) vehicles meeting each other pass to the right, as in most Continental countries. Why not in the U.K.? WANDERER.

Two-stroke for Sidecar Work.

Sir,—Having read in the columns of *The Motor Cycle* interesting accounts of the doings of two-strokes, I have no doubt that you will be glad to hear from Ireland on the same subject.

Early in the past summer I purchased my first motor bicycle—a 2¾ h.p. Regina, two-speed, two-stroke. Having had no previous experience of anything beyond the pedal-propelled machine, it was with a certain amount of doubt and expectation that I ventured on my first run, which proved most enjoyable. After using the machine regularly for a considerable time, and being convinced that both frame and engine were powerful enough to take a sidecar, I had a Watsonian lightweight fitted accordingly, and have been using it with the most satisfactory results since. The little engine pulls splendidly, as some of my motoring friends with higher powered machines can testify. With sidecar and passenger it is surprising how well it will climb any reasonable main road hill; very seldom is it necessary to gear down. Never yet have I had to shed my passenger, and mechanical trouble is unknown. The point which now strikes me most is, when such satisfactory results can be obtained from a 2¾ h.p. two-stroke why so many riders go in for the higher powered machines for solo use. HERBERT NEILL.



Photograph accompanying H. Neill's letter

A Smart Repair.

Sir,—A grievance appearing from time to time in your columns is a very real one—the outrageous and inexcusable delay in supplying parts or effecting simple repairs—which seems to be the business motto of so many makers; a thing unknown in any other business. From this, I doubt whether anyone has been a greater sufferer than myself—fancy waiting six weeks for a new piston or a rebushing!

It, therefore, gives me all the more pleasure to be able to quote an exception. An accident on service duty resulted in such a crumpling of my Lucas lamp as to render it useless. I sent it to the makers by the mid-day post on Monday, October 19th, with an appeal for promptness in the circumstances, and received it back repaired—and well repaired—by mid-day on the following Wednesday. Considering this out of the way place (Middle Stoke, Rochester) is a long post from Birmingham, it cannot have been in their works more than an hour or two. I wish Lucas would make motor cycles! H. M. SPOOR, M.B.

Motor Cycles in War.

Sir,—Being a somewhat rabid motor cyclist, I have been wondering, since the outbreak of war, what part motor cycles will play in it.

The value of solo machines for scouting and despatch work is granted. There is also the possibility of using them for bringing up small bodies of troops to points of weakness where their presence is urgently required.

Another use, for sidecar machines, is that of forming machine gun sections, and I feel sure that they could be of considerable value in this.

I would suggest the use of a weapon similar to the machine gun of the Belgian dog-drawn batteries, to be mounted on the frame of the sidecar and operated from there, the mounting being adapted to high angle fire at aeroplanes. A gunner, either Regular or Territorial, would be carried besides the driver.

Volunteers would be divided up according to the type and make of their machines; all machines of one section to be similar. Each section to be about fifteen strong. The O.C. and two despatch riders to be mounted on solo machines. Attached to the section would be a motor car carrying oil, petrol, and all spares that could possibly be needed, in charge of a mechanic or tester from the works where the machines of the section were made, this mechanic to be responsible for the condition of the machines of his section. Individual machines would carry small spares, and would be fitted with spare independent tanks in case of the main tank being destroyed.

The mobility of such units, properly equipped and organised, would make them of inestimable value both for coast defence at home and also for use on the Continent.

Negritoe, near Paita, Pern. A. T. STURGESS.

[This letter, only just received, was written last September. —ED.]

Military Motor Cyclists and the Law.

Sir,—*Re* the paragraph on page 467 in *The Motor Cycle* of October 22nd commenting on a police court case at Scarborough in which a military motorist was charged with driving to the danger of the public.

We cannot all take an active share in defending our country, but we should all give help and encouragement to those who are doing so. At the same time we do not need to foster in our gallant defenders that spirit of which the higher (or lower) development is seen in the German military

caste. It is highly improbable, in England at the present time with telegraph and all ordinary means of communication intact, that any despatch need be given to a motorist for delivery regardless of personal or public safety. If a rider was handed a despatch which was so urgent that it had to be got through quickly at all costs it would be excusable, even though one or two civilians, soldiers, or the rider should be maimed or killed in the process. If the captain's evidence had been to the effect that the rider was carrying an officer's military (not private) message, for which there was the greatest need for speed, I feel sure no magistrate would have convicted. In fact, I am sufficiently assured of the good sense of the police to know that, given this explanation, the case would never have been brought into court. To act, however, as I am afraid that some riders are inclined to do (and as the paragraph in question might seem to uphold), on the assumption that being in uniform and on "a Government machine" they are therefore above all law, may lead, if generally adopted, to consequences perhaps a little less unpleasant than those arising from a German invasion. On the same principle, I do not think that the policeman mentioned in another paragraph in the same column was necessarily "officious," because he stopped a special constable motor cyclist who, apparently with no other excuse than that he was "wearing his badge of office," was breaking the regulations of a royal park. Without a valid excuse for speed, clearly it was the special constable who was "officious." What greater right has he to inconvenience other park users than, say, the ordinary business man hurrying to keep an important appointment? A friend from the Midlands on a visit has just expressed to me his surprise at having seen a large military motor proceeding out of the town without lighted lamps. A reasonable excuse for thus endangering the lives of the occupants and of other road users is not readily apparent, and, should a constable pull up the offending driver, I trust that one need be considered no less a true friend of the Army for commending this constable's courage and public spirit, and that at least he may be safe from accusation of excess of zeal.

I write thus because I think that it is inadvisable to let the inference go unchallenged that in such cases as that reported the civil authorities must abrogate all their power or be lacking in patriotism.

FREDERICK G. BINNING.

Petroil Lubrication.

Sir,—We have been much interested in reading your leading article in the last issue of your paper, which is in striking accordance with our own views as recently published in our treatise on the lubrication of the small petrol engine.

We there state that the *advantage* of the system is:

The lubrication of the engine is not dependent on the skill of the rider.

The *disadvantages* are as follow:

(*a*) Oil is not supplied proportionately to the power developed by the engine.

(*b*) The cylinder walls only are well lubricated as they are open to the incoming charge of petrol and oil, while the oil has to worm its way in to lubricate the other parts of the engines which are covered in.

(*c*) The charge of gas transferred to the cylinder is in a dirty state, and the maximum power cannot be obtained from the engine.

(*d*) Excessive carbonisation on the piston head due to oil being drawn in with the charge.

(*e*) Oil separates out in the carburetter, and combines with the ever-present dust from the road to clog up the working parts.

The semi-automatic drip feed, when used in conjunction with two-stroke engines, has always been used as a means of keeping the crank case free from oil, and the drip is led by ducts to the parts to be oiled, and we commend, for special attention later, the methods adopted by such manufacturers as Scott, Levis, and Peco, who have had a longer experience of the working of the two-stroke engine than most other competitors.

Regulated feed for the two-stroke is even more necessary than for the four-stroke, and by throttle control for preference.

BEST AND LLOYD, LTD.

JOHN H. COCHRANE (Sales Manager).

Mentioned in Despatches.

Sir,—With regard to your article "Mentioned in Despatches," a careful study of the list seems to suggest that altogether twelve motor cyclists are mentioned in the R.E. list. Bearing in mind that all motor cyclists are promoted corporal on enlistment, it will be found that there are a number of corporals whose regimental numbers fall between 28000 and 28100, and of these a certain number are known to be motor cyclists. The inference, then, is that all corporals in this group of numbers were enlisted about the same time and promoted about the same time. As some are known to have been promoted on the day of enlistment because they are motor cyclists, the inference is that the others are the same. The list is as follows (from *The Daily Telegraph*):

28031 Corpl. C. A. Brocklebank.
28051 Corpl. C. W. Cadman (motor cyclist).
28055 Sergt. E. S. Goodhart.
Corpl. D. Humphries (motor cyclist).
28110 Corpl. W. Lewis.
28056 Corpl. T. P. Morris.
28028 Corpl. C. F. Portal (since promoted second-lieut.)
28012 Sergt. A. Q. Roberts [now lieutenant, we understand.—ED.]
28005 Corpl. H. U. Scrutton.
28046 Corpl. J. A. Scrutton.
28059 Corpl. S. F. C. Stachard.
28149 Corpl. H. Trepas.

Only two of these are described as "motor cyclist" in the official list, but you have identified three more.

I may add I have enlisted six motor cyclists this week, and expect to enlist twelve more next week.

(REV.) F. W. HASSARD SHORT,
Secretary, Motor Cyclist Reserve Committee,
Home Counties Division.

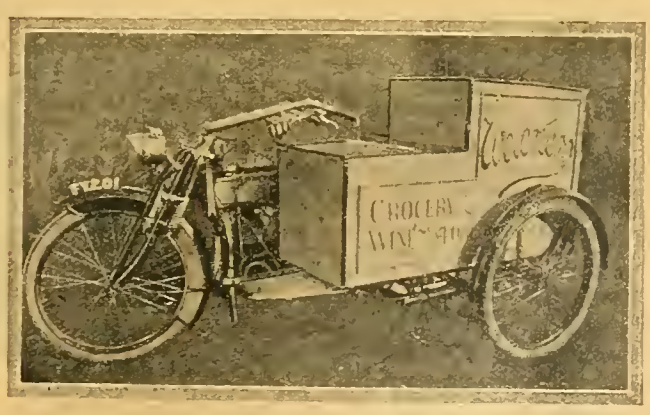
[It would appear from the Rev. F. W. Hassard Short's letter that other motor cyclists than those already specially referred to in these columns have been mentioned in despatches. If relatives or friends of motor cyclists mentioned in despatches, who have not already been credited with that honour, will communicate with us, *The Motor Cycle* will be pleased to publish their names. —ED.]

A Tradesman's Home-made Sidecarrier.

Sir,—Your interesting articles relating to the value of the motor cycle as a goods carrying agent have impressed me to the extent of building a vanlette as an auxiliary to my horse van service. The frame is substantially built of hard wood, and the roof will easily support twelve stone. The ends are ½in., and ¼in. three-ply is used for the sides. Weight five and a half stone. The lowest roof and flap above are hinged to give easy access to any part. There is also a door at the side on which the name is painted, and when this is locked no one can gain admittance. The vanlette is finished off with two shades of battleship grey with lettering and edging in black, completed with two coats of carriage varnish.

I shall be pleased to give dimensions to any interested reader. The motor bicycle which I use is a 5-6 h.p. twin Norton.

A. G. WEIERTER.



A home made sidecarrier (see letter)

Removing Douglas Cylinders.

Sir,—The splendid article on a T.T. Douglas by "Road Rider" in a recent issue of *The Motor Cycle* goes far, but misses a very important point, in my opinion—a point missed also by the riders and repairers alike all over the country. I refer to the slot in the front fixing for the engine.

Showing method of fixing the engine in the frame of a 2¾ h.p. Douglas.

As the other places for fixing are holes, the slot must be there for some purpose, and it is this. If the two back bolts are just slackened and the top bolt removed, then the bottom one, we leave the engine fixed by two bolts in front. If the top one of these is removed we leave the engine fixed by one bolt in a slot. Slacken this, and the whole unit can move backwards enough to remove the cylinder in front. The back cylinder presents no difficulty whatever, as there is nothing in the way. In this manner the Douglas can be cleaned of carbon in both cylinders without removal from the frame of the cycle inside ten minutes.

A better method, and one I adopt, is to use clock spring scrapers through the valve caps. The carbon can be all removed very successfully without any trouble or upsetting the engine in any way, and the engine can be kept clean inside as well as out more frequently when such a simple method is used ALBERT V. HUGHES.

Compressed Air Engines.

Sir,—I observe that Mr. Hughes, in common, unfortunately, with most people, seems to think that the days of steam are past. It is true that it is not now the only efficient form of heat engine as was the case thirty years ago, but in all other respects the days of steam are now.

A compressed air motor cycle, though for the reasons explained by Mr. Hughes quite impracticable, would undoubtedly have advantages not possessed by petrol machines. For example, absence of gear box and clutch, silence, perfect control and evenness of torque at the lowest speeds, to say nothing of easy starting and many other minor points. Such being the case, on looking round for another form of motive power with these qualities, steam at once presents itself. The modern steam generator in its various forms, as used on White, Stanley, and Pearson-Cox cars, so far from being huge, is exceedingly small, and perfectly adapted in this respect for motor cycles. With modern steam car practice as a guide, the designing of a bicycle should be a simple matter. The only difficulty lies in the storage of water, but by using a condenser a comparatively small tank could be employed.

This, to my mind, is the ideal general arrangement. A semi-flash boiler, well lagged and boxed in, placed in the position of a petrol motor. A twin-cylinder single-acting side by side engine would be a very small affair, and could be placed behind the boiler in front of the saddle tube, and have a direct chain drive of a ratio of about 4 to 1. The pumps, I consider, should form a separate unit, and have a long stroke, and run at a low speed. This could be fixed behind the saddle tube in front of the mudguard, and driven by chain as a magneto. JOHN H. HATCH.

Gear Slip on an Old Machine.

Sir,—Your correspondent "B 10" has experienced with his old machine the same trouble which I have had with my new one, and although it may have arisen from quite a different cause, I will explain, for his information, the very simple adjustment which, in my case, put matters right, although I cannot understand why it had the desired effect.

I had taken my machine down for cleaning purposes, and after reassembling went for a short trial run, when the trouble manifested itself for the first time. On examination, I noticed that the gear operating lever was, when in high gear, much lower down than usual, right below the tank, in fact. Thinking that I might as well alter this, but not imagining that it would affect my trouble, I removed the gear lever and operating chains and replaced them in a different position so that it was not necessary to press the handle so far down when changing into high gear. After this I had no more trouble.

I take it that your correspondent always pushes the gear lever well home when changing, and also, by means of the adjusting nut, keeps the operating lever fairly stiff on its pivot, as if it works too freely the gear is almost sure to slip sometimes. I shall be interested to hear if the above remarks prove to be of any use BENJAMIN NEWBERY.

Sir,—In reply to "B 10," I beg to say that I experienced the same trouble. The makers overhauled the gear, and fitted new wedge bars. It gripped for a number of miles, and then the high gear commenced to slip on hills. After a number of experiments and with the help of friends it was suggested that the wedge bars were slightly deeper than the bronze rings, and gripping the driving wheel without expanding the rings to their full extent. About $\frac{3}{32}$in. was taken off the top edge of each wedge bar by an emery wheel, which proved to be a cure. P. AND M. GEAR.

A Wonderful Recovery.

Sir,—The friends of our Mr. Sid. Morgan will be pleased to learn that he is now considered out of danger, and is the "show patient" at the hospital, his truly wonderful recovery having made him the subject of many little lectures to visiting doctors, etc.

There are few men can boast (perhaps few want to) of carrying a German shrapnel bullet embedded in the brain for seven days, but such was Morgan's experience.

Putting aside his motor bicycle for the rifle at the very commencement of hostilities, he went to the Front, and, at the battle of Mons, was the first man in his section to fall.

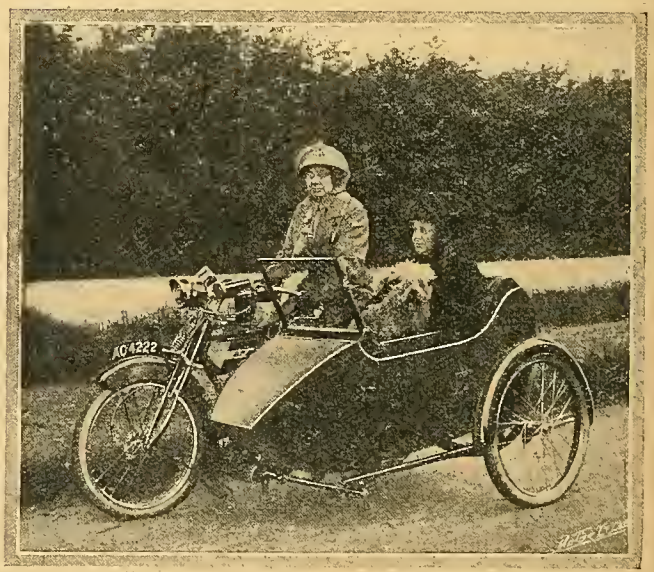
They had been three nights without sleep, and in the pitch darkness of the third night, crouching in the trenches—some of them were sharing a loaf—when the glare of a searchlight was thrown upon them, followed by the crash of shrapnel, and the mischief was done.

How Morgan reached Birmingham alive is still a mystery to the hospital staff, who upon his admittance gave him three hours to live; but with desperate courage the chief surgeon operated, removing the offending lead from the brain, and an abscess, which had formed between the brain and cranium; and, after eight weeks of suspense, Morgan still lives—the result of a miracle of modern surgery.

NORTON MOTORS, LTD.

SUMMARY OF CORRESPONDENCE.

C. H. Dickinson writes to say that he has connected the release valve of his two-stroke machine to the exhaust pipe through the frame of his machine, and finds the arrangement silent and clean.



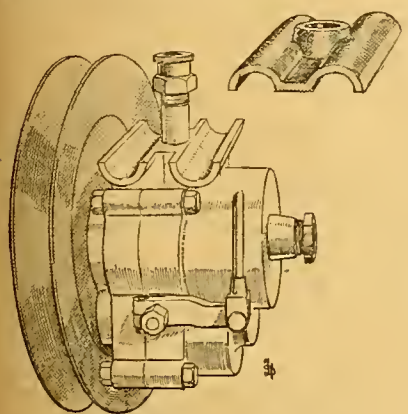
Miss R. A. Holmes, of Leamington Spa, one of the latest recruits to the ranks of lady sidecarists. Miss Holmes is seen mounted on her B.S.A. machine with a lady friend as passenger in the sidecar.

LATEST DESIGNS.

Advance Descriptions and Illustrations of 1915 Model Motor Cycles and Accessories.

A SPARKBROOK TWO-STROKE.

FOR some time past the Sparkbrook Company have been experimenting with a two-stroke machine, and it is many weeks ago since we took our first ride on the new model. At that time, however, the policy of the company was not definitely settled, and consequently we withheld any reference to this new model.



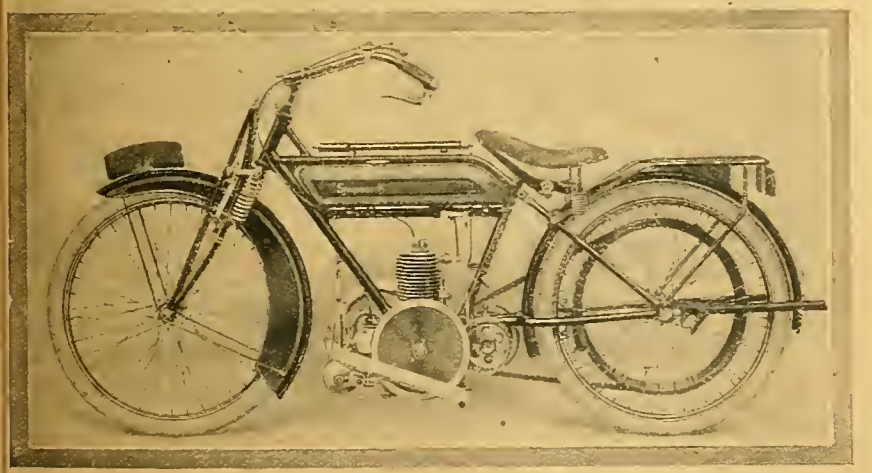
The Sparkbrook two-speed gear is held to the frame by a stout bolt, which also acts as an air vent and oil filler

The engine used is the 2¼ h.p. 70 × 70 mm. Villiers, with the usual neat arrangement of double silencer and magneto plate. A chain transmits the power to a two-speed gear, which is quite one of the neatest and soundest pieces of work we have yet seen on a small machine. The gear is of the usual dog clutch type, and both wheels and shafts are of the finest obtainable material, while all bearings are of the Skefko double row ball type with felt washers arranged to prevent oil leakage.

Oil leads have been formed wherever necessary, and the single bolt which is used to hold the box in position is of large diameter and hollow, so that it forms a convenient oil filler, and, by the addition of a small gauze filled cap, acts also as an air vent. This has proved to be an excellent feature, as it helps greatly to prevent oil leakage. In fact, we may say that the Sparkbrook two-stroke is one of the cleanest machines we have yet ridden. A 7in. pulley is used for the final transmission, and the front portion of the rear mudguard will be extended below the belt, a feature which almost eliminates belt slip even in the worst weather.

Lubrication via the Inlet Pipe.

Lubrication is simple in the extreme, for a Best and Lloyd semi automatic lubricator supplies oil direct to the inlet pipe, whence it is sucked into the engine and circulates in the usual manner. A Senspray carburetter with a neat and very effective intake shield is utilised. The tank has a capacity of one gallon of petrol and one quart of oil, and is neatly finished in black and green. The frame is very neat and strong, the head lug being a particularly sound piece of design. The control for the two-speed is very simple, being so arranged that a single-geared machine can be converted to a two-speed model by quite an amateur. Aluminium footboards, a stout carrier, 26in. × 2in. tyres, and excellent fittings and finish combine to make a most attractive and serviceable mount.



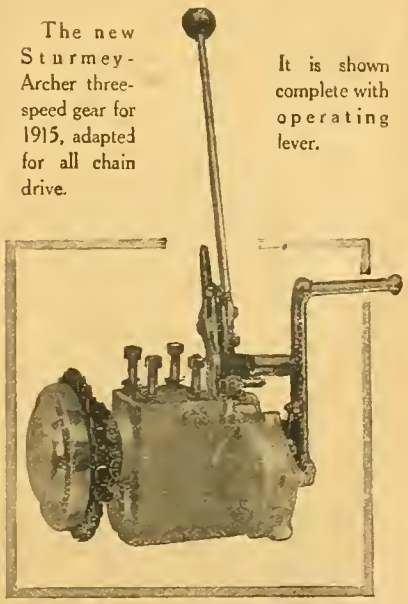
The latest 2¼ h.p. two-stroke two-speed Sparkbrook

THE STURMEY-ARCHER COUNTER-SHAFT GEAR.

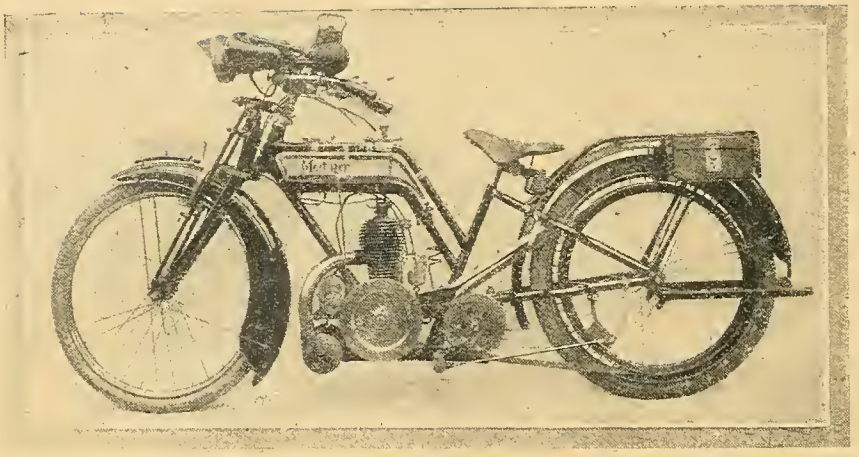
In our issue of August 27th we described and illustrated the new Sturmey-Archer counter-shaft gear adapted for chain and belt transmission. We now illustrate a similar gear designed for an all-chain drive. It will be remembered that the gear gives three ratios operated by sliding dogs, incorporated with which are a cork insert clutch and enclosed kick starter. As will be seen in appended photograph, the operating handle is capable of adjustment to suit the fancy of individual riders, and the four bolts by which the gear is attached are plainly shown; to admit of chain adjustment all these bolts are capable of sliding in the slots provided in the frame.

The new Sturmey-Archer three-speed gear for 1915, adapted for all chain drive.

It is shown complete with operating lever.



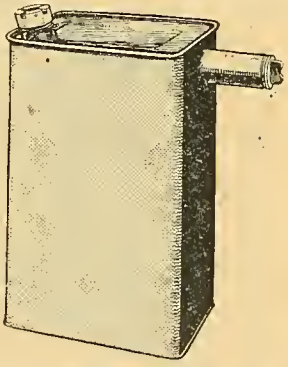
The clutch is said to be remarkably sweet in action, the pressure being obtained by a series of small springs which distribute it evenly over the whole surface. The enclosed kick starter is particularly neat in appearance.



The new lady's model Metro, which has a 269 c.c engine.

A LADY'S METRO.

An addition to the ranks of ladies' motor cycles is one produced by the Metro Manufacturing and Engineering Company, Adderley Park, Birmingham. This machine is exactly similar in specification to the diamond frame model which has been sold for some months past, having a two-stroke engine measuring 70 × 70 mm., giving a capacity of 269 c.c. The machine can be obtained single-geared, or, as illustrated, with a Roc two-speed counter-shaft gear, incorporating chain and belt drive at an extra charge. The saddle position is very low, being but 28in. from the ground, whilst the crank case clearance is as much as 6in.



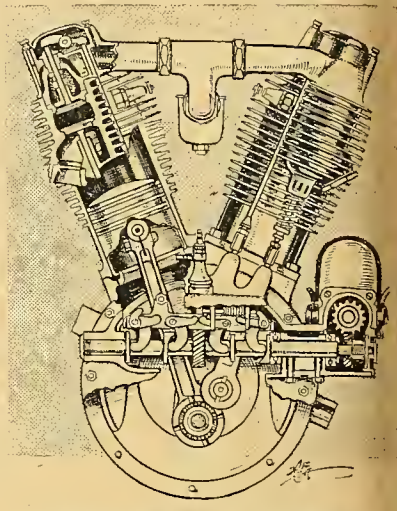
A petrol tin designed to overcome the objectionable splashing usual with tins of ordinary pattern. It is known as "Hersey's non-splashing patent petrol tin."

7 H.P. SPACKE ENGINE.

WE recently had the opportunity of examining and trying a 7 h.p. Spacke engine, which is to be handled in this country by Maude's Motor Mart, 113, Great Portland Street, W. The Spacke hails from the United States, and is a thoroughly sound and well-made job. The accompanying photographs show that the exterior of the engine is of clean design. It will be noticed that the inlet valves are of the overhead type, the mechanism being enclosed in a grease-tight box, thus ensuring silent running and adequate lubrication. The valves are of ample dimensions, being half the bore of the cylinders. The bore and stroke respectively are 82.55 × 93 (996 c.c.).

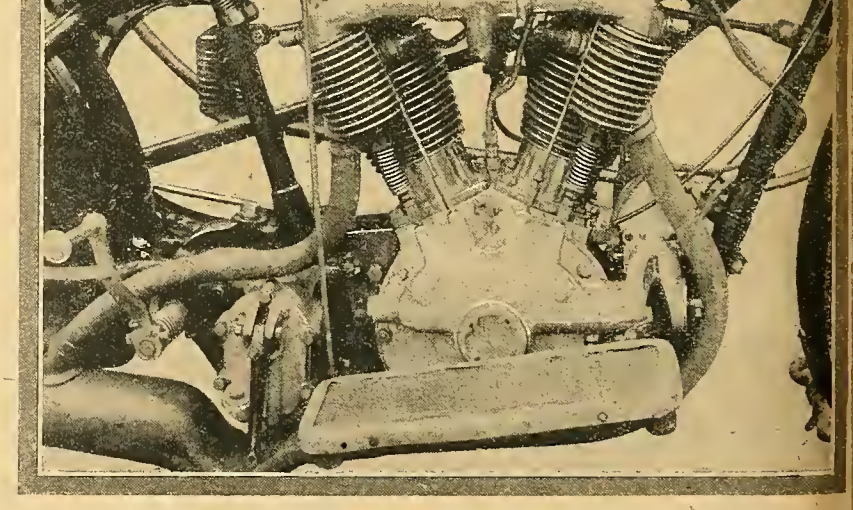
A most interesting feature about the engine is the valve mechanism, which the accompanying sketch shows quite clearly. The camshaft, it will be noticed, runs across the side of the crank case, and somewhat follows car practice. It is driven by means of skew gearing, and the four cams consist of four discs turned out of the shaft upon which the cam faces are cut. Two ball thrust bearings are fitted at each end of the camshaft to take up the end thrust. The connecting rods are provided with roller bearings of large dimensions, both as regards diameter and width, and are contained in steel housings. Ball bearings of large size are fitted to both sides of the crankshaft. In designing the engine every effort has been made to render its working as silent as possible.

This engine has been fitted to the frame of a second-hand motor bicycle and side car, on which we were given a trial run which included the ascent of Swain's Lane, Hampstead (gradient about 1 in 6). On the occasion of the first attempt a



The Spacke power unit, showing timing gear, big end roller bearings and magneto drive.

change down to second was made at the steepest portion on account of clutch slip but the second time the combination climbed the hill on top speed, though it is only fair to say that the slight amount of clutch slip still remaining facilitated its accomplishing this. Nevertheless, it must be admitted that the engine pulled particularly well, especially at slow speeds, and ran very smoothly. Altogether we were favourably impressed by its running, and found that it compared very well with other makes of V twins at present on the market.

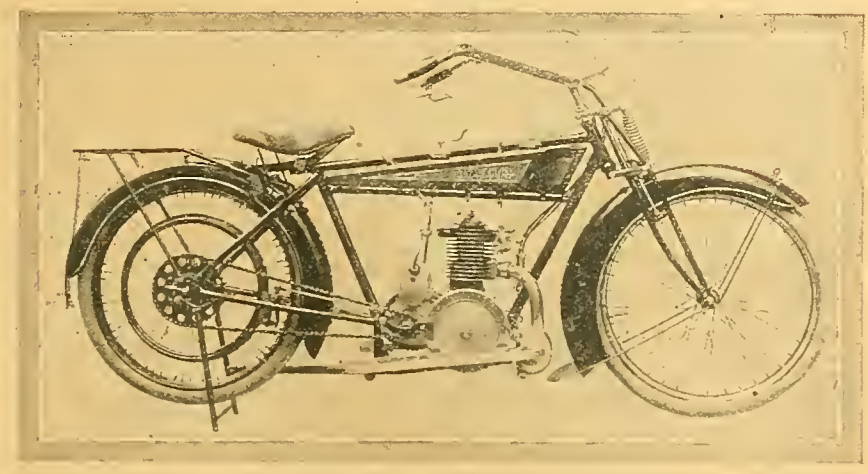


The Spacke twin-cylinder engine fitted into a Rex frame.

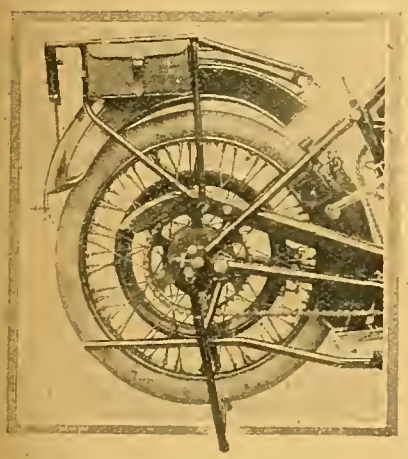
The New Two-stroke Enfield.

A New Model for the Enfield Co.: Refinements on the Sidecar Outfit.

THE two-stroke Enfield, which made its first public appearance at the Coventry and Warwickshire Motor Club's hill-climb, has been improved out of all knowledge, and will be bound to make a strong appeal to the ever-growing army of two-stroke enthusiasts in 1915. Practically throughout the year the Enfield Co. has been experimenting with a view to producing a reliable two-stroke lightweight for next year's market, and last week we inspected the outcome of those experiments, and are able to present our readers with a description and illustrations. The new Enfield is of really practical design, and, what is more, of attractive appearance—a combination difficult to obtain.



Flywheel side of the new 2¼ h.p. two-stroke Enfield



The detachable carrier and guard fitted to 1915 model Enfields

The Power Unit.

The engine is rated at 2¼ h.p., measuring 64 × 70 mm., giving a capacity of 250 c.c. The cylinder is a fine specimen of the foundry worker's art, the fins measuring 1¼in. deep The inlet and exhaust ports are arranged in front, and in juxtaposition—a practice which seems to be gaining favour. The release valve is arranged horizontally just above the ports, and a pipe conveys the released gases into the exhaust.

The piston is of orthodox design, with a deflector on top, and a ring top and bottom. An outside flywheel is mounted on the right-hand side of the machine, keyed to the mainshaft, and the drive to the Enfield two-speed gear in the countershaft is on the opposite side.

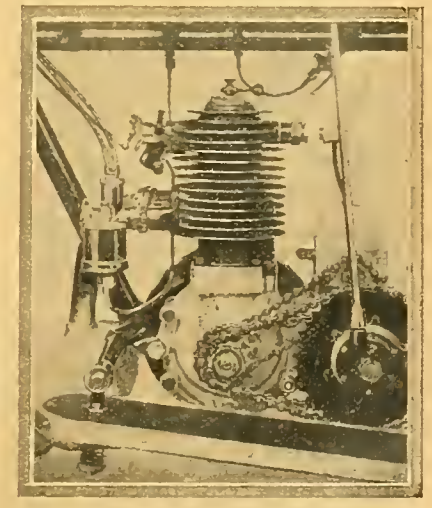
Easily Detachable.

Accessibility has been well studied, for the gear is contained in an aluminium bracket behind the crank case, and on the top of the housing a platform is arranged for the magneto. Thus, by removing two bolts at the rear and one in front of the engine and disconnecting the rear chain, the whole power unit can be dropped out of the frame without disturbing the timing, carburetter, or the pair of engine chains.

Roller bearings of Enfield design are used for both crank bearings, the connecting rod bearing being plain.

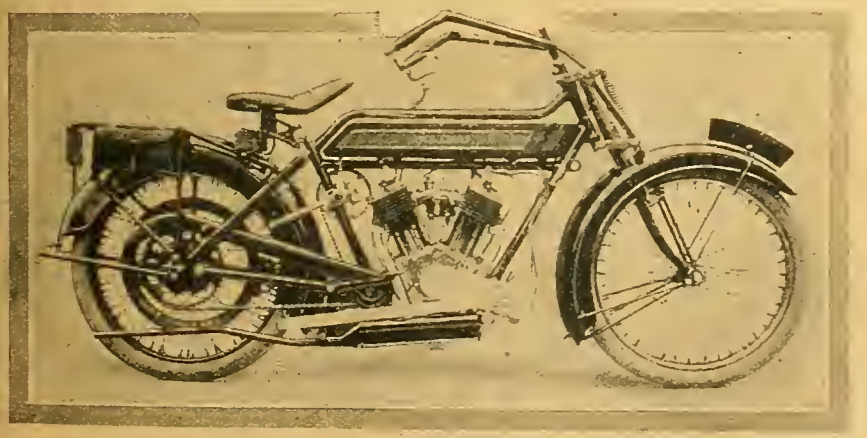
The top tube of the frame slopes downward from the head, giving an extremely low riding position. The tank which is shaped to fit the triangle has the oil compartment at the rear, and a pump is provided, together with a connecting pipe to the petrol compartment, to feed oil into the petrol in suitable proportions. An Amac carburetter is used in conjunction with this "petroil" system

Spring forks of a design successfully used on Enfield productions for some years past have been adopted, with a single spring in front and round section tubing The portion of the rear mud-



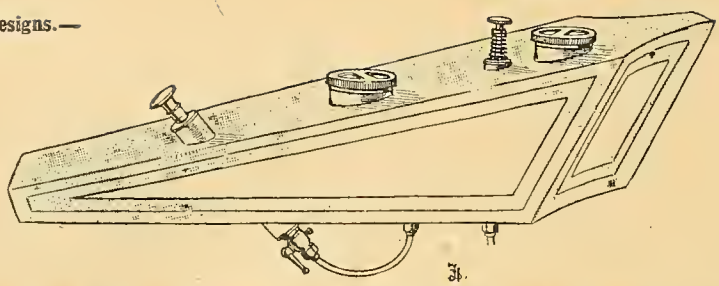
The power unit of the 2¼ h.p. two-stroke Enfield

guard from the rear stays, including the carrier, is arranged to be removable by simply slacking two bolts on the end of the chain stays. This feature, which will be appreciated when tyre troubles come along, has also been standardised on the new 6 h.p. sidecar outfit. Aluminium footplates sprung in front are used, and the Enfield cush drive, as on the 3 h.p. mount, is arranged in the rear hub. The standard handle-bars are all black, and



The new 6 h.p. Enfield, with dropped frame and particularly large mudguards

New Designs.—

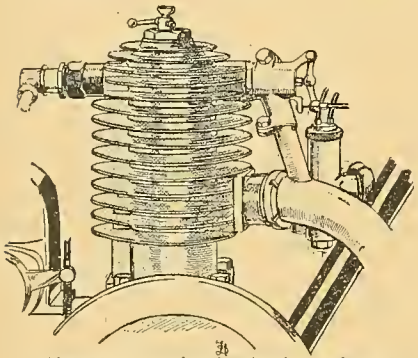


Tapered tank of Enfield two-stroke. Note how the oil is pumped direct into the petrol compartment in front.

with 2in. tyres the machine is to be sold at thirty-eight guineas.

The 6 h.p. Sidecar.

Though there are no startling alterations on the sidecar outfit, many refinements have been introduced, most of which received a test of the most destructive type in the A.C.U. Six Days Trials last July. First of all, the top tube is dropped at the rear end, and the new dome-shaped mudguards should prove very efficient in wet weather. The front guard is exceptionally wide, and side extensions are formed their whole length. We have already referred to the detachable carrier and guard, which incidentally can be removed in half a minute. The Enfield Co., it may be remarked, was among the first to form the sidecar

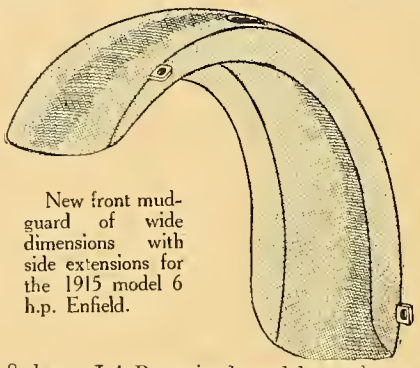


Enfield two-stroke, showing how inlet and exhaust pipes start from a common plate in front, and the method of leading the release gas into the exhaust pipe

attachments integral with the bicycle frame, and to produce a motor bicycle specially for sidecar work and sold as a complete outfit.

To enable the rear wheel to be readily removable, the brake is now arranged to operate inside the groove of the dummy belt rim connected to the left-hand side of the driving wheel, though the pedal is on the right-hand side, the connections being carried in a lug formed with the frame. We were glad to notice the greatly increased strength of the forks, the side plate links being of large flat section, and the bolts secured by castellated nuts and split pins. Both fork and girder are of round section. A permanent lamp support is obtained by extending the handle-bar stem.

As regards the sidecar, the band brake, which we have mentioned was being tested, has been discarded. Again, the mudguarding has been improved by the fitting of an inside shield which extends over half the wheel. Tool spaces are arranged both under the seat and under the front of the body, and a spring luggage carrier is standard. The price remains as before, viz., 80 guineas, with an increase of 2 guineas for the

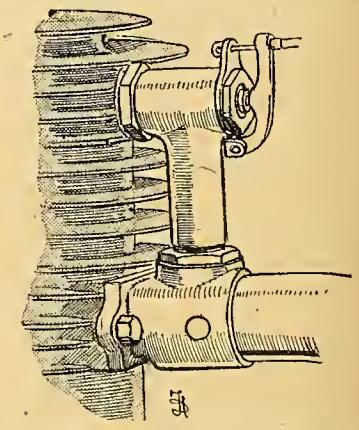


New front mudguard of wide dimensions with side extensions for the 1915 model 6 h.p. Enfield.

8 h.p. J.A.P.-engined model, and we have already mentioned that the outfit may be obtained, complete with Lucas lighting set and all fittings ready for the road, at £100 complete.

OMEGA TWO-STROKE.

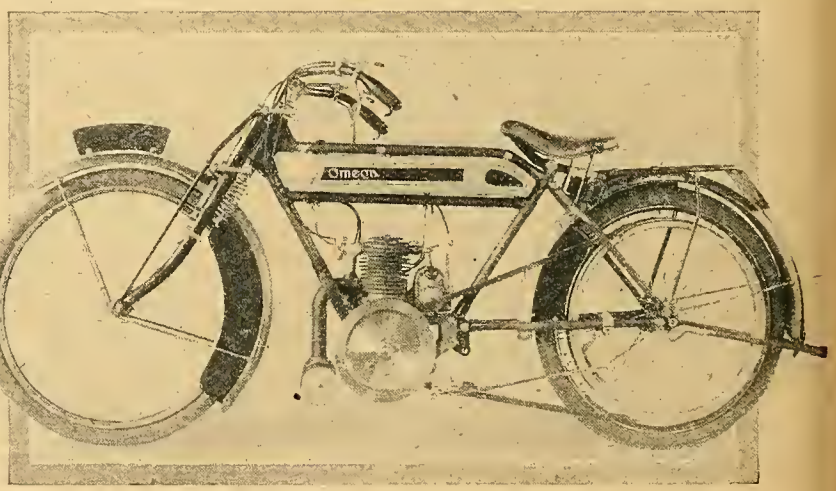
THE Omega two-stroke, which is manufactured by W. J. Green, Ltd., at Croft Road, Coventry, has undergone several important modifications, and the latest model is a most taking mount. The 345 c.c. engine has a bore and stroke of 76 × 76 mm., and has been redesigned in several details with the view of increasing its efficiency and life. A special roller bearing big end, the outer cage of which, formed by the end of the connecting rod, which is, of course, hardened and ground, allows the crank case to be narrowed considerably, and higher crank case compression is employed The shape of the piston baffle has been modified and three rings are fitted, the centre one being used to lock the gudgeon pin. Oil is led direct into the inlet port from a neat little adjustable drip feed, and the release valve is connected directly with the exhaust



Omega release valve, which is connected to exhaust pipe.

pipe. The fittings throughout are very well carried out, and the rounded sides of the petrol tank lend a very smart appearance to the machine. In spite of the 26 × 2in. wheels, girder Druid forks, stout stand, carrier, and mudguards, the complete machine is very light, and we are told that 130 lb. includes a two-speed counter-shaft gear. We were particularly pleased to notice that a large pan saddle is included in the specification.

The handle-bars, too, are wide, giving a comfortable riding position. As regards gears, either a two or three-speed counter-shaft box may be obtained, but even the single-geared model is very flexible and a sound touring machine for moderately hilly country.



The 345 c.c. Omega two-stroke for 1915.

A New Twin A.J.S. of 4 h.p.

550 c.c. Engine; Sloping Top Tube; New Design Forks; Enclosed Chain Drive.

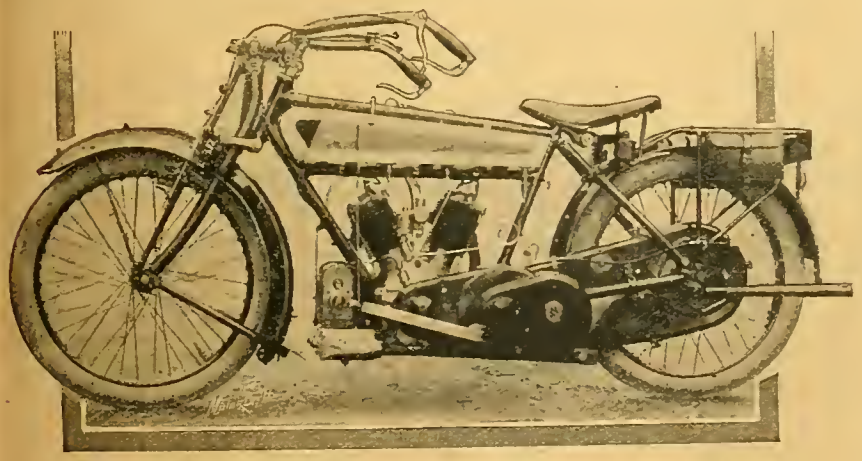
QUITE a departure from the standard A.J.S. is the new 4 h.p. twin-cylinder mount, which has many interesting features to recommend it. The engine and transmission are on exactly the same lines as those of last year's twin, but are, of course, somewhat smaller. The bore and stroke of the new engine are 65 × 83 mm. respectively, giving a cubic capacity of 550 c.c. The valves are of large size, situated side by side, and are operated in the usual A.J.S. manner, and the silencer, though placed as before, is of somewhat different design, having a single tail pipe extending rearwards from the back of the aluminium casting.

The excellence of A.J.S. chain guarding is already too well-known to need further description, and as the firm have always paid particular attention to making a cleanly machine, it is hardly surprising to notice that an unusual type of front mudguard is being tried. To the usual type of guard are attached wide, flat side wings with a wide, rearwardly projecting flange at the bottom. This attachment can easily be removed for speed purposes, but is so effective that the magneto and leg guard, which have been a feature of 1914 A.J.S. models, can, it is said, be dispensed with altogether

The Lubrication System.

The lubrication system is as before, a drip feed supplying oil to the inside of the crankshaft, whence it is circulated to all the main plain bearings, but the oiler has been changed for the latest type of Best and Lloyd semi-automatic drip, which has a circular sight gauge arranged at a convenient angle, so that it is particularly easy for the driver to see the flow.

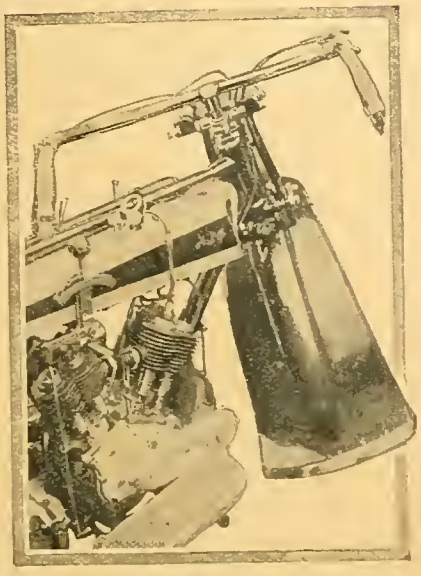
Perhaps the most startling innovation lies in the sloping top tube of the frame, an item which is becoming increasingly popular and which is a decidedly practical proposition, allowing a low riding position without the necessity for a bend in the frame, though it can hardly be said that it lends additional grace. The latest type of Brampton fork with two sets of top springs is fitted, and pannier tool-bags have been adopted. A.J.S. detachable wheels, shod with heavy tyres, help to complete a thoroughly well fitted out machine, which should admirably fulfil the purpose for which it has been designed, that is, a handy and fast solo mount, which is, at the same time, sufficiently powerful to take a sidecar through almost any country, especially as the lowest gear ratio provided in the three-speed gear is 17—1.



The new 4 h.p. twin-cylinder A.J.S. for 1915, which has a sloping top tube

OPENING FOR BRITISH MACHINES IN RUSSIA.

The military authorities in Russia having requisitioned for the war a large number of motor cycles, the members of the Moscow Motor Cyclists' Club, over a hundred in number, have almost to a man been left without machines. Winter riding in Russia is almost impossible, but in the early spring there will be a great demand for English machines. A number of influential members are at present formulating a scheme for the purchase by the club of a large number of English machines on co-operative principles, for the benefit of the members, and those manufacturers who are interested in export business would do well to send to the secretary, whose address is The Moscow Motor Cyclists' Club, Khodinka, Tzarsky Pavilion, Moscow, Russia, catalogues, with prices and full descriptions of their productions, stating the best terms they would be prepared to allow the Club, remembering that for Russia exceptionally strong machines are necessary, and reinforced frames, thicker tyres, stronger front forks, and thicker spokes and rims are a *sine quâ non* to the Russian rider, owing to the rugged roads in that part of the world. Springing fore and aft is also very desirable. The Russian rider does not mind weight, so long as he gets strength and reliability. Large petrol and oil tanks are indispensable.



Showing the new design of front mudguard, valve side of engine, change-speed lever, and sight feed lubricator on top of tank.

Hitherto, the Germans have had the lion's share of the Russian market, but, as a result of the war, there is a very strong agitation now going on all over Russia in favour of a complete boycott of all German productions, so that the present is an excellent opportunity for the British manufacturer to obtain a firm footing on the Russian market.

Despatch Riders for the Armoured Car Scheme.

Although a great number of motor cyclists have already been enrolled as despatch riders for service in connection with the armoured car scheme of the newly-formed Naval Brigade, we understand that the authorities have decided largely to increase the despatch riding division, and that, consequently, there is an opening for a still further number of motor cyclists, who, in addition to being expert riders, have some knowledge of the French language. Full particulars as to pay, rating, kit, provision of machines, etc., can be had on application between the hours of 10.30 and 11.30 a.m. to Sub-Lieutenant Stocks (well-known in connection with the De Dion Bouton Co.), Naval Air Recruiting Station, Wormwood Scrubbs, W

Another 200 Douglas machines have been ordered by the War Office

There are seventeen motor cyclist despatch riders attached to the 7th (Cyclists) Battalion Devonshire Regiment, which includes Sergeant P. Pike, late rider of a T.T. Levis, and John Gibson, who has competed in previous T T Races and other important events. The battalion is at present stationed on the East Coast.

TALES FROM THE FRONT.

Manx Motor Cyclist at the Front.

Corporal D. M. Brown, the well-known Manx motor cyclist, is acting as a despatch rider with the R.E. in France Duggie Brown, as he is better known, is a rider of Rover machines, and has taken part in many T.T races and Six Days and other trials. The accompanying photograph was taken just before leaving Aldershot for France. He is using the bicycle he rode in the Six Days Trials this year. Letters have been received from him saying he is quite well and having a good time. He was last heard of from Abbeville, on the French coast, travelling towards Belgium.

The Difficult Work of Motor Cyclists

We have had an interesting letter from Mr Glynn Rowden, who is at present driving a motor ambulance in France. "The motor cyclists," he says, "are doing splendid work in carrying despatches, but their task is particularly arduous owing to the heavy traffic, as the roads are one long fog of dust. I saw one man nearly killed by a motor suddenly looming out of the fog as he was passing me travelling the other way. When wet the roads are inches deep in slime and mud. Bent handle-bars, footrests, broken spokes, and lamps are evidence of the difficulties and dangers to be faced. Rims should be stronger and mudguards should be made with greater clearance, as the mud at times completely jams the wheels. Punctures are very numerous, most of them being caused by hobnails from the boots of peasants. The French machines are a long way behind the times, and most have no exhaust pipes or silencers. I saw a French soldier the other day start his machine on the stand and then run, with the engine still firing, and jump on, trailing the stand behind him. There is not much chance to do repairs, and machines, if they go wrong, are scrapped and replaced by new ones. I have just had a chat with a despatch rider who has been bayoneted by a German, and on another occasion had both tyres punctured by bullets, while one night he had a bad spill through being thrown in the darkness owing to a hole caused by a shell.

"The counter-shaft gears are most suitable for work over here, while extra strong frames and a very low riding position are necessary. The machines doing the best at present are Douglas, P. and M., and B.S.A."

Rowlandson's New Role at the Front.

S. A. Rowlandson has received early promotion, and is now a lance-corporal. We have received a copy of a further interesting letter he has addressed to Mr. V. A. Holroyd, which we give below:

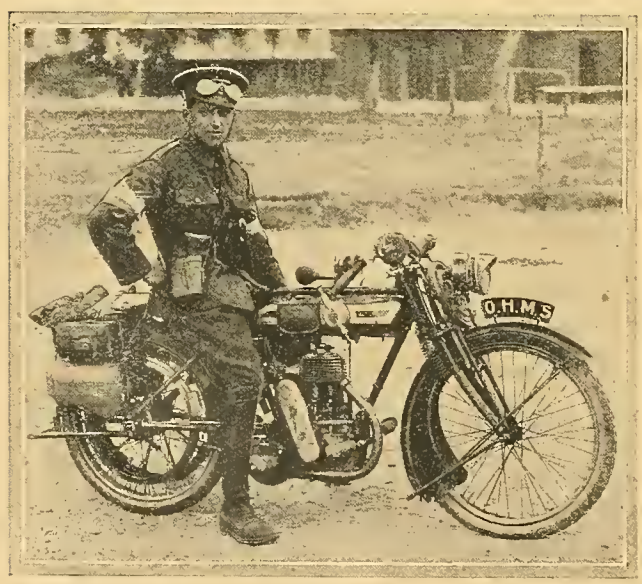
"Am snatching the chance of writing you before we move further on, when I expect we shall have very little time for writing. Since my last letter to you we have advanced nearly two hundred miles by a rather roundabout way. The whole of the way Noble and myself, on the Rudges, have acted as advance scouts, finding the way; and at the base we go out in much the same way and locate the troops, from whom we have forage and food.

"As I write this letter, about twenty yards away in the direction of the firing line, there are passing about twenty-five to thirty thousand troops for the firing line. After these have passed the horse transport follow, and then the motor transport. Expect we shall move about midnight. The troops have been passing now for three solid hours. To make things more interesting we can hear the boom of the big guns, and have done so for the last three days; evidently there has been a very severe battle raging.

"Have met many fellows I know—Monday, Duggie Brown and Howard Newman—yesterday two boys from the Naval Air Service with an armoured car. To-night I expect a visit from Cyril Pullin, who is attached to the Royal Naval Air Service. I learn that Mr. Nelson's son, also of the R.N.A.S., is at present at—well, not so very far from where the Roue Rudge detachables were being made before the war broke out.

"The nearer we get to the Front the more interesting it becomes, and in a day or two presume we shall have a hotter time still. For the last ten days we have had no letters, and for over a week no English newspapers. You can just imagine how much we know about the fighting."

[*Assistant Works Manager of Rudge-Whitworth, Ltd.—ED.]



Corporal D. M. Brown (the Manx T.T. rider), one of the motor cyclist section attached to the L Signal Corps of the British Expeditionary Force.

Lance-Corporal S A Rowlandson.

Falls Due to Appalling Roads.

Below we give extracts of letters received from B. and E. Rice, motor cyclist despatch riders at the Front, by their father, Dr. Rice, of Allesley, near Coventry.

"We are having a most strenuous time of it just now, but are enjoying it all the same. The roads here are appalling, and we are more off our machines than on them. I seem to live at the repair car! We have seen any amount of the Indian troops lately. They are truly splendid fellows, and should knock holes in the Germans. The natives here tell us that the German soldiers are terrified of us, and rushed about in a panic when the Scotsmen started to advance! I only hope we get into the Fatherland before long. There has been a regular procession of London 'buses by here to-day."—BERNARD.

"I am attached to a brigade at present, just trying to make myself useful by finding out when the guns require any ammunition, which just lately has been pretty often. Major Short's battery alone fired 1,216 rounds of eighteen-pounder ammunition in one day. The weather for the last week has been splendid in spite of the incessant gun fire. Aeroplanes are getting more common every day, perhaps the fine weather is bringing them out."—EDDIE.

We understand that the War Office has revised its list of machines which will be accepted for service. This is now as follows: Triumph, Rudge, B.S.A., Douglas, and Phelon and Moore. Should suitable applicants not be in possession of either one of the above-named motor bicycles, which must not be earlier than 1913 models, Government motor bicycles will be provided.

Wolverhampton M.C.C.

A smoking concert was held on the 31st ult. Mr. J. T. Ireland will read a paper entitled "A Day in a Garage" on Saturday next.

Eastern Counties M.C.C.

The closing run was held last week to Harlow and back. Arrangements have been made for a series of club suppers at the country quarters during the winter.

Coventry and Warwickshire M.C.

Among the members who are serving their country at the Front, and thus doing credit to themselves and their club, are the following: Corpl. G. E. Cuffe, Corpl. G. I. Francis, Corpl. T. E. Newsome, Corpl. A. Hill, Capt. E. Rotherham, Lance-Corpl. S. A. Rowlandson, Major A. P. Smith, Corpl. H. Trepass, Corpl. C T Newsome, Corpl. J. H. Pountney, and Corpl. R. B. Ewens. Old members: Capt. Mortimer. Corpl C. S. Burney, Corpl. V. Taylor, and Corpl. E A. Burney.

Loftus and District M.C.

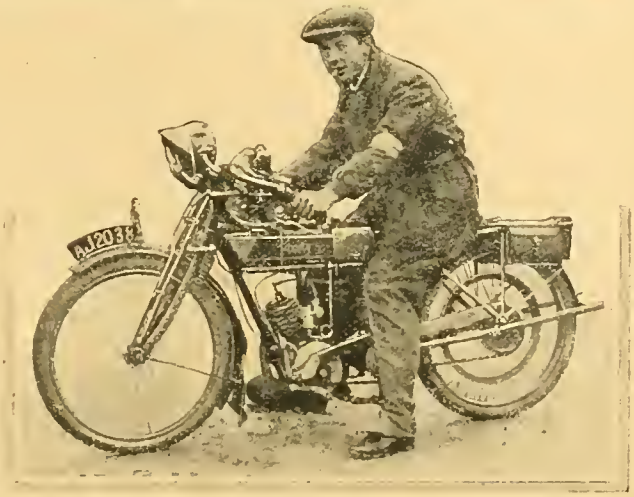
The autumn reliability trial was held last week through Loftus, Lockwood Beck, Commondale, Dibble Bridge, Castleton, Danby End, Lealholm, Glaisdale, to Limber Hill, and then on to Egton for lunch, and afterwards to the test hill through Grosmount village. A very heavy mist was hanging about in the morning, and later the rain made the roads very bad. Thirteen competitors started, but only nine finished the course. The best performances on Limber Hill, Glaisdale, were made by P. Thompson (3½ twin James) and Dr. Raw (2½ A.J.S.). On the test hill Thompson and Raw again came out on top, and tied for first place. Results:

	Rider and machine.	Marks lost.
1.	P. Thompson (3½ twin James)	2
	Dr. Raw (2½ A.J.S.)	2
2.	H. Johnson (3½ New Hudson)	7
3.	G. Duck (3½ B.S.A.)	10
4.	W. Cook (7-9 Indian)	11
5.	H. Lamb (5-6 Rex)	15

The competitors unanimously agreed that, instead of prizes, the entrance fees be handed over to the Belgian Relief Fund.

AN ITALIAN SIDECAR AMBULANCE.

The makers of the Frera motor cycle in Italy have just produced the sidecar ambulance illustrated.



P. Thompson (3½ h.p. twin James), who tied with Dr. Raw, of Whitby (riding a 2½ h.p. A.J.S.), for first place at the Autumn Trial of the Loftus and District M.C.C., described on this page.

SATURDAY AND SUNDAY RALLIES.

We have already announced the rallies to be held by the Cyclecar Club at Hatfield, Burford Bridge, and Wisley, on November 21st and 22nd. The 1915 models will be lined up apart from the cars of those visiting the rallies, and each model will bear a card stating its name and price. The committee appointed to award prizes consists of Dr. A. M. Low and Messrs. T. W. Loughborough and W. Cooper. A driver may attend one or all of these rallies.

MOTOR CYCLE HILL-CLIMB IN CANADA.

Although the great European conflict is a matter of deep concern to Canadians, yet Jack Canuck is not forgetting that Jack at play is much better off than a dull boy. Without exception all of the scheduled motor cycling and bicycling events are being run off throughout the Dominion without hitch, and the general public, seemingly, is taking as great an interest in the sports as usual.

The Toronto Motor Cycle Club held a "War Time" hill-climbing contest on a road just beyond the city limits of Toronto on a recent Saturday, when riders of British motor cycles carried off the majority of prizes Warden (Douglas) captured first place in the 2¾ h.p. fast amateur climb, with Holmes (Douglas) second, and Greenwood (Triumph) third. The slow event for this class was won by Greenwood (Triumph), with Holmes (Douglas) second.

The 4 h.p. class for amateurs was won by Greenwood (Triumph), Barnes (Triumph) second and Holmes (Douglas) third. Newport (Douglas) was first in the 4 h.p. slow event, Johnson (Triumph) second, and Greenwood (Triumph) third.

The 7 h.p. slow race for amateurs was won by Newport with a Douglas. An American machine was the first in the 7 h.p. fast climb for sidecars, but Holmes (Matchless) drove second, and Meldrum (Matchless) third.

The slow sidecar event was won by Holmes (Matchless), Meldrum (Matchless) being second.

The summary shows that British motor cycles won sixteen prizes out of a possible twenty-three, of which both the Triumph and Douglas took six each, and the Matchless entrants carried off four prizes. It was a wonderful showing for the British models.

CURRENT CHAT

TIMES TO LIGHT LAMPS

(GREENWICH.)

November 5th	5.24
,, 7th	5.21
,, 9th	5.19
,, 11th	5.17

More Despatch Riders for the Front.

Nearly a score of motor cyclist despatch-riders from the Wolverhampton district went to the Front last week.

Eighty-one Employees Join the Colours.

A list of eighty-one employees of Messrs. Iliffe and Sons Ltd., proprietors of *The Motor Cycle*, who have joined one or other of the different branches of His Majesty's service, will be found on another page of this issue.

Sidecar Trips for Refugees.

It has been suggested in the Bradford press that the local motor cycle club arrange a meeting of their sidecar members, and take a party of Belgian refugees a run into the country. This is an extension of the sidecar Samaritan scheme, and might be taken up by clubs in other districts.

First Details of New Models.

Four entirely new two-stroke lightweight machines are described and illustrated exclusively in this issue. This increasing popularity of the two-stroke engine which has given the lightweight such a fillip is remarkable. The models dealt with in this issue of *The Motor Cycle*, viz., the new two-stroke Enfield, Sparkbrook, Omega, and the Lady's Metro. Another 1915 model described and illustrated is the 4 h.p. twin A.J.S.

Motoring and the War.

The war has fortunately not had the adverse effect on motoring which, in its earlier stages, it was thought it would have. During the week-end as many motor vehicles of all sorts were to be seen at the "Hut" as on an afternoon in July. Among the crowd were many motor cyclists in uniform. We particularly noticed Corporal Busby, R.E., who is now at Aldershot, and Corporal Taylor, R.E. of the Essex Motor Club, who was wounded and is now quite fit.

Modification in Frame Design.

The sloping top tube is gaining favour. Two 1915 models described in this issue have this feature of design, viz., the new two-stroke 2¼ h.p. Enfield and a new 4 h.p. twin-cylinder A.J.S. Another make of two-stroke possessing this feature—the Alldays, which, we hear, is to be named the "Allon"—was illustrated in our special Two-stroke and Lightweight Number of July 23rd

The Legion of Honour.

Corporal W. H. Tait, R.E., a Caius College, Cambridge, man, has recently been given the *Légion d'Honneur* by the French Government for conspicuous bravery, and it is strongly rumoured that one of the Roberts brothers has met with similar distinction.

Motor Cycling Club Fixtures.

On account of the war the Motor Cycling Club has reluctantly decided to abandon the usual winter run to Exeter and back, which has become so popular of recent years. And for the same reason the annual dinner and presentation of prizes, provisionally fixed for December, will not take place this year.

The Growth of the Sidecar in America.

The increasing popularity of the sidecar on the other side of the Atlantic is clearly shown by the new models exhibited at Chicago, and there is a tendency for motor cycle manufacturers to build sidecars to fit their own machines. More attention, too, is being given to the brake work, which is so important when a sidecar is fitted. All black weatherproof finish is showing signs of becoming popular.

SPECIAL FEATURES.

FOUR NEW TWO-STROKE LIGHTWEIGHTS.
Described and Illustrated.

WHY DOES AN ENGINE KONK?

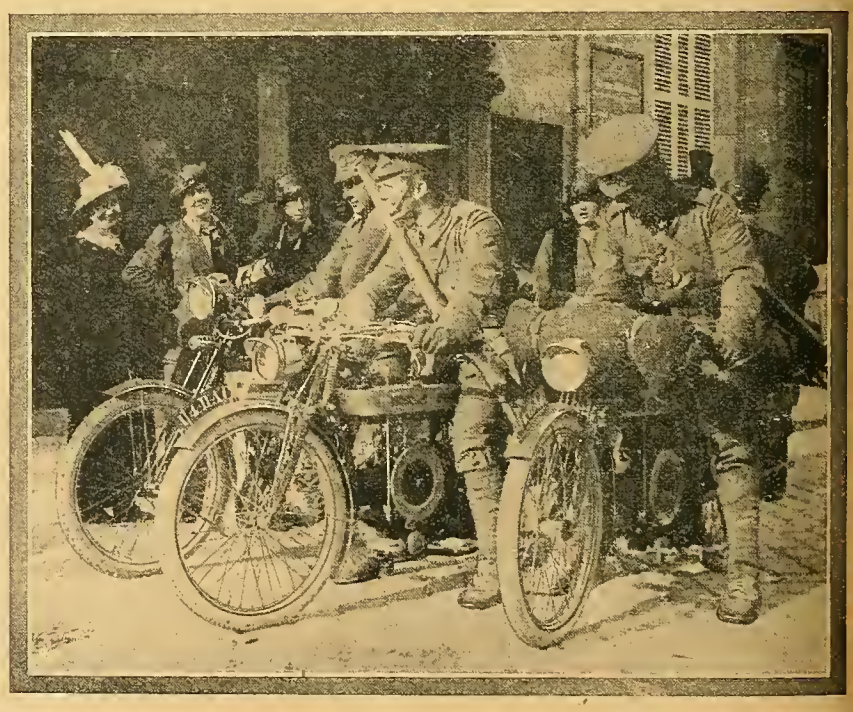
THE TREND OF DESIGN IN AMERICA.

"The Motor Cycle" at the Front.

Lance-Corporal S. A. Rowlandson wrote home last week that *The Motor Cycle* is devoured by the motor cyclists at the Front. It is, however, rather curious that the news most eagerly sought for is the experiences of fellow despatch riders at the Front.

Chicago Show Statistics.

The statistics of the Chicago Motor Cycle Show indicate clearly the general trend of American design. Out of fifty-five machines thirteen had single-cylinder engines, there were forty-seven twins, and three four-cylinder models. Thus, only 23% of the whole were singles, which shows that this type of machine is much less popular than in this country. Again, the starter is demonstrating its superiority to pedal gearing, as evidenced by forty-eight machines, over 87%, being equipped in this way.



British motor cyclist despatch riders passing through ——— near the firing line in France. (Two are riders of Douglases, the other of a Triumph.)

BOWDEN WIRE

BOWDEN Wire Mechanism assures the highest efficiency of control. Fitted to your motor cycle it will increase its safety and reliability.

All the Bowden Aids to Efficiency are designed and made by experts of practical experience who know where aids to efficiency and economy are necessary. A few are shown below, but there are many others fully described and illustrated in our 72 page catalogue. Write for a copy to-day.

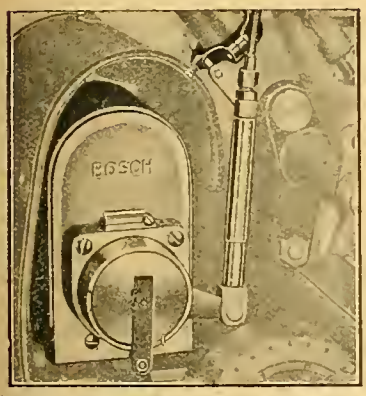
BOWDEN SILVER.

BOWDENITE.

BOWDENOIR.

BOWDEN SOLO.

BOWDEN WIRE. For Controlling Brakes, Clutch, Air Inlet, Magneto, etc. Made in various strengths and finishes at from 2d. to 1/2 per foot.



BOWDEN MAGNETO CONTROL

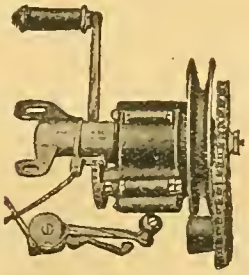
gives complete command of magneto adjustment from handle-bar—easily fitted to any machine. Just four screws to screw up—that's all.

Prices from 8/6

BOWDEN CONTROL LEVERS

for Brake, Clutch, Air Inlet, Magneto, and other controls are made straight or curved, and for one, two, or three movements.

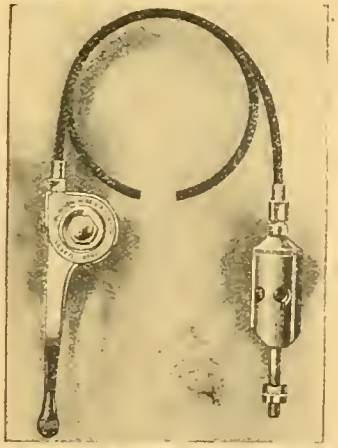
No. 403.
For One Movement,
5/-
Lever only.



BOWDEN TWO-SPEED GEAR.

Fits a number of machines without any, and most machines with slight, alteration. The parts are few and simple. Counter-shaft type with Kick-starter. Guaranteed for engines up to 6 h.p.

Price from £8 8s.



BOWDEN EXTRA AIR INLET

A great Money Saver. Reduces Petrol Bill. Keeps the Engine clean and cool, and increases its efficiency. Provides an auxiliary brake. Write for descriptive folder.

CONTROL LEVER.

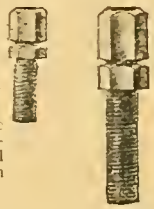
No. 427.
For side of bar. The Ratchet provides six positions. 7/6 Levers only.

PORTABLE CLIP.

For attaching lever to round tube. In all sizes.
2/- each.

STOPS, with Lock Nuts.

For use with Bowden Wire Mechanism. When ordering give number and description of wire with which stop is to be used.
Price from 4d. each.



BOWDEN RAPID VALVE GRINDER.

Helps you to grind a valve quickly and with absolute accuracy without dismantling cylinder. The most efficient valve grinder made.

Price 7/6

When ordering send remittance to cover cost of postage—any balance will be refunded.

BOWDEN WIRE LTD., LONDON.

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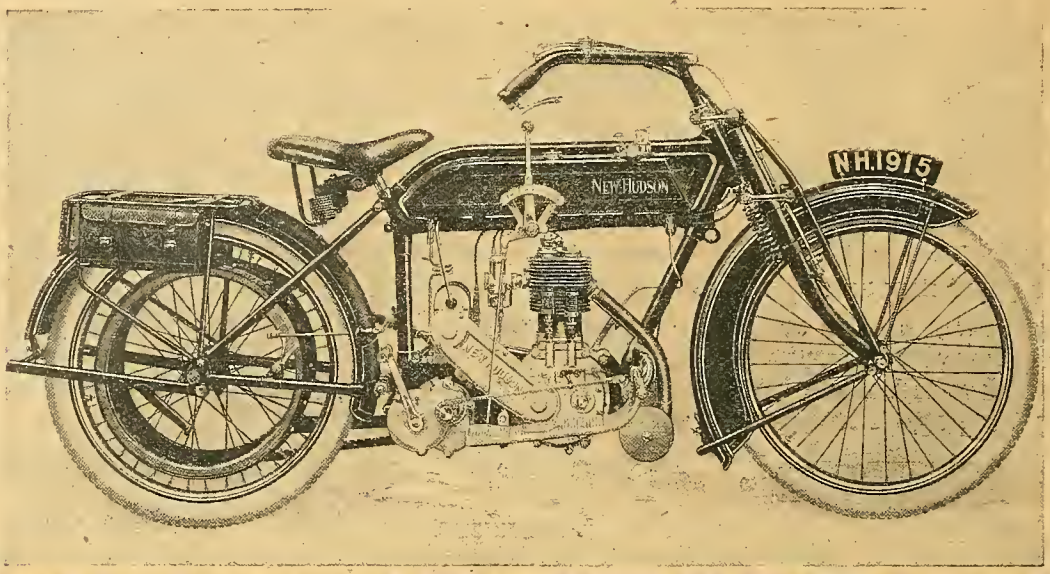
Pratt Street, Camden Town, N.W.



NEW-HUDSON

MILITARY SERVICE MODEL

as supplied to His Majesty's Forces, H.M. Postmaster General, and the Indian Expeditionary Force.

Also to

The Russian Imperial Govt., The French War Dept., The Belgian Government, and the Italian Government.

This special model embodies 1915 practice throughout. Exclusive in design; perfect in construction; highest quality equipment.

It represents the latest development of the 500 c.c. solo machine—a combination of the famous New Hudson 3½-4 h.p. engine with counter-shaft three-speed gear, motor car type, built into a frame of approved design and unequalled sturdy construction.

Accessibility is exemplified by a new and important feature—the removable power unit. This power unit includes the engine, magneto, carburetter, three-speed counter-shaft gear, free engine clutch, and kick starter, all assembled as one unit to fit into frame *en bloc*

Special heavy wheels with Dunlop heavy studded tyres, H.T. magneto, B. & B. carburetter, Brooks pan-seat saddle, comfortable footboards, efficient mudguarding, extra large tank, and complete Service kit of high-grade tools. Service grey finish.

Price £57 10s. net.

Write for Catalogue.

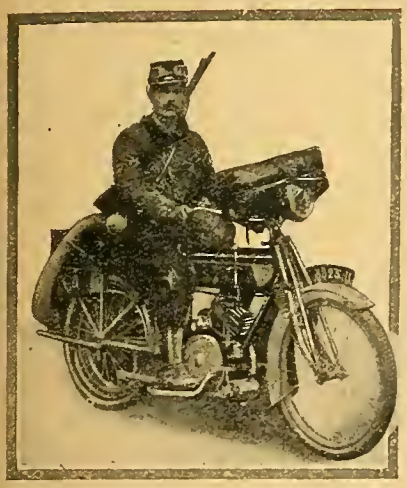
NEW-HUDSON CYCLE CO., LTD., PARADE MILLS, BIRMINGHAM.

London—43 and 45, Gray's Inn Road.

BIRMINGHAM	40, Paradise Street.	GLASGOW	44, Sauchiehall Street.	BELFAST	108, Ann Street
MANCHESTER	245, Deansgate.	BRIGHTON	6, Western Road, Hove.	DUBLIN	29, Bachelor's Walk
LEEDS	16 and 17, Briggate.	EDINBURGH	32, Shandwick Place.	HULL	58, Anlaby Road

AGENTS EVERYWHERE.

In answering this advertisement it is desirable to mention "The Motor Cycle."



A FRENCH MILITARY MOTOR CYCLIST.

M. J. Linde, a rider of a two-stroke Clyno, who is etat major to the staff of the 6th Army Corps of the French Army. His Clyno is fitted with Harcourt radiators, and its running is greatly admired by his fellow soldiers.

Of Interest to Buyers.

The annual Buyers' Guide of *The Motor Cycle* is an invaluable work of reference. It contains the full specification of every motor cycle of note on the British market. The 1915 Guide will be published on Thursday, November 19th.

A Dearth of Motor Cycles in Russia.

A correspondent from Moscow writes that no more motor cycles are to be seen in the streets of that city, as all, including his own, have been commandeered by the Russian War Office.

Italian Imports and Exports.

The Italian imports and exports of motor cycles during the month of August for the last three years are as follow: Imports: 1912, 163 machines; 1913, 247 machines; and 1914, 160 machines. Exports: 1912, 11 machines; 1913, 11 machines; and 1914, 7 machines. The imports for last August are not only lower than in August, 1913, but are far below the general monthly average of the present year, which works out at 535 machines per month. This drop is due, of course, to the war.

An Interesting Incident.

The other day three Scott sidecar machines were seen wending their way through St. James's Park. They were specially adapted for military purposes, and enquiries elicited the fact that they were on their way to Buckingham Palace for the purpose of being privately inspected by His Majesty the King. They were in charge of Mr. A. A. Scott, their designer and inventor, who drove one of them, while the others were driven by Norman Longfield and F. A. Applebee.

As far as we know this is the first occasion on which the King has shown a special interest in motor cycles, and consequently the Scott Engineering Co. has been highly honoured.

A Place to Avoid.

A writer warns us of police activity at Bidford-on-Avon, Warwickshire. Action is immediately taken against riders of machines which the constable thinks are at all noisy, and if a motor car or motor cycle be left outside an hotel more than five minutes there is again trouble. Our informant says that local motorists are going roundabout ways rather than pass through the village.

Profits of a New Company.

The directors of A. J. Stevens and Co. (1914) report a profit for the year ended August 31st of £7,437, of which £924 is in respect of profits made since the formation of the company. The liability of £4,100 to the vendors and the purchase price for the site of the new works have now been discharged.

A DUTCH MILITARY MOTOR CYCLIST.

F. de Prey, a Volunteer military motor cyclist in the Dutch Army, who reports having covered 4,500 miles on military service on his 4 h.p. Triumph with an entire absence of trouble.

American News and Views.

Last week Mr. W. H. Wells returned from the United States, where he has been inspecting the 1915 Indian models. He crossed over on the *Mauretania*, almost unrecognisable in her garb of battleship grey, and all along the route many British cruisers were seen. Mr. Wells was not particularly enthusiastic about the uniform scheme of decoration which had been adopted for the Chicago show, the result of which, he said, was extremely flat and uninteresting. The general appearance as a whole, he considers, was far below what we are used to seeing at the Olympia Show. The opinion is generally expressed in America that the English manufacturers have made a great mistake in abandoning the show this year. Mr. Wells further told us that there appeared to be great interest taken in the exhibits shown in Chicago, agents from all parts of the United States and Canada being in attendance, and he was told that very large orders were booked by the three principal manufacturers.

A Thoughtful Present.

We have received from a reader (Mr. E. Gaunt, of Coseley, near Bilston, Staffs) a suit of overalls, which he asks us to present to some despatch rider in His Majesty's service.

Sheppey Roads Closed.

By a new Government Order a pass is required before being allowed to enter Isle of Sheppey from the only approach from the mainland — Queensbridge. Certain roads in the Isle of Grain, near the naval and aero stations, are closed to traffic.

Killed in Action.

We greatly regret to announce that S. N. Crowther, M.R.C.S., L.R.C.P., who was employed as a despatch rider, was killed in action on the 18th ult. Dr. Crowther was senior medical officer of Surrey County Asylum, and formerly senior house physician at Westminster Hospital; he was a keen motor cyclist.

Christmas Gifts for Despatch Riders.

As we announced last week, H.R.H. Princess Mary's Christmas Present Fund has exactly the same object as the shilling fund announced by *The Motor Cycle* a fortnight ago, and, consequently, should receive wholehearted support by motor cyclists in general. In view of the difficulties of distribution, it is feared that it will be impossible to devise a form of gift to be particularly applied to motor drivers, which *The Autocar* and *The Motor Cycle* urged.

Reliability Trial in Denmark

A trial over a distance of 350 km. was held by the Motor Club of Copenhagen (the largest club in Denmark) recently, and it was notable for the fact that it was the first trial in which a lady motor cyclist figured. There were fifty competitors, all being sent off in pairs in order to check one another. Only twelve pairs finished the trial with full marks, and the pair adjudged first were Miss Werner, who rode a 2½ h.p. Hobart machine, and C. Walter, who drove a 7 h.p. Indian with Canoelet sidecar.

C. Walter (7 h.p. Indian and Canoelet sidecar) who with Miss Werner (2½ h.p. Hobart) formed the winning pair in the Motor Club of Denmark's reliability trial

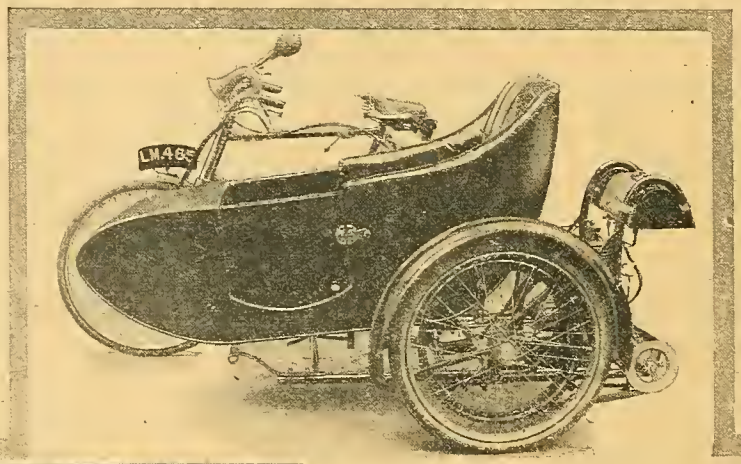
THE AUTO-SIDECAR.

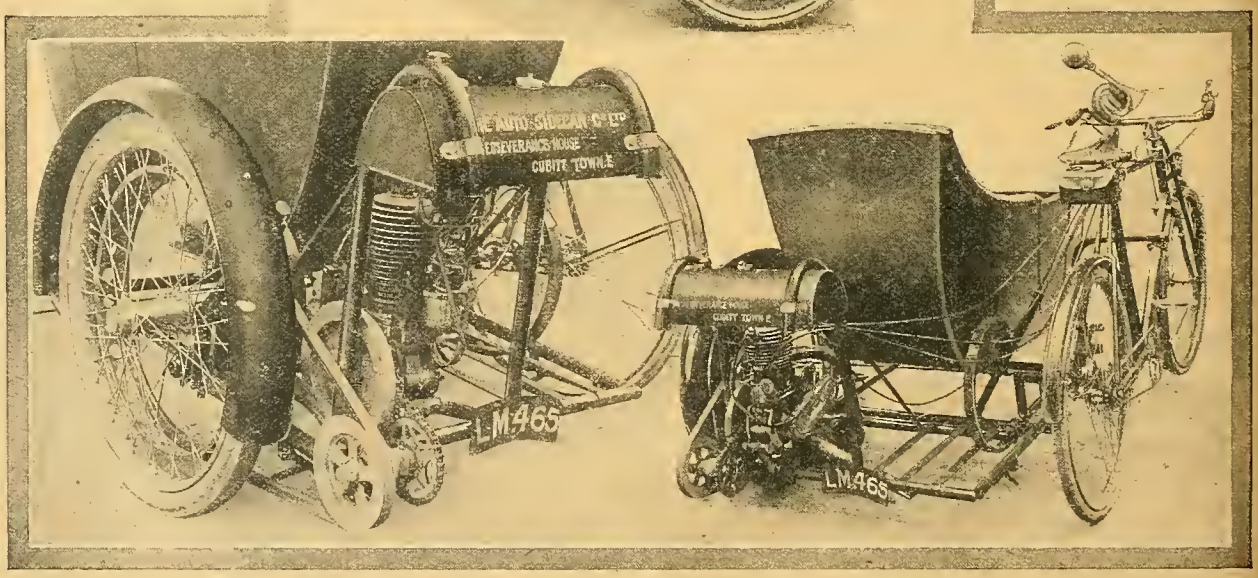
SINCE the Auto-Sidecar, made by the Auto-Sidecar Company, Perseverance House, Cubitt Town, E., was described in our issue of October 1st, various alterations have been made in its design. These are clearly evident in the accompanying illustrations, from which it will be seen that the sidecar frame has been very much improved and strengthened, while another important change is the fitting of a really effective mudguard of ample width and provided with a deep valance on its inner side. Further, a body of pleasing outline has been fitted by Messrs. Purcells, 78, Charlotte Street, W. Hinged legs for the purpose of jacking up either the sidecar or pedal cycle wheel are fitted to the longitudinal members of the frame, thus acting as an efficient jack. We understand that in the near future an expanding pulley will take the place of the fixed pulley, so that some means of varying the gear will be provided, and the petrol tank will be cylindrical in shape.

Before we tried the Auto-Sidecar it did not seem possible that the diminutive little engine would develop anything like sufficient power to propel the required load at a steady speed of 12 to 15 m.p.h. However, this was the case, and it was only on fairly steep gradients that a little pedal assistance was necessary.

Practically No Vibration.

At first sight one would imagine that the sidecar passenger would feel a certain amount of vibration owing to the way in which the engine is mounted, but in actual practice all tremor caused by the engine is effectually damped by the springs and upholstery of the sidecar. It is difficult to make the sidecar lift on corners owing to the weight of the engine and low speed obtainable. Turning to the point of view of the cyclist, there are many little advantages which accrue from such a design. Perhaps the foremost of these is the fact that special overalls can be dispensed with on good roads and in fine weather, as there is little possibility of getting oil stains on one's clothes, and both driver and passenger are seated well away from the noise. Naturally, the attachment is not intended to take the place of the more powerful sidecar combination, nor is it meant for serious touring, but rather to provide a leisurely means of getting about for the potterer in not too hilly country.



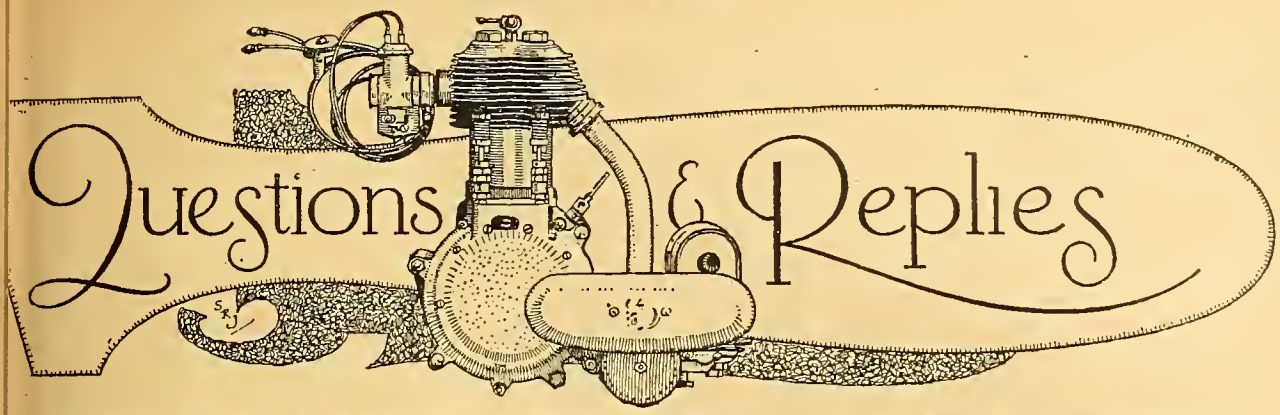


Various views of the latest Auto-Sidecar, detail improvements of which are described above.

TWO SPECIAL ISSUES OF "THE MOTOR CYCLE"

are in course of preparation Both will be considerably enlarged and profusely illustrated In the absence of the Show they are bound to be in great demand, and early orders should be placed with newsagents

ANNUAL BUYERS' GUIDE ON NOV. 19th. EQUIPMENT NUMBER ON DEC. 10th.



Questions & Replies

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Fires on One Cylinder Only.

Can you help me with my 5 h.p. twin, as I am quite lost how to find what is wrong with it? It only fires on the front cylinder. The magneto is in order, valves timed correctly, plugs good; in fact, I have tried several. The engine has automatic valves. I have even changed valves over, but all that made no difference. I have not looked at timing wheels, but they must be all right or the valves and timing would be wrong.—E.J.P.

Are you sure that the carbon brush conducting the high-tension current from the magneto to the front plug is working satisfactorily and not sticking? Is the contact breaker arm quite free? You should also see that the valves are working well in their guides, and be careful to see that there are no air leaks in the induction pipe. If the timing of the valves is correct the fault cannot well be in the timing gear. The trouble is one which is very difficult for us to diagnose without actually seeing the machine.

Building a Cycle Car.

I intend building a small monocar this winter, and am writing to ask if you will be good enough to give me some idea as to what power engine I should fit into it. The framework, body, axles, wheels, etc., when fitted together will weigh, I imagine, about 120 to 130 lb. *minus* the engine. Would motor cycle road wheels be strong enough, such as fitted to big twin-cylinder machines? I live in a fairly hilly country, and weigh about twelve stone. I see a number of second-hand engines advertised, but in order to have reliable running, it might be better to get a new one. Kindly say what your opinion is as to this.—I.M.C.

We should recommend you to fit the vehicle with a two-cylinder engine, preferably water-cooled, of not less than 6 h.p. Very strong motor cycle road wheels could be fitted, and 650 × 65 tyres. You will, of course, need some efficient form of change speed gear and clutch. We should advise you to have a new engine in preference to a second-hand one.

Two-stroke Lubrication.

A friend of mine has recently bought a two-stroke motor cycle, 2½ h.p., and he is experiencing trouble with oil being thrown out from the carburetter. I saw him recently, and his overalls on the right leg were spattered with oil after doing only a few miles. I had thought of making a similar purchase, but if the two-stroke generally has such a fault I certainly shall not buy such a machine. I shall be obliged if you will explain in *The Motor Cycle* the cause, and also if the Bradbury and New Hudson are perfectly clean in this respect. I presume such a fault can be remedied? Can you recommend the two-stroke as being a clean machine to ride?—A Regular Reader.

There are several possible causes for the excess of oil being thrown out. You do not tell us the system of lubrication employed, and this is rather an important point. However, if a mixture of petrol and oil is used the probabilities are that too much oil is being mixed with the petrol, or the top piston ring is gummed up in the piston, and a certain amount of blow back is taking place. All two-strokes lubricated by this system will leave an oily deposit on the carburetter, but this should not reach the driver's leg. Either gauze or a metal shield is almost invariably fitted to the carburetter with the idea of preventing this. From the symptoms mentioned, however, we take it that too much oil is being used. About half a pint of thin lubricating oil, such as Huile de Luxe, should be used with every gallon of petrol. You do not mention what type of Bradbury or New Hudson you require details about. The Bradbury Co. do not at present make a two-stroke machine, but their four-stroke machines are perfectly satisfactory and clean. The New Hudson Co., on the other hand, make both two-stroke and four-stroke machines, both of which are quite satisfactory. We have been running two two-stroke machines throughout the year, and in regard to cleanliness of one's clothes we have seldom ridden machines more perfect in this respect, in spite of petroil lubrication.

FORTHCOMING
SPECIAL ISSUES OF
THE MOTOR CYCLE
November 19th.
BUYERS' GUIDE OF 1915 MODELS
December 10th.
EQUIPMENT NUMBER.

General Debility of a Twin.

I should be much obliged if you could assist me by suggesting a remedy for something which has gone wrong with my machine. When I change over, even on the level, from low to high gear the engine begins to slow down, and I have to come down on to low gear, perhaps half a dozen times before I can get running. On hills, which previously were of no account, I have to change down. The plugs are all right, both cylinders fire properly, compression is good, and the controls appear to work properly. If I advance the spark it seems to have no effect.—H.S.

We should say that what your engine requires is a thorough cleaning. Remove cylinders, and clean all carbon from the cylinder heads, the tops of the pistons, and especially from the valve ports. Put about half a pint of paraffin into the crank case and swill this about for a few minutes, turning the crank round two or three times, then drain out by means of the plug at the base, and put in two to three charges of fresh oil. Take off the carburetter and carefully clean every part, making sure that the jet and petrol pipe are not in any way obstructed. It is also possible that the magneto requires some adjustment. The platinum points should separate .4 mm. and no more, and they should be smooth and clean. It would also be as well to remove the terminals and clean both them and the slip ring with a rag dipped in petrol sufficiently to make it just wet, repeating the operation till all dirt is removed. The silencer and exhaust pipe too should be cleared of soot and carbon.

Slow Running.

I have just purchased a new Scott motor cycle. Would you be good enough to tell me why I cannot run it on top gear at less than about 18 m.p.h. without its jerking and knocking? It is fitted with Binks carburetter, and I have tried altering the jets without success. The same thing happens on low gear at anything less than about 7-8 m.p.h. My turnout, which I use in Southern India, has to be lifted, carried, etc., sometimes five to six times in a day from trains, ferries, and bullock carts, sometimes *in toto*, sometimes with the machine and sidecar separate. I want to get fitted, if possible: *(a)* a locking device, to keep the front wheel from veering while the machine is being lifted; *(b)* some kind of handles to catch hold of, especially in front, for the coolies to handle it easily.—J.C.P.

We think you will find considerable improvement if you take down the gauzes in the transfer ports and either boil them in strong soda water or brush them with a stiff brush soaked in paraffin. Be also very careful to see that there are no air leaks in the induction pipe or carburetter, and that the washers round the gauzes are in good order. A steering lock and suitable handles for catching hold of the machine would have to be made specially for you, as in the case of the former there are none suitable for motor cycles. The design adopted for a pedal cycle would be good if the device were made suitably strong. There is, however, a certain amount of danger, as in the event of starting the machine with the head locked a serious accident would result, and accidents with pedal cycles have often occurred from this cause. A friction lock would therefore be best. Any ingenious man would fit wooden handles, fixed on brackets attached to suitable parts of the framework or to the sides of the forks of the machine.

Local Taxation Licence.

A fortnight ago I purchased a second-hand motor cycle. The previous owner had paid the tax for the year. I have taken out a driving licence and have had the registered number transferred to my name. (1.) The tax on the machine having been paid, is it necessary for me to pay again as from October 1st? (2.) Is the individual taxed or is it the machine that is taxed? (3.) Would an owner having two or more machines have to pay two or more taxes?—G.B.

(1.) Yes; it is necessary to take out a licence, which can be done at half fees (10s.), as you did not possess the machine till after October 1st. (2.) The local taxation licence applies to the owner, not to the machine. (3.) The local taxation licence entitles a man to keep one motor bicycle; therefore, if he has two he must have two taxation licences. If he sells one machine and buys another, and does not use the two while in his possession, one tax is sufficient.

Irregular Running.

Would you kindly inform me of the correct timing for a 1912 twin Moto-Rêve? I have had the magneto repaired, and on refitting it I can only get it to fire on one cylinder (front) regularly; the back one only gives a few explosions, but the funny part about it is, on moving the inlet valve from the front to the back, it fires on the back and not on the front. The inlet valves are quite free in their guides, but the springs are different lengths. I get a good spark at both plugs, and I have tried various jets.—W.V.

The correct timing is as follows: Set the magneto points about to break with the piston dead at the top of the compression stroke, and the spark retarded if an advance spark mechanism is fitted. The trouble is obviously due to the inlet valve. It is important that the inlet valve springs should be, as nearly as possible, of the same length and tension and the amount of opening of each valve should be the same. The springs should be tested by pressing the stems together and noting whether the lift is the same in the case of each valve.

Age Limit for Licences.

I am anxious to get a motor cycle next year, and I am only 15. Do you think it is possible to get a licence?—J.S.G.

You will have no difficulty in obtaining a licence to drive a motor cycle. The age limit is 14 years, and in the case of a motor car 17 years.

Sidecars and Single Gears.

I have a 3½ h.p. Triumph, 1912, free engine clutch model, single geared, 5¼ to 1, and often use it with a sidecar. I have recently purchased the machine, and the engine works well, but, owing to the single gear I presume, it is quite impossible for me to climb any really steep hills with a passenger. Blackheath Hill, Shooters Hill, and Castle Hill, Dover, and many other steep grades proved hopeless on a recent trip to Dover. My weight is eleven stone eight pound, and my usual passenger weighs nearly the same, although sometimes I only have an eight stone load. If I had a variable gear fitted, should I be able to climb practically any hill with sidecar and passenger, and if necessary start up with full load on a gradient?—B.W.F.

If you had a variable gear fitted you would be able to climb any one of the hills mentioned with ease, and, if necessary, start up with full load on the steepest gradient of such hills; in fact, a sidecar machine without a change speed gear is not likely to be much use for serious touring. You may fit a Bowden, or some such gear, which is made so as to be easily fitted to a machine such as yours, or a three-speed hub.

THE LOYALTY OF MOTOR CYCLISTS. A rally of Toronto motor cyclists which led up to recruiting for the Canadian Field Force. The machines are of British and American origin.

READER'S REPLY.

Red-hot Exhaust Pipes.

With reference to "W.M.M.'s" query in *The Motor Cycle* of October 15th, I suggest that the reason his exhaust pipe gets red hot is because his exhaust valves want grinding. My exhaust pipe on my 5-6 h.p. Rudge-Multi invariably gets red hot when the valve wants grinding in; why, I cannot say, but a little grinding powder, a brace, and ten minutes good "elbow grease" never fail to cure this effect, although, as "W.M.M." remarks, it never interferes with the running of the engine, and does not, therefore, really matter.—C.H.R.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"J.B." (Preston).—Folding sidecars. Reliability and ease of manipulation, etc.

"L.M." (Kidderminster).—Mabon variable gear. Wear of belts and general efficiency.

"S.C.R." (U.S.A.)—Reliability and durability of sidecars fitted with disc wheels.

MOTOR CYCLES FOR SALE.

Brown.

2½h.p. Brown, Precision, 1912, with spares; £18.—68a, Delancey St., London, N.W. [8408

3½h.p. Brown, battery and coil ignition, good tyres; £10.—J. Eyre, Brough, Bradwell, Sheffield. [X2353

Brough.

BROUGHS.—Immediate delivery from stock of the 500 c.c. horizontal twin 2-speed overhead valve models.—The West Lancashire Motor Co., Southport. [0555

BROUGH, 1914, 3½h.p., horizontally opposed 2-speed twin, condition absolutely as new, picked engine very fast and powerful, won gold medal last London Edinburgh, hardly ridden since; stringent expert examination invited; £40, a real bargain.—Lovegrove, Roesmore, Wharncliffe Rd., Boscombe. [8011

Calcott.

1913 2½h.p. Calcott, variable jet, B. and B., Bosch, lamp, horn, tools, Dunlop tyres, belt, done 1,000, as new; £26/10.—Brownridge, Hungerford Rd., Crewe. [X2309

Chater-Lea.

CHATER-LEA, 3½h.p. J.A.P., C.A.V. carburetter, good condition, sidecar; £12.—Blake, 216, Westbourne Grove. [8325

2¾h.p. 2-speed Chater-Lea 2-stroke Motor Cycles for immediate delivery from stock, £36; exchange or easy terms at Wanchope's, 9, Shoe Lane, London. [X2372

1912¾ No. 7 Chater-Lea, 8h.p. J.A.P. engine, 3-speed gear box, with 20 gn. coachbuilt sidecar, F.R.S. lamp set, heaps of spares, condition as new; £43.—Burke, 80, Rutland St., Stepney, E. [8520

CHATER-LEA, 1913, No. 7, 8h.p., 3-speed gear box and clutch, chain drive, cane sidecar, Dunlop voiturette tyres, splendid order; cost over £120, new last year; bargain, £54, or extended terms arranged.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0597

Clyno.

CLYNO, 1913, 3-speed, with sidecar; £38.—Huskard and Mitcham, Curzon St., Derby. [X2392

1913 6h.p. Clyno Combination, 3 speeds, chain, kick start, run 900 miles; £49.—Blencathra, Highfield Rd., Walton-on-Thames. [X2345

1914 Clyno Combination, done 900 miles, complete accessories, splendid lot; £80, or near offer.—H., 19, Grimwood Rd., Twickenham. [8518

CLYNO, 1914 (July), 2-stroke, 2-speed, Jones speedometer, Dunlop tyres, accessories, ridden 2,000 miles, perfect; £35.—1, Ovington Gardens, S.W. [8584

CLYNO, 6h.p., and coachbuilt sidecar, just been thoroughly overhauled, speedometer, and spares; going away; no reasonable offer refused.—H. Fitton, 159, Luck Lane, Paddock, Huddersfield. [8407

Condor.

FIRST £3 gets 1909 2h.p. Condor, re-enamelled, new tyres and tubes, and battery, less carburetter, splendid condition.—Higgins, Argoed, Mon. [X2292

Connaught

BRAND New 2-speed Connaught, 1914; £35.—Huskard and Mitcham, Curzon St., Derby. [X2391

1914 Connaught 2-stroke, powerful, 2¾h.p., as new, all accessories; £26, or exchange anything.—8, Leslie Rd., East Finchley. [8491

CONNAUGHT, 1913, 2¾h.p., 2-stroke lightweight, new non-skid back tyre, perfect condition; £18.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0610

Corah.

CORAH-J.A.P., 1912, 4h.p., T.T., Grade-multi gear, new Dunlop belt, electric lamp, spare valves, accessories, in splendid condition; 35 gns.—141, King's Rd., Camden Town, N.W. [X2243

Dot.

DOT, 7-9h.p., torpedo sidecar, cheap quick purchaser.—Wilkinson, 126, Buchanan St., Blackpool. [X2358

Douglas.

DOUGLAS, 1911, 2-speed, free engine; £18.—J. Middleton, Elvet Bridge, Durham. [X2320

DOUGLAS, 1915 models, for almost immediate delivery.—The Morris Garages, Oxford. [8568

1913 Douglas, 2¾h.p., 2-speed, splendid condition; £33.—39, Heathwood Gardens, S.E. [X2418

1915 Douglas, all models, immediate deliveries.—Clifford, Motories, Eastwood, Notts. [X2153

1910 Douglas, perfect running order, good appearance; £15.—Bishopbrigg, Crown St., Carlisle. [8509

DOUGLAS, 1913, 2 speeds, all accessories; £30.—Smith, Langworth, Headington, Oxford. [X2310

1912 Douglas, 2-speed, clutch, genuine mount; £27/10.—53, Brownhill Rd., Catford. [8479

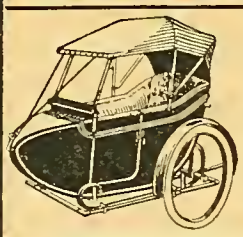
DOUGLAS; all models supplied, cash or easy terms.—Turpins, 22 and 29, Preston Rd., Brighton. [0509

DOUGLAS, 1911, excellent condition, lamp, horn, etc.; £15/15.—Neighbour, c/o Gardam's, Staines. [8475

DOUGLAS, 1913, 2¾h.p., T.T., 2 speeds, exceedingly fast; £30.—P. J. Evans, John Bright St., Birmingham. [8588

CORONET SIDE CARS

A few shop-soiled models cheap. Your old sidecar taken in exchange.



Write for Special War Discount.
Model 7.
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MOTOR CYCLES FOR SALE.

Douglas.

DOUGLAS, model B, used solo only, fast machine, excellent condition; £54.—3, Stanhope Av., Church End, Finchley. [8428

2¾h.p. Lady's Douglas, open frame, 2-speed gear, and free engine; £25, bargain.—Wanchope's, 9, Shoe Lane, London. [X2373

DOUGLAS, all models for immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6610

2¾h.p. Douglas, 1914, purchased August, lamp, horn, overalls; what offers?—Tabersham, 1, Tower Chambers, Walthamstow. [8517

2¾h.p. Douglas, 1913, speedometer, and all accessories, in good condition; £32, or best offer.—99, Nightingale Lane, Balham, S.W. [8448

1913 T.T. Model Douglas, large P. and H. lamp set, Xl'all saddle, Dunlop belt, horn; £31.—Robinson's, Green St., Cambridge. [6867

1914 Douglas, model W, 2-speed, free engine clutch, kick starter, as new, accessories; £42.—Fonthorpe, High St., Dereham, Norfolk. [X2348

1914 2¾h.p. Model V Douglas, specification as list, nearly new, exceptionally good condition; £39.—Robinson's, Green St., Cambridge. [6866

1911 Douglas, fixed engine, lamp and generator, spare belt and tube, good order; £17/10.—H. Thorne, 50, Walton Rd., Upton Park. [8558

DOUGLAS, 2-speed, new October, 1913, little used, like new, mileage 2,500, 1914 Amac, lamp, horn; £37.—Jennings, The Lee, Gt. Missenden. [8572

1915 Douglas Models.—We are now booking early deliveries for cash, easy payments, or exchanges.—Collier's Motories, Westgate, Halifax. [0388

DOUGLAS, 2¾h.p., 2-speed, 1913 model, T.T. bars, very little used, perfect order; £35.—Apply, Box L6,369, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8437

1912 Late Douglas, 2 speeds, F.E., kick-starter, 26×2¼, heavy Michelin tyre on back, splendid condition; £27.—1, Bowles Rd., Old Kent Rd., London. [8531

DOUGLAS; bargain; 1914 model V (September), as new, only ridden 80 miles, complete; any examination; 40 gns.—Palmer, 45, Bismarck Rd., Highgate. [8492

1914 T.T. Douglas, new June, selected engine, P. and H. lamp, horn, Brooks B220, new 4-ply Wood-Milne back wheel; £39 cash.—R. Knight, 4, Oscar Villas, Broadstairs. [8560

LADY'S Douglas, 2¾h.p., 2-speed, free engine, lamp, speedometer, accessories, tools, newly overhauled; to be sold through owner going abroad; £38.—Wardlaw, Dollar, Scotland. [8409

1914 Model B Douglas, 3½h.p., 2-speed, clutch model, Hutchinson's studded tyres, Jones speedometer, Lucas lamp and horn; £53.—Robinson's Green St., Cambridge. [6865

DOUGLAS Agents in England.—Models A and E in stock; delivery of any 2¾h.p. models instantly Trade supplied.—T.A.: Bicycles. Tel.: 388. Robinson's, Green St., Cambridge. [6864

DOUGLAS, 1913, 2¾h.p., T.T. model, 2-speed gear, Senspray carburetter, 2¼ tyres, Powell and Hanmer lamp set, splendid order; £32.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0492

DOUGLAS, 2-speed, free, 1913, model O, good condition, new Dunlop belt, specially large new tyre, Pillion seat, P. and H. lamp; immediate sale £32.—Gibbons, Downs Sanatorium, Sutton, Surrey. [8577

Enfield.

1913 2¾h.p. Enfield Motor, splendid condition, lamp, horn, etc.; offers.—Horsley, Wheelgate, Malton. [X2367

ENFIELD, 3h.p., 2-speed, perfect condition and appearance; £37.—Colmore Depot, 49, John Bright St., Birmingham. [X2268

2½h.p. Enfield Twin, will exchange with cash for 3½ h.p. Triumph, clutch model.—J. Grover, 44, Holden Rd., Woodside Park, W. [X2379

6h.p. Enfield and Sidecar, late 1912, 1914 improvements, excellent condition, lamps, spares, etc.; £55.—Payne, Theatre, Morpeth. [X2295

ENFIELD 6h.p. Combination, quite new, only shop-soiled; usual price £84, accept £75 spot cash.—Lamb's, 151, High St., Walthamstow. [8550

LATE 1913 6h.p. Enfield Combination, complete with all accessories, including wind screen and coach-built car; £60.—Colmore Depot, Birmingham. [X2249

ENFIELD Combination, 1913, 6h.p., in perfect condition, Cowey speedometer, and all accessories; best offer over £48.—123, Queen's Rd., Finsbury Park, N. [X2369

ENFIELD 1912 6h.p. Combination, Enfield cane sidecar, wicker Pillion chair, numerous spares, tyres nearly new, lamp, horn, splendid condition, ridden 5,000 miles; £46.—Wilkie, 15, Agate Rd., Hammersmith. [X2286

ENFIELD, 6h.p., August, 1912, 2-speed, free engine, Enfield cane side, large P. and H. lamp, horn, numbers, tools, all good tyres; cash needed, £38; appointment.—Browne, 16, Auckland Terrace, Kingston-on-Thames. [X2434

MOTOR CYCLES FOR SALE.

Enfield.

1913 Enfield and Coachbuilt Sidecar, wind screen, lamps, speedometer, spares, etc., in excellent condition: 55 gns.—Can be seen and tried, Crouch End Garage, Crouch End Hill, N. [8538

ENFIELD Combination, 1914, brand new, 6h.p., 2-speed: list price £84, sacrifice £76.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0569

ENFIELD, 6h.p., 1914 model, coachbuilt sidecar, speedometer, head light, sidecar and tail lamps, spare tyre, etc.; cost £95, accept £65; rider gone to front.—Write or call, Harvey Frost and Co., Ltd., 27, Charing Cross Rd., W.C. [8372

3h.p. Twin 1914 Royal Enfield, 2-speed gear and free engine, Palmer tyres, good sound condition, a popular lightweight, fitted with kick starter, footboards, and chain drive, standard specification; original price £52/10, take lowest £35.—Wauchope's, 9, Shoe Lane, Fleet St., London. [X2302

ENFIELD Combination, 1914, coachbuilt sidecar, 3,500 miles, perfect condition, £2/2 lamp, electric horn, speedometer, spare handle-bars and controls, wind screen, spare tyre and tubes, etc.; cost over £95, accept £65; owner ordered to France; seen by appointment.—Howell, 22, Christchurch Av., Brondesbury, London. [8493

F.N.

1913½ F.N., 5h.p., 4-cyl., 2-speed, lamp, horn, etc., wicker sidecar, all excellent condition; £35.—Mapp, Droitwich. [X2272

F.N., 4-cyl., condition absolutely as new, steel-studded on back; £18; exchange lower power.—19, Nigel Rd., Peckham Rye. [8469

£7/10 secures F.N. 2¼h.p. lightweight, mag., spring forks, geared pulley; sacrifice price; sound machine.—Arthur, 10, Hamilton St., Paisley. [X2357

Hazlewood.

1914 5-6h.p. Hazlewood, 3 speeds, new Whit. week, and only ridden 500 miles; cost £68/5; sacrifice for £58.—125, London Rd., Manchester. [0562

Henderson.

HENDERSON, Easter, 1914, 8-10h.p., 2-speed, Ivy sidecar, lamp, horn, speedometer; £70, cost £105.—Iscott, Hitchin. [8472

Humber.

HUMBER, 1911-12, lightweight, mag., Druids, splendid condition throughout; £14/10.—24, Cargil Rd., Earlsfield. [X2419

HUMBER, 1912, 2-speed, free engine, etc., combination perfect; any trial; £29.—30, Wiltshire St., Manchester, N. [X2354

HUMBER, 1912, 2-speed, perfect condition, nearly new Dunlop tyres; £28, or nearest.—P. R. Blamey, Liskeard, Cornwall. [8526

1912 Humber, 2-speed, free engine, and sidecar, lamp, horn, tools, splendid condition; £31; trial.—330, High Rd., Totteham. [8563

3½h.p. 1911 Humber, 2-speed, handle-start engine, just re-bushed, new gears, new tyres, Harcourt radiators, all spares, sidecar; £25.—Langston, Outfitter, Reading. [X2246

HUMBER, 1911, 3½h.p., F.E., 2 speeds, perfect condition, speedometer, accessories, sidecar; £25, offer.—Clark, 71, Parkholme Rd., Dalston, London, N.E. [8507

1913 3½h.p. 3-speed Humber, Brooks saddle, Lycett belt, kick-start decompressor, lamp, horn, and Jones speedometer; £34.—Robinson's, Green St., Cambridge. [0613

HUMBER, 3½h.p., 2 speeds and F.E., splendid condition, tools, horn, etc.; £28, or with nearly new £11 sidecar, £35, bargain; any trial.—91, Baltic Rd., Sheffield. [X2291

Indian.

INDIAN, 1913, T.T. model, 7-9h.p., perfect; £38.—H.B., Lawn House, Shaftesbury. [X2260

INDIAN, 7h.p., 1911¾, clutch model, perfect; £29.—Smith, Cedars, New Moston, Manchester. [X2382

INDIAN, 1914, 7h.p., electric starter model, with Millford sidecar; £60, or nearest.—P. R. Blamey, Liskeard, Cornwall. [8525

1914 Indian Standard 7h.p., perfect, spare and extra tyre; £50; seen by appointment.—Lettere, Donald, 338, High Rd., Chiswick. [8579

INDIAN 1914 7h.p. Coach Combination, standard electrical equipment; £65.—P. J. Evans, John Bright St., Birmingham. [8587

1914 7h.p. 2-speed Indian and coachbuilt sidecar, 800 miles; any trial; £65; exchange.—185, Markhouse Rd., Walthamstow. [8460

INDIAN Combination, just overhauled, new tyres, 7-9 h.p., 2-speed model; £34; exchange Douglas.—18, South Bruton Mews, Bond St. [X2376

INDIAN 7h.p. 1914 Corabination, complete with electric light, horn, and speedometer; bargain at £60.—Rae, Park Rd., West Hartlepool. [X2333

INDIAN and Millford Sidecar, red, new, bought last month, electric fittings, done 300 miles; £67/10.—Creer, Remover, West Kirby, Birkenhead. [8535

7h.p. 1913-14 T.T. Indian, new in March, all accessories and spares, little used, perfect condition; £45.—Apply to Higson, Roseland, Northwood, Middlesex. [8088

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ROYAL RUBY, 2½ h.p., 2-speed model (new) £29 10
NEW HUDSON, 6 h.p., 3-speed model (new) £60 0
REX 6 h.p. 3-speed Combination (new) £75 0
REX 6 h.p. 2-speed Combination (new) £66 10
WILLIAMSON 1914 Combination, hood and screen, brand new, all accessories £88 0
ENFIELD 1914 shop-soiled Combination, coach-built Sidecar £80 0
REX 1914 6 h.p. Combination; cost £85; had very little use; bargain £60 0

SECOND-HAND BARGAINS.

WILLIAMSON, 1913, 8 h.p., 2 speeds, water-cooled, Sidecar, with hood and screen £61
HUMBER, 2 h.p., 3 speeds, lady's open frame model £20
ROVER, 3½ h.p., vertical engine, Rudge bars, magneto £10
REX, 6 h.p., 1914, 2-speed model, complete with sporting Sidecar £53
REX, 1911, 6 h.p. model, 2 speeds, free engine, handle starting, Amac carburetter, Sidecar £33
REX, 3½ h.p., spring forks, Bosch, B. & B., low built £15
G.N. 8 h.p Cycle Car, 2 speeds, very fast, side by side seating £40
PEUGEOT, 7-9 h.p., twin, magneto, Chater Sidecar.. £21
REX, 5 h.p., T.T. model, torpedo tank, grey finish, excellent condition £14
BRADBURY, 1912, 4 h.p., 2 speeds, very good order £27
TRIUMPH, 1913, 3½ h.p., fixed gear, excellent order.. £30
BAT, 6 h.p., Mabon clutch, spring frame, excellent order, bargain £24
REX, 6 h.p., 1912, lamp, etc., 2 speeds, handle start £39
HUMBER, 3½ h.p., 1909, 2-speed model £22
CLYNO 1912 6 h.p. 2-speed Combination, coach-built Sidecar £40
N.S.U., 1913, 3½ h.p., 2 speeds, cane Sidecar, excellent order and condition £30
RUDGE 1913 3½ h.p. Multi, with £16 16s. coach-built Sidecar £44
HUMBER, 1911, 3½ h.p., 2 speeds, Sidecar, excellent order £28
REX 1912 6 h.p. Combination, 2 speeds, very good condition; bargain £34
ZENITH, 1914, 5-6 h.p., clutch model, very sporty Sc. £63
MORGAN, 8 h.p., 1913, hood, screen, all lamps, excellent condition, bargain £55

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INDIAN, 1913, 7-9 h.p., 2-speed model, spring frame, red finish £42
ENFIELD 6 h.p. 2-speed Combination, chain drive .. £50
ENFIELD, 2¼ h.p., twin, automatic carburetter £16
TRIUMPH, 3½ h.p., fixed engine, excellent condition £17
ARIEL, 3½ h.p., magneto, spring forks, good order .. £10
SCOTT, 1914, 3½ h.p., Montgomery Sidecar, all acces. £60
ROC AUTO-WHEEL on 3-speed RALEIGH £16

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MOTOR CYCLES FOR SALE.

Indian.

5-7h.p. Indian, red, free engine, and Mills-Fulford coach sidecar, splendid condition, powerful, quite faultless, fast, all accessories; bargain, £27.—Day, 84a, Newark St., New Rd., Stepney. [X2405

INDIAN, Hendee Special, self starter, model 1914, brand new; list price £80, sacrifice £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0603

INDIAN, 1914, 7h.p., 2 speeds, F.E., kick-starter, electric horn, head and rear lights, speedometer, Mills-Fulford de luxe C.B. sidecar, only done 1,600, condition as new; owner despatch riding; £60.—24, Nunhead Green, Peckham Rye. [8533

1914 7-9h.p. Hendee Special Model Indian sidecar combination, electric starter and lighting, fully equipped with speedometer, tools, etc., Mills-Fulford de Luxe body, splendid condition, very little used; cost nearly £100, bargain at £65.—M.R., 21a, Store St., W.C. [4829

1913 Special Tourist Trophy Racing Indian, 3½h.p., single-cyl., 2 speeds, low, light, very fast, only used for T.T. race, purchased October 23rd, 1914, from Indian showrooms as new, makers' guarantee; £40, near offer.—4, Southwark Park Rd., Bermondsey, London. [8534

1913 Indian (red) and sidecar, 7-9h.p., 2-speed, free engine, spring frame, 28×3 Kempshalls, very powerful, fast, perfect order throughout, guaranteed, underslung double sidecar, tools, mirror, watch, Pillion seat, head light, etc.; bargain, £45.—45, Charles St., Jubilee St., Mile End, E. [X2403

Ixion.

IXION, 2¾h.p., excellent order; ride away; £7/7, including licences.—Mesquitta, Fernbank, Worcester. [8457

IXION, 1914, 2½h.p., 2-speed model, Villiers 2-stroke engine, lamp, horn, etc.; £25.—The Morris Garages, Oxford. [8568

IXION, 1914, 2½h.p., 2-stroke, Albion 2-speed gear, Lucas lamp set, Watford speedometer, run about 300 miles; £27.—Cass's, 5, Warren St., Euston Rd., W. 'Phone: Museum 623. [8600

James.

4¼h.p. James Combination, excellent condition, new April, 1914; £53.—Apply, McKenzie, Sidecar Manufacturer, Bath Passage, Birmingham. [X2279

JAMES 1914 2-stroke Lightweight, 2-speed countershaft gear, new month ago, guaranteed perfect; £28.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0480

JAMES, 4½h.p., Big Single, 2-speed, free engine, kick start, enclosed chain drive, with 16 gn. sidecar, almost equal new; sacrifice £40, accept lightweight part exchange.—10, Beck Rd., Harehills, Leeds. [X2402

JAMES, 1913, 3½h.p., commercial sidecar outfit, 3-speed counter-shaft gear, clutch and kick-starter, chain drive, coachbuilt side carrier, complete with Lucas accessories, thoroughly overhauled and guaranteed; £42 cash, or extended terms.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0551

J.A.P.

6-7h.p. J.A.P. Twin, 2 speeds, Druids, mag., Whittle, B. and B., Roms, unpunctured; bargain, £25; terms arranged.—241, Balfour Rd., Ilford. [8514

J.A.P., 8h.p., 2-speed, 650×65 tyres, coachbuilt sidecar, guaranteed in perfect condition; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0593

4h.p. J.A.P., Chater-Lea, special racing engine, overhead valves, spring front forks, racing bars, adjustable pulley, Dunlop belt, B. and B. carburetter, C.A.V. mag., tyres good, lamp, horn, etc.; bargain, £24.—131, Park Lane, Stoke Newington. [8596

J.E.S.

J.E.S. Auxiliary Set, with bicycle, perfect order, horn, bag; £13.—Harger, Halstead, Settle. [X2276

Lea-Francis.

LEA and Francis, 1914, 3½h.p., 2-speed model, new, shop-soiled only; usual price £68/5, accept £58.—The Morris Garages, Oxford. [8567

LEA-FRANCIS, 1914, the aristocrat of motor cycles: early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999. [0448

Levis.

1914 2½h.p. Levis, 2-speed; last one to clear; £40, or nearest.—Webb, Agent, Stockebridge, Yorks. [X2255

ON Sale, new Baby Levis, 2-stroke, bought June, 1914, giving up riding.—Rigby, Liverpool Rd., Longton, Preston. [X1830

Lincoln Elk.

LINCOLN-ELK, 3½h.p., 1913 model, equal new, fine order; bargain, £18/10.—Speechley, 45, Church Rd., Acton. [X2343

LINCOLN-ELK, 1911, 3h.p., lamp, horn, practically new engine; £12/10.—Baker St. Garage, Handsworth, Birmingham. [X1981

M. and M.

M. and M., 2-stroke, completely equipped; £28; all British, including magneto.—Morgan and Maxwell, 80, High Rd., Streatham, London. [X2395

All letters relating to advertisements should quote the number at the end of each advertisement, and the date of the issue.

MOTOR CYCLES FOR SALE.

Matchless.

1914 Matchless, 3½h.p. twin, 3-speed, brand new; £54.—Willmott Bros., Norwich. [8439

MATCHLESS 1914 Combination, complete, lamps and accessories; £75.—Foxall, Newsagent, Bridgnorth, Salop. [8499

MATCHLESS, 1914 models, immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [6611

MATCHLESS, 1913, 3½h.p. twin, 3 speeds, excellent condition; £35.—P. J. Evans, John Bright St., Birmingham. [8591

LATE 1913 Shop-soiled Matchless, 3½h.p. twin-cyl. J.A.P. engine, 3-speed Gradua gear; £40.—Colmore Depot, Birmingham. [X2250

MATCHLESS, 3½ and 8h.p.; prices from £34 to £50, cash, or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X2271

MATCHLESS, 8h.p., 2-speed, twin belt, new coach-built sidecar, lamps, and accessories; a bargain, £48.—11, Anglesea Rd., Woolwich. [X2401

MATCHLESS 1914 Sidecar Outfit, new, unused; owner enlisted; must sell; 80 gns., or very close offer.—11, Anglesea Rd., Woolwich. [X1913

8h.p. Chain-driven Counter-shaft Matchless and sidecar; bargain at 50 gns., the complete turnout.—Seen at Wauchope's, 9, Shoe Lane, London. [X2298

1913 Matchless, 6h.p., clutch, engine and clutch excellent, enamel and plate extremely well kept, lamp, horn, and tools; £38.—King, Stapleford, Cambs. [X2341

MATCHLESS, 6h.p., 2-speed, free, Montgomery double sprung sidecar, heavy tyres, lamp, horn, mirror, etc., splendid condition; £40.—70, Evering Rd., Stoke Newington, N. [6418

MATCHLESS, 1912½, 6h.p., 6-speed, excellent condition, recently overhauled, cane sidecar, accessories, spares; £40.—Veale, Willow Bank, London Rd., Bromley, Kent. [X2352

Minerva.

MINERVA, 4h.p., h.b.c., perfect running order; £9.—West, 48, Priory Av., Walthamstow. [6412

Moto-Reve.

2¾h.p. Twin Moto-Reve, good running order; £14.—4 Barnard, 6, Archer St., Bayswater, W. [8465

LIGHTWEIGHT Moto-Reve, mag., Druids, stand, Michelins, new condition; sacrifice £12.—Wright, 98, High St., Hornsey. [8527

Motosacoche.

MOTOSACOCHE, sound running order, mag., acetylene lamp, etc.; £6.—Phillips, 37, Hertford St., Coventry. [X2058

£13.—Motosacoche, 2½h.p., 1911, splendid condition, engine perfect; bought twin.—Bees, Coedcae Place, Pontypool. [8552

1913 Motosacoche Motor Cycle, second-hand; price £15; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea, also at Cardiff. [0546

New Hudson.

2¼h.p. New Hudson and Sidecar, not done 1,000 miles, good condition; £40.—Apply, McKenzie, Bath Passage, Birmingham. [X2280

NEW Hudson, 2¼h.p., 2-stroke, just arrived; £27/5, or £7/3 deposit, and 12 monthly instalments of £1/15.—Lamb's, 50, High Rd., Wood Green. [8545

NEW Hudson, 1913, 3½-4h.p., 3-speed, Canoelet sidecar, new spare tyre, new lamp, only ridden about 600 miles; £40.—Hughes, Miners' Offices, Wrexham. [X2290

NEW Hudson, 3½h.p., Armstrong 3-speed, coachbuilt sidecar, speedometer, Hutchinson passenger tyres, lamps, splendid condition; £50.—Davies, 34, Pembury Rd., Lower Clapton, N.E. [X2351

New Imperial.

1914 2½h.p. New Imperial-Jap, 2-speed, excellent climber; £25.—12, Minster Rd., Cricklewood. [8510

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns.; 2-speed 33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

N.S.U.

1914 N.S.U., with 2-speed gear, done under 300 miles, £35.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1803

N.U.T.

EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—West Lancashire Motor Co., Ltd., Southport. [0573

N.U.T., 1914, 3½h.p., 3-speed touring model, brand new, unridden; listed £60/10, will accept first offer over £50; reason for sale excellent and urgent.—V. S. Life, The Cliffe, Cumberland Rd., Southport. [8399

N.U.T., 1914, T.T., 3½h.p. twin, overhead valve, J.A.P. 3-speed gear, month, old, very fast, large lucas, new extra heavy 2½in. Bates, spare valves; 55; reason for selling, going abroad with Terriers.—T. lant, St. Mary, Bedford. [X2318

QUITE TRUE.

NEW MACHINES AT

SECOND-HAND PRICES.

4 h.p. 1914 **WOLF**, J.A.P. engine, **2-speed countershaft gear, free engine, kick starter.** Usual price £46. Our price £38

2½ h.p. 1914 **WOLF**, J.A.P. engine, **2-speed countershaft gear**, spring forks, magneto, etc. Usual price £33. Our price £26

These are shop-soiled only.

FARLOW SIDECARS

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SPECIAL WAR PRICES

From **£6 15 0** From

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SECOND-HAND BARGAINS.

1912 4 h.p. 2-speed **TRUMP-J.A.P** £23
1914 6 h.p. **ENFIELD**, combination, speedometer, etc. £68
1913 3½ h.p. 3-speed **HUMBER** combination £35
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3½ h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb. .. £16
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3½ h.p. **PREMIER, Bowden 2-speed gear**, Bosch £18
5 h.p. **VINDEC, 2 speeds**, kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds**, handle starting .. £19
3½ h.p. **TRIUMPH**, ball bearing engine, M.O.V. £19
5 h.p. 1908 **REX** de Luxe, **2 speeds**, handle starting £19
5 h.p. 1908 **REX, 2 speeds**, kick starter, Bosch, Amac £19
6 h.p. 1912 **REX** de Luxe, **2 speeds**, handle starting £25
8 h.p. **Cycle Car**, Chater-Lea engine, **3-speed gear** box and worm drive, speedometer, screen, etc. £80

SPECIAL SIDECAR COMBINATIONS.

3½ h.p. 2-speed **HUMBER** and Torpedo Sidecar.....£20
4 h.p. 2-speed **ROC** and Torpedo Sidecar £20
3½ h.p. 2-speed **N.S.U.** and Torpedo Sidecar £20
5 h.p. 2-speed **REX** and Torpedo Sidecar.....£20

All in good running order.

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1914 4 h.p. **TRUMBULL** Cycle Car ..... **What offers?**
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4-cylinder **F.N.** Engine, complete with clutch and Bosch magneto £5 0

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GLORIA, spring wheel, cane body, fit Triumph £5
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FARLOW, 1914, reed cane, underslung, demonstration model, condition like new £6
FARLOW, 1914, coach-built, underslung, demonstration model, condition like new £7
FARLOW, 1914, lightweight model, used trials only .. £5
Also several New **FARLOW** Sidecars at big reductions.

NEW MOTOR CYCLE FRAMES.
Fully Guaranteed.
25/- each.

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Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

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N.U.T., 2¾h.p., T.T., Armstrong 3-speed, new August, only done 1,500, Binks, P. and H., Stewart speedometer, new John Bull belt, tyres excellent, enamel and plating unscratched, very fast; cost over £68, sell £50, offers considered.—W., c/o Hogg, 20, Smith St., Glasgow. [6576

Premier.

2½h.p. Premier, 1913, appointment.—Nash, 87, Camberwell New Rd., S.E. [8559

PREMIER, 3½h.p., 2-speed, F.E., and couch sidecar; £39/10, or near offer; E.P. if desired.—Lamb's, 50, High Rd., Wood Green. [8547

T.T. Premier, 3½h.p., late 1913, all accessories, new tyres, B.S.A. carburetter; £34/10.—Middleton, Queen St., Newton Abbot. [8496

PREMIER, 3½h.p., 3-speed counter-shaft, brand new; £61, sacrifice £55 for cash.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

PREMIER, 1914, 3½h.p., 3-speed counter-shaft, complete with lamp, horn, speedometer, and watch, better than new; any trial; cost £70, sell £50 lowest.—Boyce, 275, Archway Rd., Highgate. [8476

PREMIER, 1913, 7-9h.p., 2-speed counter-shaft gear and clutch, chain-cum-belt drive, Canoelet sidecar, Watford speedometer, large P. and H. lamp, Lucas mirror, electric tail lamp, storm apron, tools, and spares, splendid order; £45, or extended terms arranged.—Elce and Co., 15, Bishopsgate Av., Camomile St., London E.C. [0479

P. and M.

P. and M., 1913, Millford sidecar, splendid order, little used; £45.—Cave, Decorator, Windsor. [8494

1914 P. and M., shop-soiled only; £60, or near offer.—Dumfries Motor Co., Ltd., Dumfries. [X2259

P. and M. and sidecar, good condition; £45.—Drever, Hazelcroft, The Grove, Church End, Finchley. [8540

LATE 1912 Phelon and Moore, lamp, horn, spares, new tyres, £39; also Montgomery sidecar for same, £4/15.—Robinson, 236, Doncaster Rd., Barnsley, Yorks. [X2287

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

1913 P. and M. Combination, guaranteed perfect order, recently overhauled by makers, lamp and generator, Cowey speedometer, luggage carrier, everything as new, numerous accessories; any trial; 58 gns., or near offer.—Bradford, Suncroft, Eastbourne. [6023

Quadrant.

QUADRANT, 3½h.p., just been overhauled, cylinder ground, and new piston and rings and gudgeon pin, also re-bushed, variable pulley, mag. platform, and chain sprocket; bargain, £5.—F. W. Chase, Elmdon, near Birmingham. [X2151

Regal.

LADY'S Regal-Precision, 4h.p. twin, free engine, Brampton gear, not run 500 miles; owner buying Carden Monocar; price £40.—Carden, 61, Somerset Rd., Teddington. [8434

Rex.

REX, 3½h.p., good running order, spring forks, accessories; £6.—Cowlishaw, Methwold. [X2321

REX, 1912, 6h.p., 2-speed, sidecar, Pillion; £32.—108, Idmiston Rd., West Norwood. [8575

1913 Rex, 6h.p. twin engine, Bosch, guaranteed perfect, £8/15; frame set, 35/-.—92, Mildmay Grove, Dalston. [8554

REX Sidette, 1913½, bargain of the week, absolutely perfect; 30 gns., including accessories.—Croucher, Bromley Motor Works, Kent. [8565

REX, new 1913, 2-speed, twin, and new sidecar; £59/15; fully guaranteed; exchange considered.—Collier's Motories, Westgate, Halifax. [0390

REX, 1911, and sidecar, 6h.p. twin, free engine, new tyres, unpunctured, Whittle, splendid running condition; £35.—Jubb, 24, Upham Park Rd., Chiswick, W. [8446

3½h.p. Rex, mechanical valves, fine condition, Bosch, Lyso, Brown and Barlow carburetter, extremely low machine; gift, £13.—Barratt, Fairfield, Buxton [X2359

REX, 5h.p. twin, Bosch mag., B. and B. carburetter, h.b.c., new Rom tyre on back; a bargain, £15.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0558

REX 1914 6h.p. 3-speed Sidette, chain drive, complete with lamp, generator, Cowey speedometer, clock, and all fittings, not ridden 400 miles; £53.—Box 6,800, *The Motor Cycle* Offices, Coventry. [X1728

REX Combination, 2-speed, belt drive, 1914, brand new; £77/10, sacrifice £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 29, Tavistock Rd., Plymouth. [0604

REX 1914 Combination, 3-speed, chain drive, kick starter, very fine coachbuilt body, ideal winter turnout, excellent condition; £58 cash; part exchange 2-stroke or Douglas.—37, Clarendon St., Coventry. [X2427

REX Sidette, 1911, 5-6h.p., overhead inlet valves, 2-speed gear, coach sidecar, F.R.S. lamp set, Kempshall and Palmer tyres, guaranteed sound condition; £26 cash; extended terms arranged.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0491

MOTOR CYCLES FOR SALE.

Rex.

REX, 5-6h.p., 1913 engine, frame, with 1914 improvements, with 1914 16 gn. Fitsu sidecar, Armstrong 3-speed, handle starting, all thoroughly overhauled at works, re-enamelled and plated, new tyre front and back, spares, guaranteed like new; any trial by appointment; £48, no offers.—45, Smallbrook St., Birmingham. [X2383

Rex-Jap.

1914 Rex-Jap, 3½h.p., perfect, unscratched; sacrifice, £30, or nearest.—Dawson, 60, Regent St., Cambridge. [X2435

REX-J.A.P. 8h.p. Shop-soiled Sidecar Combination; cash buyer or exchange wanted. — Collier's Motories, Westgate, Halifax. [0445

REX-J.A.P., 1912, 8h.p. De Luxe model, 2 speeds, free engine, coachbuilt sidecar; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0596

REX-J.A.P. 1913 6h.p. De Luxe, with coachbuilt sidecar, complete with lamp, horn, generator, little used, perfect running order; £48.—Box 6,799, *The Motor Cycle* Offices, Coventry. [X1727

REX-J.A.P., 1913, 6h.p. De Luxe model, 2 speeds, free engine, 650×65 Kempshall tyres, special coachbuilt sidecar; combination cost £90, and has not done 3,000 miles, guaranteed perfect; £52.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

Roc.

ROC, 4h.p., m.o.v., mag., 2 speeds, handle start, smart; £16/16.—11, Squarry St., Tooting. [X2417

Royal Ruby.

1914 Ruby-Jap, 4h.p. twin, shop-soiled, 3 speeds, clutch; list £65/5, bargain, quick sale, £52/10. —60, Regent St., Cambridge. [X2436

ROYAL Ruby, 2-stroke, 1914, ridden only 200 miles, £20.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0605

Rover.

ROVER, 3½h.p., mag., B. and B., good tyres; bargain, £15/10.—2, Trewint St., Earlsfield. [X2423

ROVER, 3h.p., mag., h.b.c., T.T., new Dunlop cover; £14, offers.—Batten, Featherstone, Yorks. [X2368

ROVER, 3½h.p., Bosch, low, fast, and powerful, fine machine; £10/10, gift.—Speechley, 45, Church Rd., Acton. [X2344

1913 3-speed Rover, in first-class condition; £38.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1801

1914 Rover, 3-speed, Millford family sidecar, hood, screen, not done 2,000, appearance as new, spares and accessories; 65 gns.—Avery, Draper, Bexhill. [8594

ROVER Coachbuilt Combination, 1913, perfect condition, 2 new Palmers, lamps, horn, speedometer; £45.—Harris, 23, Camden Rd., Tunbridge Wells. [8543

ROVER, 1914, T.T., Armstroug 3-speed, only done 500 miles, Lucas lamp and horn, Dunlop tyres and belt, new condition, special machine, and very fast, all spares; bargain, £48/10.—197, Soho Rd., Birmingham. [X2388

ROVER, 1913, 3-speed, and Chater-Lea wicker sidecar, very little used, excellent condition throughout, fast, silent, and reliable, all accessoriee; £41.—At Stourwood Garage, Stedman Rd., West Southbourne, Bournemouth. [8012

Rudge.

RUDGE Multi, excellent condition, new tyre rear, new belt; £26, quick sale.—Jackson, New Rd., Kendal. [X2156

1912 F.E. Rudge; £32/10.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1804

1913 Rudge Multi, and smart wicker sidecar, complete with lamp and horn; £45.—Colmore Depot, 31, Colmore Row, Birmingham. [X2248

1914 Rudge Multi, 5-6h.p., with coachbuilt sidecar; cost £85 month ago, accept £70, or nearest; not soiled.—Leak, Pier Quay, Gorleston. [X2305

3½h.p. 1913 T.T. Rudge, fitted with best Dunlop non-skid tyres, very fast machine; a bargain, £27/10. —Wauchope's, 9, Shoe Lane, London. [X2303

RUDGE Multi, 1913, condition good, perfect running order, new back cover, new big end bearings; £30.—Vasey's Garage, Westwood, Scarborough. [8536

RUDGE Multi, 1913, wicker canoe sidecar, Cowey, P. and H. set., etc., in new condition, mileage under 2,000; cost £80, accept £42.—Scoones, Sittingbourne. [8422

RUDGE Multi, 1913, excellent order, lamp, horn, speedometer, spares; £36/10.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

RUDGE, 1913, 3½h.p., T.T. roadster model, lamp, horn, new rubber-studded Bates and Dunlop tyres, very fast, and condition equal to new; £27.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0595

RUDGE Multi, 1914, T.T. Isle of Man racer, just delivered, all latest improvements; best terms for cash, exchange, or extended payments.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0481

RUDGE Multi, 1913, 5-6h.p., multi-speed gear and free engine, Watford speedometer, lamp, horn, tools, 1914 cane torpedo sidecar, complete outfit in guaranteed good order; £42 cash, or extended terms.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0552

Halifax Motor Exchange

Largest Rex Dealers,
16, WESTGATE, HALIFAX.
'Phone—766. Telegrams—"Perfection."

1915 **DOUGLASES.**—We are now booking orders for November delivery of these splendid machines. Cash, Exchange, or Easy Terms.

BARGAINS IN BRAND NEW REXES.

Fully guaranteed by Makers.	Makers' Price.	Our Price.
1913 6 h.p. 2-speed Twin	£62 10	£53 2 6
1912 New 6 h.p. 2-speed Twin	£62 10	£45 10 0

Liberal Exchanges. Cash Offers wanted.

NEW LIGHT CARS.

1914 11 h.p. **LAGONDA**, hood, screen	£180 0
1914 11 h.p. **LAGONDA**, with 1915 improvements	£180 0
1914 **G.W.K.** (second-hand)	£105 0
1914 **G.W.K.**, hood, screen, etc.	£150 0
1914 **VICTOR**, A.C., £105 W.C.	£115 0
1914 **CALTHORPE** Minor	£168 0
MORGAN Sporting, hood, screen, lamps, etc.	£103 0

SHOP-SOILED 1914's.

1914 8 h.p. 2-speed **REX-J.A.P.**	74 Gns.
1914 **REX-J.A.P.**, 8 h.p., Combination	£94 10
1914 **WILLIAMSON**, w.-c., Combination	£98 10
1914 **DOUGLAS**, 2-speed	£48 0
1914 **SUN-VILLIERS**, 2-stroke	£26 15
1914 **SUN-VILLIERS**, 3½ h.p., 2-speed, F.E.	£42 0

Keen exchanges quoted to clear 1914's.

SOLO MACHINES.

1914 **CALTHORPE MINOR** Lightweight	£19 19
1913 4 h.p. 2-speed **REX**, chain drive	£39 10
1913 4 h.p. 2-speed **REX**, chain drive, New	£49 10
1913 3½ h.p. 2-speed **L.M.C.**	£35 10
1913 3½ h.p. 3-speed **TRIUMPH**	£39 10
1912 3½ h.p. 3-sp. **ARIEL**, speedometer, etc.	£32 10
1912 3½ h.p. 2-speed **N.S.U.**, almost as new	£29 10
1912 2¼ h.p. 2-speed **F.N.** Lightweight	£28 10
1912 3½ h.p. 2-speed **ALLDAYS**	£29 10
1912 3½ h.p. 2-sp. **BRADBURY**, kick starter	£31 10
1912 3½ h.p. **LINCOLN-ELK**, F.E.	£24 10
1912 3½ h.p. 2-speed **JAMES**, chain drive	£33 10
1912 3½ h.p. **RUDGE**, 2-speed, F.E.	£33 10
1911 3½ h.p. **TRIUMPH**, variable gear	£29 10
1911 W.-C. 2-speed **SCOTT**, late model	£29 10
1911 3½ h.p. 2-speed **REX**, N.S.U. gear	£27 10
1911 2½ h.p. 2-speed **A.J.S.**, counter-shaft	£22 10
1911 3 h.p. 2-speed **N.S.U.**, almost as new	£22 10
1911 3½ h.p. **LINCOLN-ELK**	£18 10
F.N. 2-speed Lightweight, shaft drive	£23 10
3½ h.p. Magneto **TRIUMPH**	£20 0
1911 3½ h.p. 2-speed **HUMBER**	£22 10
1909 5½ h.p. 2-speed **REX DE LUXE**	£22 10

SIDECAR COMBINATIONS.

1913 6 h.p. 2-speed **REX** Sidette	£49 10
1913 6 h.p. 2-speed **REX**, and Sidecar	£44 10
1913 4 h.p. 2-speed **REX**, chain drive, and new sidecar	£43 10
1913 4½ 2-speed **LINCOLN-ELK**, and Millford coach-built Sidecar	£39 10
1912 6 h.p. 2-speed **REX**, and new Sidecar	£43 10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar	£29 10
1911 3½ h.p. 2-speed **REX** and Sidecar	£29 10
1911 3½ **TRIUMPH**, speed gear and Sidecar	£33 10
1910-9 h.p. **V.S.** 2-speed and sidecar	£29 10
CHATER-LEA-J.A.P., 8 h.p., 3-speed, and coach-built Sidecar	£47 10
V.S., 6 h.p., chain drive, Phelon and Moore gear, and Sidecar	£27 10
PHANOMEN, 6 h.p., 2-speed, and Sidecar	£21 10
EXCELSIOR, 3½ h.p., 3-speed, and Sidecar	£24 10
REX, 1910, 2-speed, twin, and Sidecar	£31 10
REX, 1909, 2-speed, twin, and Sidecar	£24 10
REX, 5½ h.p., magneto, twin, and Sidecar	£19 10
ROVER, 3½ h.p., 2-speed, and Sidecar	£17 10

£5 **Deposit and 7/6 per week purchases any of the following machines. Every one guaranteed in running order.**

MOTOSACOCHE, magneto, lightweight	£14 10
ARIEL, 2½ h.p., magneto, lightweight	£18 10
REX, 1908, 3½ h.p., magneto	£18 10
REX, 1909, 3½ h.p., magneto	£19 10
VINDEC, 3½ h.p., magneto, spring forks	£16 10
REX, 1910, 3½ h.p., magneto	£21 10
REX, 1911, 3½ h.p., magneto	£22 10
REX, 1911, 2½ h.p., F.E., handle starting	£22 10
REX 1908 5½ h.p. twin, magneto	£19 10
N.S.U., 3 h.p., magneto, h.-b. control	£12 10
LINCOLN-ELK, 3½ h.p., magneto	£19 10
N.S.U., 3½ h.p., 2 speeds, F.E.	£19 10
N.S.U., 3 h.p., 2-speed, F.E.	£16 10
TRIUMPH, F.E., magneto, spring forks	£18 10

TRADE SUPPLIED.

MOTOR CYCLES FOR SALE.

Scott.

SCOTT, 1913, in first-class condition; £38.—58, Osmond Gardens, Wallington, Surrey. [8519

SCOTT, 1912, excellent condition; £28; joined colours. —7, The Avenue, Bishopston, Bristol. [8523

SCOTT, 1914, with Scott sidecar, as new; accept £60. —Colmore Depot, 49, John Bright St., Birmingham. [X2270

SCOTT, October, 1913, 1914 fitments, cane Projectile sidecar, perfect condition; £50.—Issott, Hitchin. [8471

SCOTT, done 1,500 miles, head lamp, horn, etc.; £40. —Baker St. Garage, Handsworth, Birmingham. [X1980

LATE 1913 Scott and coachbuilt sidecar, accessories, spares; any trial; £50; exchange.—185, Markhouse Rd., Walthamstow. [8461

1914 Scott, with coachbuilt sidecar, done 3,000, condition excellent; £62, or near offer.—Marshall, Cowfold, Sussex. [X2307

SCOTT, 1912, all accessories, with coachbuilt sidecar, £36, without £34.—Particulars and photo, Howie, Gilingate, Kendal. [X2273

1912 Scott, in first-class condition; £35.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1802

SCOTT and Sidecar, new tyres, chains, etc., overhauled by makers May last, low mileage; price £35, a bargain.—Lewis, Chemist, Wombwell. [X2150

SCOTT, 2-stroke, perfect order, £32, particulars on application; studded Palmer cord, new, 26×2½, 35/-.—Newbery, 34, Victoria Rd., Cambridge. [8597

1913 Scott and Cancelet Sidecar, 1914 inbrication, new chains, new back tyre; cost nearly £90, offers.—26, Berber Rd., Wakehurst Rd., Clapham Junction. [8435

SCOTT, 2-speed, recently overhanled by makers; must sell; first cheque £18 secures it.—Lieut. Montray, Inniskilling Fusiliers, Lenan Camp, Clonmany, Co. Donegal. [8223

1913¼ Scott, splendid condition, 1912 improvements, Binks, accessories, spares, with canoe sidecar; £37/10, or exchange lightweight.—11, Lorne Rd., Walthamstow. [8562

1912 Scott, 18 gn. Montgomery sidecar, every conceivable spare, improvement and accessory, perfect tune, pleasure driving; £55.—Lord, Schoolmaster, Radcliffe, Manchester. [X2265

1912 Scott, recently overhauled, new frame fitted, in splendid order; worth £35, will take £28 quick sale; also nearly new coachbuilt sidecar for same, £6/10. —Blunt, Bedford St., Coventry. [X2429

1913 Scott, complete with large Lucas lamp and generator, new Palmer tyres, speedometer, horn, and tools, engine and gears excellent; must sell; bargain, £32.—King, Stapleford, Cambs. [X2340

Singer.

BRAND New 1914 2-speed Singer, chain drive; cost £65, accept £55.—Haskard and Mitcham, Curzon St., Derby. [X2390

2½h.p. F.E. Singer, late 1913, recently overhauled by makers, with horn and lamp; £28.—Johnston, 32, Thistle St., Aberdeen. [X2432

SINGER, 1914, 3½h.p. T.T., special competition model, winner of several events, accessories, and spares; £34 cash.—504, High Rd., Tottenham. [8419

SINGER 1913½ 4½h.p. Combination, 2-speed, clutch, little used, nothing better exists; £42, bargain, offers.—S., 4, Dollis Rd., Church End, Finchley. [8541

4½h.p. Singer (late 1913), 2-speed, free engine, Millford coachbuilt sidecar, new Stewart speedometer, Klaxon horn, 3 gas lamps, and all spares, everything as new; great bargain, £55, or best offer.—99, Nightingale Lane, Balham, S.W. [8447

Stag.

STILL Running.—Stag, 4½, 5, 5-6h.p. single-cyl. engines; nubeaten for power, durability, price.—Only address, Buckman and Howard, 18, Canal St., Nottingham. [8571

Star.

SEVERAL New 1914 Star Motor Cycles, 3-speed, chain drive, single and twin models, at special prices to clear.—The Carette Co., 177, Gt. Portland St., London, W. [8463

Sunbeam.

SUNBEAMS, 1914, shop-soiled, 2¾ and 6h.p. models; special cash prices.—The Garage, Uxbridge Rd., Ealing Common (near Station). [8247

Swift

SWIFT, 3h.p., free engine, 2-speed, 2 spare tyres; £7. —24, Harold St., Burnley. [X2425

SWIFT Light Car, twin-cyl., 1914, seldom used, special refinements, complete speedometer, lamps; 100 gns., bargain; private owner.—No. 6,825, *The Motor Cycle* Offices, Coventry. [X2152

Triumph.

SALE, 3h.p. Triumph, 2 accumulators, coil; £10.—8, Kilby St., Wakefield. [X2275

1912 Free Engine Triumph, Cowey speedometer, all as new; £35.—J. Alexander, Falkirk. [8424

1911 and 1909 Free Engine Trimphs, splendid order; £25 and £18.—Thos. Booth, Frodsham. [X2356

CYCLE CARS.

HUMBERETTE, 1913, just overhauled by makers, condition perfect; £68. — Pierson, Station Rd., New Barnet. [8503

CYCLE Car, 7-9h.p., 2-cyl., w.c., mag., Fafnir engine, 2 speeds, raverse; £15, or offer.—89, Woodboro Rd., Nottingham. [X2334

A.C. Sociable, in splendid condition, sparcs, only wants seeing; £45.—Salter, 53, Longbeach Rd., Lavender Hill, S.W. [8506

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0527

A.C. Sociables.—Several 1913 models from £40 upwarde, usual price 75 gns. Must clear to make room for 1915 models. Call and try them.—15, Little Portland St., W. [8454

7h.p. Swift, 1914 model, very little used, perfect condition, complete with 2 acetylene side lamps, paraffin tail lamp, Stepney wheel, and tools, tyres in excellent condition; splendid value, £100. — Box L6,380, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8490

CARS FOR SALE.

10h.p. 1914 Calthorpe Minor, as new, perfect; £145.—Palmer's Garage, Tooting. [8483

SINGER Light Car, 10h.p., 1914, for immediate delivery; trade supplied.—Rey, 378, Euston Rd. [6612

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MOTOR Cycle, suit tradesman's carrier, magneto, speed gear, free engine; cheap; no rubbish.—Schofield, Ainsdale, Southport. [X2330

WANTED, magneto motor cycles, must be cheap; state lowest price.—Box No. 6,836, *The Motor Cycle* Offices, Coventry. [X2342

BRADBURY Cylinder and Piston, 1911, for 3½h.p.; good condition; approval.—Smallwood, 18, Park Rd., Moseley, Birmingham. [8421

WANTED, 1914 Morgan sporting; 9h.p. Turner petrol car, 1912, part payment.—Evans, Mill Lane, South Kirkby, Wakefield. [X2370

WANTED, 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories. Cheap.—125, London Rd., Manchester. [0560

WANTED, strong roomy sidecar, good condition, to fit 7h.p. Hendee Special.—Lowest price and make, Schofield, 25, Beverley Rd., Bolton. [X2258

WANTED, twin 8h.p. air or water-cooled engine, J.A.P. or Blomfield preferred; would exchange 1914 Connaught.—H. Salsbury, Sydney Rd., Guildford. [8512

WANTED to Purchase, motor bicycles, light cars, or cycle cars for cash down. — Write, Box 6,190, *The Motor Cycle* Offices, 20, Tudor St., E.C. [7584

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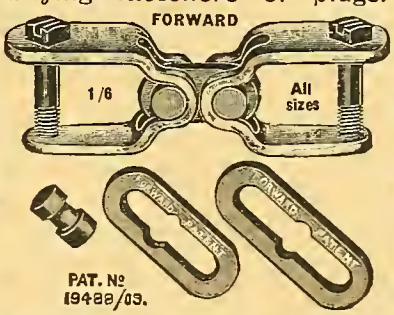

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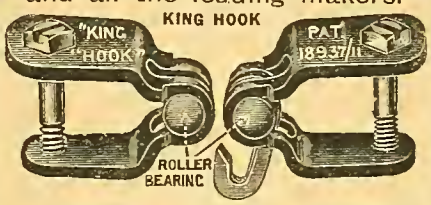

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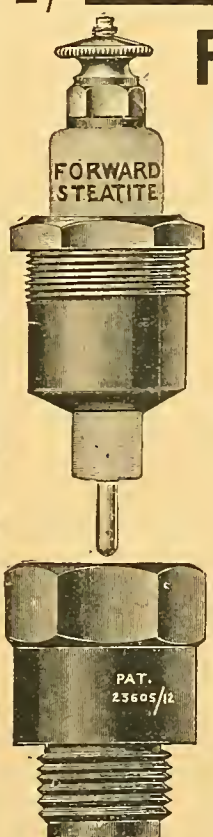

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SPEED Gear for Bradbury; exchange 1½×2in. slide valve steam engine, with 2×1ft. coal-fired copper boiler, all gauges, tested 30 lbs. sq. in.—Abbott, Hockin, Hayle. [8574

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell, London Motor Salerooms, 80, High Rd., Streatham, London. [X9559

EXCHANGE.

V.S., 5h.p., for good single; offers.—91, Melbourne Rd., Eastbourne. [X2355

1911 Motosacoche, £15, for good 3½h.p., free engine. —36, Gold St., Wellingborough. [8500

MOTOR Launch for motor cycle and sidecar.—Dromana, Bernard Rd., Cowes, I.W. [X2253

EXCHANGE 3½h.p. F.E. Triumph for 2-stroke lightweight; particulars.—Mansell, A.S.C., Colchester. [X2032

3½h.p. Raleighette and 3-speed Lady-back Tandem for small car.—Dorrell, Baker, Croxley Green. [X2377

VIOLET Bogey Cycle Car, like new, cost £125, 1913; exchange combination.—80, Bispham Rd., Southport. [X2327

1913 Lightweight, Martini rifle, revolver, cash, for 3½ to 6h.p.—Hedger, 14, Nelson St., Southend, Essex. [X2308

1913 7-9h.p. 2-speed Red Indian; exchange for T.T. Douglas 2-speed.—Jagger, Fish Merchant, Bradford. [8443

EXCHANGE Good Sidecar Combination for cycle car, any make, cash also paid.—Palmer's Garage, Tooting. [8482

GOLD Watch and Chain and Raleigh 3-speed, for motor cycle, Douglas preferred.—113, Moy Rd., Cardiff. [X2245

1912 Clyno, coach sidecar, hood, screen, spares; exchange solo and cash, sell £32/10.—50, Wetherell Rd., S. Hackney. [8556

CLYNO, 6h.p., and sidecar, just been overhauled, for lightweight; any trial.—H. Fitton, 159, Luck Lane, Paddock, Huddersfield. [8407a

CYCLE Car wanted; exchange 1914 Rover, Millford combination, hood and screen, not done 2,000.—Avery, Draper, Bexhill. [8595

EXCHANGE 1914 Connaught, guaranteed, for 8h.p. twin engine for cycle car, or sell £22.—H. Salsbury, Sydney Rd., Guildford. [8513

MATCHLESS 8h.p. Combination, scarcely soiled; exchange lower power and cash; sell cheap.—156, Ladypool Rd., Birmingham. [X2252

3½h.p. Empire, Sturmey-Archer gear, Binks, £30; nearest offer over £20, or exchange lightweight. —Slater, Wood's Lane, Derby. [X2389

EXCHANGE 1911 3½h.p. F.E. Premier, everything splendid condition, for 4-cyl. F.N.—Particulars to Chapman, 172, Poulton Rd., Fleetwood. [X2262

1913 3½h.p. Premier, 3-speed, splendid condition, for 1913 2-speed Douglas or Levis, or sell £35.—Bailey, Oakdene, Shaw Cross, Dewsbury. [X2371

EXCHANGE 6h.p. 1912 Zenith and sidecar, lamp and speedometer, splendid condition, very fast, for Morgan.—G. Fletcher, Headford Hill House, Yeovil. [X2285

RUDGE, 1911, splendid condition, and cash adjustment, for 1913 2-speed T.T. Douglas; sell £19.—Monkswood, Monkhams Lane, Woodford Green, Essex. [X2324

EXCHANGE 1911-12 4¼h.p. twin combination, speed gear, Cowey, splendid condition, and cash, for higher power.—Viccars, 55, Woodside Green, South Norwood. [8557

EXCHANGE 7h.p. 1914 combination, lamp, horn, speedometer, cost £85, only run 600 miles, for light car, cash adjustment.—Newnham, 223, Hammersmith Rd., W. [8466

6h.p. Rover, 2-seat., 2 ignitions, hood, screen, Stepney; exchange for late model Triumph or Douglas, or sell 30 gns.—Geo. Male and Co., 36, Parade, Leamington. [X2399

RUDGE, 1913, N.S.U. 2-speed, coach sidecar, also a ¾ size Ryley billiard table, nearly new; will exchange both for twin Indian.—Webb, 73, Salmsbury Rd., Kilburn, London. [8542

CHASSIS, Radiator, Engine (genuine De Dion), 5h.p., 2-speed gear, wheels, tyres, front axle, steering wheel and brake rods, almost everything except body; Binks 2-jet carburetter, automatic, 15/-; 2 accumulators and trembler coil, 7/6; 1 pair Minerva spring forks, 6/-; exchange lot for motor cycle. Wanted, 2 or 3-speed gear for motor cycle.—Hodson, 47, High St., Spennymoor. [X2254

REPAIRERS.

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VALVES.—Nickel steel valves, any size, 3/6; per pair 6/-.—C. R. Foster, Kirkstall Rd., Leeds. [0253

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2	1/3	1/3
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An index to advertisements will be found on the page facing the back cover.

Bred in Peace but Invaluable in War.

THE motor cycle was originated and developed entirely for peaceful purposes, yet there is no modern invention which has more readily lent itself to warlike uses. From the moment war began our columns have been a continuous record of the uses to which motor cycles have been put in warfare, and of the smart and gallant deeds of many motor cyclists in the real thing. Indeed, the way in which the man and the machine have lent themselves to the stern conditions of warfare in its most terrible forms is remarkable, and all who have borne any pioneer share in the motor cycle movement have reason for some little pride that the movement they helped to develop has served their nation in good stead in its time of stress.

Nevertheless, we question whether the most far-seeing motor cyclist ever realised that every time he bought a motor bicycle he was contributing money towards the building up of an industry which would be so useful to his country in its time of stress. Everyone realises now the value of the motor cycle and the motor cyclist to the country; but it is not everyone who also realises that the industry which has been founded by the enthusiasm of motor cyclists in the bulk is also a great national asset to-day.

Obviously the most valuable contribution of the motor cycle factories to our own Government and to those of our Allies is in the motor cycles themselves which are being built for military use, as these machines are being steadily manufactured to meet the requirements of the British and allied armies. The point we wish to make is that the matter does not end here, because the manufacture of the motor cycle necessitates the use of material of the very highest quality and the employment of a very high standard of accuracy: it is not merely mechanical engineering, but one of the most advanced branches of mechanical engineering, employing a highly trained and specialised body of mechanics.

We, therefore, have in the motor cycle factories and their staffs, organisations which are eminently suited for the production of warlike material other than motor cycles. In a time like the present all the ordinary engineering firms on the War Office and Admiralty lists are full to overflowing with orders for war material, and the motor industry, including the motor cycle branch of it, is proving itself to be an invaluable aid to these firms. In normal times arms and ammunition factories frequently pass through very slack periods indeed, but now they and almost every firm manufacturing warlike material have more work than they can possibly cope with, and the ability of the motor industry to undertake some of it for them is a great help to maintaining the outputs desired by the Government.

Here, again, the good influence of the motor cyclist is very prominent. He has agitated constantly for better and better machines, and when they have been produced has bought them freely, and in consequence of his enthusiastic support the motor cycle industry has been encouraged to make constant efforts towards perfection, and its standard both in workmanship and material has become higher and higher each year in the attempt to meet the ever-growing demand for better motor cycles. It is because of this that we have to-day a large number of firms who have striven to meet the motor cyclist's demands for perfection, and in so doing have constituted themselves into a body of engineers who are able to meet the highest requirements of the arms and ammunition firms, as they are used to working in high class materials and to very fine limits.

Again, in their constant demand for improvements motor cyclists have benefited the industry in other ways than those just mentioned. Without the constant stimulus applied by this demand for a nearer and nearer approach to

practical perfection the motor cycle industry would have fallen into a state of semi-lethargy so far as improvements were concerned. Year after year would have elapsed with little or no change in design or detail. The industry would have had no incentive to any higher aim than the manufacture of the largest possible number of machines at the lowest possible price: its motto, instead of being "How good?" would have been "How cheap?" and instead of building up to a standard it would have built down to a price. Instead of an industry representing the highest class of light engineering, we should have had a business distinguished for low-class price cutting and employing a standard of workmanship which would have been of little or no help to the country in war time, and of little or no profit to the majority of those engaged in the industry. In advocating improvements ourselves, and in voicing our readers' desires and suggestions, we have not only done our best for motor cyclists, but they and we together have, as we have shown, done what was best for the industry and best for our country.

We might go into the subject at much greater length, but it will suffice to justify our contention if we mention a few typical instances of what is going on throughout the motor cycle industry to-day. For instance, one well-known motor cycle firm is making casing for shells, another is producing in thousands an aggressive implement for use by airmen, another, metal articles which form part of every soldier's commissariat, whilst a leading firm with a large machine shop equipped with the latest labour-saving tools is busy on turning and machining work for several branches of the army and navy. The leather accessory works are practically all at full pressure on work for the army.

All this is very gratifying to us. It is comforting to feel that in the health and enjoyment we have had from the motor cycle, and in the constant agitation for improvements, each and all of us have been assisting in the building up of an industry which is to-day of the greatest service to our country.

HOW EXCELSIOR MOTOR CYCLES ARE TESTED FOR HILL-CLIMBING.

My Two-stroke Week by Week.

I am still merrily burbling around on my baby two-stroke, and, as the roads are "up" in the interests of those prehistoric nightmares commonly known as electric trams, I find it very handy; one can carry it across trenches, or ride it on the sidewalk at need. Without doubt its main delight is that it starts so easily. I pay a business call of twenty minutes. During this interval my 3½ h.p. would have glued up quite nicely in present temperatures; and I should either have to squirt in petrol, or to poise it on the stand, or to push hard enough to moisten my lilywhite skin. But I merely straddle the two-stroke, flood the carburetter, and kick once with each foot. Its most surprising quality is the wear of its ¾in. belt, considering the microscopic engine pulley. The single geared direct drive has a ratio of 6 to 1, but the belt is still perfectly taut after 500 miles; evidently the even pull is very light on belts.

A Home-made Lamp Igniter.

The other week I was emphasising the merit of American lamp igniters in connection with dissolved acetylene, and the next day I met a Scott machine equipped with a home-made device two years old, though the owner used it to light the gas obtained from an ordinary drip generator. On the front down tube of the machine was mounted an enormous switch-block, to which the cable from one of the magneto high-tension terminals was led. Round the lamp burner was fixed a large vulcanite insulator, fitted with two bare wires, the tips of which just failed to touch above the acetylene burner. When the switch button was depressed in riding the ignition current was diverted from the usual short wire to the sparking plug, and was despatched along the lengthier cable, which incorporates the jump spark gap at the burner. The owner reports that the device never fails to light his lamp within a few seconds of turning on the generator drip, and that he has encountered no trouble during two and a half years. Accessory dealers will doubtless experience a brisk demand for such igniter sets quite irrespective of dissolved acetylene. It is further possible that the temporary use of the spark gap circuit might cleanse a sooted plug without the need of a stoppage. The old brigade will remember that such spark gaps were formerly used by Panhard testers, and that they enjoyed a brief popularity on every kind of petrol engine seven or eight years ago.

About Sparking Plugs.

I am reminded that the Forward Co. manufacture a sparking plug which can be taken to pieces for cleaning. Two Manx riders confirm my statement that the Reliance plugs do not soot up, but they add the curious information that they have tried them on Rudge-Multis and Levis two-strokes, and find they become incandescent on long hills, though they behave admirably on the water-cooled Scott. Yet another letter puts an interesting query. It is an admitted fact that the best types of sparking plug gave much trouble early in the year on high-speed four-cylinder light car engines (a trouble which is now in process of conquest); yet these very same plugs are accustomed to behave quite creditably on air-cooled motor cycle engines running up to the same rates of revolution. Why, for example, should a sparking plug last a season on a 2¾ h.p. Douglas, but break down hopelessly through insulation faults in 800 miles on a Morris-Oxford light car? To answer this, one would have to know the relative r.p.m. and explosion pressures. I have run a Morris-Oxford engine up to 33 m.p.h. on second gear, *i.e.*, about 3,200 r.p.m. without allowance for wheel slip; I have also run a 2¾ h.p. Douglas up to 45 m.p.h. on a 5½ gear, which implies a good 3,200 r.p.m. Only a "technician" can answer this query with certainty; I wonder whether the solution is that some light car owners *frequently* race their engines on low gears, whereas few motor cyclists run their engines at over 3,000 r.p.m. except on the rarest occasions? A motor cycle is normally run well throttled down; many light car owners are over liberal with the throttle on the indirect gears.

Weatherproofing.

The war will probably lessen the ardour of invention; big programmes are less possible when the volume of trade is problematical; and I fear the pronounced movement towards a better weatherproofing of our machines may be temporarily arrested. Last week I made a little trip West. I left Town after a long storm had cleared, with my new machine beautifully burnished in every detail, and myself clad in Burberrys. I reached the old-world town of Burford as clean as a new pin, both in person and machine. Just west of Burford I crossed the Oxford-Cheltenham road, and struck the always abominable patch of going which introduces one to the cross road over towards Cirencester. Within four miles the machine and myself looked as though we had lain all night in a claypool. The soft brown road was still saturated, and we brought away about half a hundredweight of it. It took me three hours to get my mount and my clothing really clean that night, because I could not apply a hose. After I had finished I smeared the entire machine with vaseline, and it will not get another clean till I sell it, when the accumulated filth of months will wipe off with the underlying film of waterproof grease. Yet, wherever I go on it, purists will reproach me for bringing the sport into disrepute. As long as there is breath in my body and petrol in my tank, I shall continue to clamour for the weatherproof hosable machine. Above all, we want the abolition of wire wheels, and the adoption of smooth, streamline crank and gear cases.

MILITARY MOTOR CYCLISTS IN ACTION.

A Thrilling and Unvarnished Description of a Modern Fight.

THE ——— Cavalry Brigade trotted out of the Chateau of B———, with the four motor cyclists attached to them, all very cross and irritable, on a nasty wet morning, and still nastier wet roads. I was one of them, and it was our painful duty to keep just behind or just ahead, and little we liked it.

The road lay along the Valley of the Aisne, not quite so much talked about then as it is now, but even then strewn with the awful wreckage of the struggle which lasted so long. Dead horses in any number, dead men not a few, and smashed vehicles of all sorts were seen on every side. About a mile out we passed ——— Battery R.H.A.; the little thirteen-pounders had been no match for the heavy and extraordinarily accurate German fire. Two guns had been upended, and one limber smashed up by direct hits (not bad shooting at a 3½ mile range). The road had practically been destroyed, and the whole place simply ploughed up with the terrible fire; yet our loss had been wonderfully small—two killed and eight wounded.

We went through the pretty little village of Ch———, past Madame C———'s villa with its large, white park gates, through about a mile of thick wood, after which the road was open and entirely without cover for the last half mile into V———.

A Pontoon Bridge.

The road approaches V——— from the south over two bridges, the first over the Aisne Canal, and the second over the Aisne itself. The first bridge was intact, but the second had been destroyed during the French retreat, and had been very slightly repaired by the Germans during their retreat, just sufficient to admit of infantry crossing in single file. During the previous day the Royal Engineers had built a pontoon bridge by taking advantage of the shelter afforded by the still standing ruins. The approaches to the pontoon bridge had no pretensions to being roads; wet weather and cavalry had turned them into veritable quagmires, hardly improved by the straw and faggots, which had been added to give some sort of foothold for the horses. All the motor cyclists got across, Corporal Fred Langton, of Leeds, doing the fastest time, and we all tootled over the greasy *pavé* of the streets of V——— and up the slopes of the hills beyond. Here the Headquarters Staff halted, the greatest part of the brigade being still in the town, and then things started happening. The German shell fire, which had been so intermittent as to be hardly noticeable, increased suddenly in volume, and the position of the brigade, crowded into the narrow streets, was one of extreme gravity.

Carrying Despatches.

One motor cyclist was sent back. It was my turn next; I was sitting in a cottage drinking coffee while Langton squatted outside tightening his belt in a drizzling rain. I was sent off next to give the last motor cyclist another message. I overtook him at the approach and helped him over the bridge and up the other side. I had almost got back to headquarters when a shell exploded in a house on my left, blowing up a feather bed and covering us with down, but hurting no one. Immediately afterwards another ripped up a tree in the square just behind me, and the streets were filled with kicking, squealing horses, and shouting men—a veritable inferno. The shells came fast and I lost no time in clearing. Shortly after I had made my report the brigade started retiring through the town—not a pleasant job by any means, but nothing to what was to come. We halted on the wide tree-bordered road, which incidentally was being enfiladed with German fire, while the cavalry went on in single file, and, fortunately, without loss, reached the other side. The violence of the fire increased; both the approaches of the pontoon bridge were flashing with exploding shrapnel, and soon they started going off overhead. I retreated into a solid-looking house, and the poor old lady inside thought we were Germans come to murder her. We didn't stay long, but followed the brigade back to the questionable shelter of the town. Here Langton and I took refuge behind the houses in a side street; he agreed we might just as well be killed by the same shell. The house at the corner of the street was smashed in, and we were continually being hit by small fragments. Our artillery had meanwhile been busily shelling our infantry upon the hillside, so, of course, a motor cyclist was wanted at once. We both ran out (for myself, I must own to a sort of sinking sensation) and volunteered. I told the officer we could hardly be expected to cross the bridge, and suggested that we should be accompanied by a mounted man. This was done, and we all set off together and went ploughing down the morass towards the pontoons. Langton passed me here and made a perfectly wonderful ascent of the other bank; I was less fortunate, got my front wheel into a deep hole halfway up, and try as I would I couldn't get a move on my heavy Rudge, and then down came the shrapnel. I had a bullet through the saddle and thought it about time to shift quarters. I have seldom run as fast as I did up that bank.

Welcome Shelter.

Just on the other side I saw a few men crouching on the side of the steep canal cutting and sheltered by the abutments of the bridge. I shouted to them, and they said there was room for another, so I lost no time in scrambling down amongst them. They were the fragments of the ——— Field Company of R.E.'s—nine men and four officers. I promptly asked the Major for three men to help me get the bicycle on to the road, and was much relieved when he replied it would be rank murder under such a fire. So there I sat, or lay, rather, watching the shells burst over a farmhouse about 150 yards off. The shrapnel did little but strip the slates, but after a while they started smashing it up with high explosive common shell, judging rightly that our people were sheltering in it, but the old place stood much battering—quite thirty large shells, and then it was by no means destroyed. We were not allowed much of this comparative quiet, for the town becoming utterly untenable owing to the incisive fire with which the

A drawing prepared from sketches and details supplied by the writer of the accompanying article.

Germans enfiladed the streets, the cavalry were absolutely compelled to retreat. This they did in half sections, each body of men was preceded by a couple of shells, which burst right above our heads at a distance of perhaps six or seven feet, and when the bridge was full from end to end of yelling men and snorting horses half a dozen more would be burst right among them with marvellous accuracy. I cannot say I was afraid, the whole thing was too strange and fantastic for that, too much like some weird dream. After a short time I sat up and watched the shells smashing the parapet above us and the shrapnel bullets churning up the water of the canal below. Horses were hit in any number, but riders escaped as if by a miracle. A baronche came up the slope, then more cavalry, and then a limbered waggon stuck on a corner of the bridge. A shell under that waggon would have blocked the bridge for the rest of the brigade. "Get on, you —— fool," we all yelled. "Get out of the way, you fat-head!" while the Tommy lashed at his struggling horses. Fortunately, he got clear, and went thundering over the bridge. Several times we thought the bridge would be destroyed under the continued fire, but, to our relief, it stood the strain.

A Sprint for Life.

After the cavalry had all got over the shell fire became normal, and we judged our best chance to cross, so, one by one, doubled up almost on our hands and knees, we sprinted over the bridge into the precarious shelter of the farmhouse, and then, after a short breather, we bolted over the quarter-mile of open field between us and the wood. We all reached the wood in safety and trudged out of range. We spent the rest of the afternoon in watching our artillery shelling the opposite ridges and hungrily waiting for the night. As soon as darkness fell we set off for the high road, and walked to the bridge. The sight quite baffles description. The road was cut with shell fire and strewn with dead horses—many ripped to pieces—accoutrements, and arms of all kinds, and here and there a corpse. I was glad to find my Rudge still intact and with enough petrol to take me to headquarters. It took four of us to get it up to the high road, the approach being simply torn to pieces; all the faggots were upended, while the whole place was covered with the craters caused by exploding shells. I lost no time in getting back to the Chateau of B——, and went off to bed with a very stiff dose of rum in my inside to sleep the sleep of a very badly scared motor cyclist.

I am glad to say all the four of us reported ourselves with machines intact next morning.

There was one act of supreme heroism performed on that day. A captain of the —— Field Company R.E. stood at the head of the pontoon bridge, and as each cavalryman passed said quietly, "Now, walk your horse; don't gallop." He stood there till blown to pieces by the shrapnel.—CORPORAL R.E.

MILITARY NOTES.

We are asked by Mr. H. P. Beasley, Inspecting Officer for the London Motor Cyclist Reserve Committee (c/o the Auto Cycle Union), 83, Pall Mall, London, S.W., to state that men are still required to serve as motor cyclists in the Royal Engineers. Those residing in London who are desirous of enlisting should make application in person, and those in the provinces should write, giving full particulars of their qualifications.

The "waiting list" of motor cyclists willing to serve, which was compiled by the Auto Cycle Union at the outbreak of war, has now been almost exhausted. Any motor cyclists who have registered their names with the A.C.U. or, for that matter with any other body, and who have not heard anything further on the matter should communicate with Mr. Beasley forthwith.

WEST COUNTRY MOTOR CYCLIST DESPATCH RIDERS.

On the left is Corporal J. H. Winter, of the North Somerset Yeomanry, on a 3 h.p. Royal Enfield, and on the right Corporal N. L. Winston, Royal Wilts Yeomanry, on a 6 h.p. A.J.S.

BLACKBURNE DIRECTORS AT THE FRONT.

An interesting letter has been received by a member of our staff from Mr. Cecil S. Burney, of Blackburne and Burney, Ltd., who, with his brother and C. Q. Roberts (their co-director), are acting as despatch riders at the front. We reproduce the letter below, and it will be immediately realised how practical are the suggestions contained in the remarks:

"Just a hurried line to let you know that my brother and myself are quite well, and have been all through. Will you please send me a copy of *The Motor Cycle* each week? We occasionally get one, and there is always a tremendous rush for it amongst the motor cyclists. There are fourteen of us here, and we are very glad to have had the chance of coming out. We have lost one man only, and another was slightly wounded in the leg by a rifle bullet. Some of the published accounts from despatch riders are really humorous, and lead people to think that we are continually under shot and shell, but it is not as dangerous as you might think. My Blackburne is the only original still running in our section of motor cyclists, and is the one I have ridden all through 1914 in competitions, and I hope to get it through, barring accidents. I hear competitions are not being run in England now. The A.C.U. and Scottish trials are not in it compared with despatch riding. This is a wonderful test for hub gears; the amount of clutch and low gear work done is extraordinary. My Armstrong is standing up wonderfully well. The roads here are practically unrideable when wet and when troops have been over them, while at nights one absolutely cannot ride at all, sometimes. Side wings to mudguards are quite impossible, as the mud is continually clogging and brings the machine to an absolute standstill. More clearance would be advisable even without side flaps. Foot clutches are hopeless, especially when riding past troops. Every machine used here should have a handle-bar control clutch. I have one on mine, and it is most valuable."

"THE MOTOR CYCLE" AT THE FRONT

In our issue of October 15th we published a letter from Sergt. M. H. Thompson asking for a copy of *The Motor Cycle*, which we were only too pleased to send. Below is given his reply:

"Dear Sir,—Permit me, somewhat tardily, but not the less sincerely, to thank you for so sportingly acceding to my request of three weeks ago, and forwarding six copies of your indispensable publication, together with your courteous letter—without invoice.

"I need hardly tell you that your kindness is fully appreciated by us all, and, in our opinion, you have subscribed in the most practical manner to the comfort of at least one section of the Expeditionary Force.

"Again thanking you, and wishing the 'Blue 'Un' the success its matter deserves and its management ensures,

"MILES H. THOMPSON, Sergt. R.E."

In Cevennes and the French Alps.

A New District for a Holiday Tour—covered before the War.

IN using the adjective "new" I do so advisedly, as, at any rate so far as a sidecar is concerned, ours was the first seen in many of the districts we traversed. In nearly every town and village we were the object of an interested curiosity, the crowds which gathered round us at times being quite embarrassing, particularly as our French was not equal to the stream of questions which were poured out upon us. We had generally to satisfy the queries as to the capabilities of the engine to take us over the mountain roads surrounding us by reiterating that the motor *il montait très bien*.

(1) View of Pierre-Plate.

(2) Panoramic view of the Col du Lautaret, the Col, and the Grand Galibier.

(3) The Grande Chartreuse (Isere), showing the tunnels.

(4) The bold face of the Chartreuse, showing the road up St Pierre d'Entremont.

The country in question is the mountain district of the Cevennes and the French Alps lying to the south-east of France. In the past this gorgeous scenery has been confined to the users of motor cars, and before their invention must have been practically unknown to the tourist, as it lies for the most part beyond the reach of horse traction; in fact, we were often days without seeing a horse, and a bullock waggon would not commend itself, either for comfort or speed, but a 4 h.p. engine and sidecar has brought it within the scope of those with very moderate means.

Confidence Justified.

I was fired with a desire to make this trip through the description of the scenery by a friend who made it last year in a car, and perhaps his kindly meant suggestion that I could avoid the stiffest roads made me the more determined to try my luck with a sidecar, with confidence that it would climb anything his 20 h.p. car had climbed, and my faith was justified in the event, for my plucky little engine never once failed to take the stiffest gradient or asked me to shed my passenger. We crossed by Southampton to Havre, and were made to unshackle the sidecar on the boat or pay an extra 10s.; we still wonder why. Crossing the Seine by the ferry at Quillebœuf we took the road south through Evreux, Chartres, Chateaudun, Blois, Bourges, Moulins, Thiers, to Le Puy; the first 300 miles of this is along dead straight and mostly level roads, on a surface which Brooklands would scarcely beat. There being no speed limit enforced we did not waste time, and only stopped for cursory visits to the cathedrals and chateaux which we happened to pass; of these we found quite sufficient, without turning off to the chateaux district proper, as our objective was mountain scenery rather than architecture and places of historic interest.

An Impossible Road.

We had an amusing *contretemps* at Blois, which stands on two hills, the chateau surmounting one, and the cathedral the other. We asked a passer-by for *la route à la cathédral*. He directed us up a narrow street, but looking at our turn-out, remarked it was *très monté*. However, we started up and found ourselves faced with a *pavé* of 1 in 5 gradient. Onlookers seemed

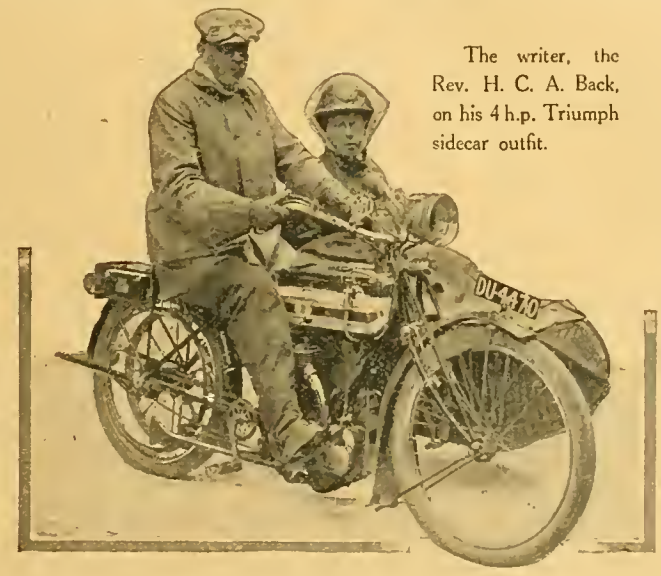
In Cevennes and the French Alps.—

surprised as we roared up on bottom speed, and we presently realised why, for on turning a bend we were faced with a flight of some sixty steps, and had to own our one and only defeat.

Gorgeous Scenes.

After passing through Vichy and Thiers we began to get into the scenery we were seeking, and every day seemed to give us something finer than the last. We went through gorge and pass in succession, making Le Puy a stopping place for a few days, from which there are a number of excursions varying from twenty-five to eighty miles. One very fine run is *viâ* Sauges and up La Petite Suisse by the Monestral d'Allier; this is a steady climb of 3,080 feet, with wonderful views all the way, but so well is the road engineered that it is seldom necessary to drop below the second speed. Travelling south-west through the gorges, one gets some of the finest scenery of all, but one must not have nerves in negotiating the hairpin bends, with a sheer drop of 500 feet if one leaves the road. On the whole, the motor bicycle and sidecar is much more handy on these roads than some of the cars we met, as they were unable to take the turns without pulling up, and coming down we were always able to show them a clean pair of heels with safety.

From the Cevennes we struck eastward, making for the Alps, *viâ* S. Julien and S. Agréves. The road as usual began with an ascent for twelve miles, and here we had our only real trouble: the second speed, which was our mainstay on these long hills, gave out, through using too thick an oil, but by putting the top gear up to 3.75 to 1 the bottom speed was not so painfully slow.



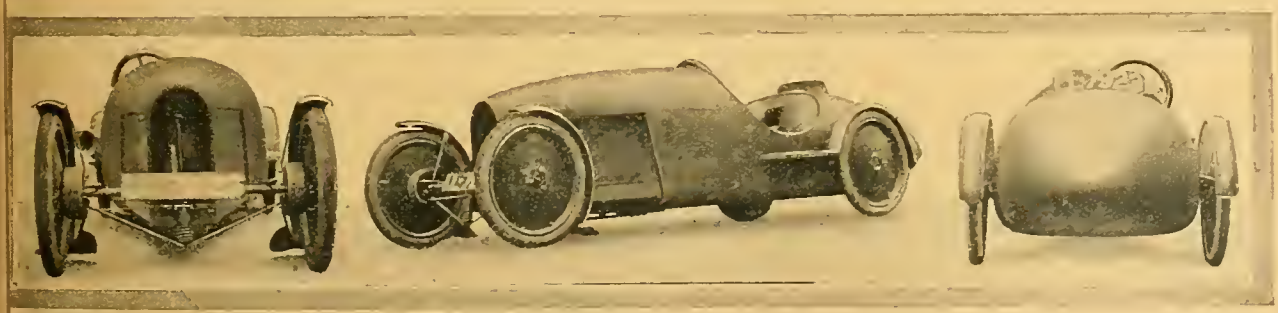
The writer, the Rev. H. C. A. Back, on his 4 h.p. Triumph sidecar outfit.

Crossing the valley of the Rhône, we took the route up the valley of the Tesoire as far as Voison, where we turned up the Grande Chartreuse. The ascent was distinctly trying, the surface being badly cut up with timber carting on a heavy gradient, the road in several places being tunnelled through the rock. We finished up with a stiff pull of 1 in 5, after which the engine was glad of a cool while we visited the now deserted monastery of the monks of Chartreuse. Following a northern road, we ran through Aix-les-Bains and round by Lac d'Annecy, coming down the valley under Mt. Blanc. Grenoble made a good stopping place, and a new gear was awaiting us. For this we were duly grateful, before tackling the Col du Lauteret in the Hautes Alps; unfortunately we were too early to cross over the pass, as the snow had not yet allowed the pass to be opened.

We had now to turn northwards again, and kept mostly on the *route nationale*, corresponding to our county council roads, to Versailles, from which place we paid a flying visit to Paris. On the whole we found the second grade, or district council roads, the best throughout our trip. The French have not yet mastered the problem of heavy traffic, and at times we struck stretches of road for some miles that were worse than wicked. But it would be unfair to leave the impression that the French roads are bad; on the whole they are very superior to the English main roads, but their best and worst are respectively more superlative than ours. For a summer holiday I can strongly recommend a similar tour, good roads, magnificent scenery, and very moderate expense, distinctly cheaper than England or Scotland.

H.C.A.B.

A LIGHT SPORTING TYPE CYCLE CAR.



The Percival White cycle car, driven by an M.A.G. twin-cylinder engine, 82 mm. bore by 102.5 mm. stroke (1,083 c.c.). The transmission is by two chains from engine to countershaft and a wide flat belt to the rear axle. Belt tension is maintained by a jockey pulley The front axle is pivoted centrally, and Lynton wheels are fitted The price is £95.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Lubrication.

My lubricator is a suction drip actuated by a milled disc placed below the tank. It is thus impossible to see at what rate the oil is being supplied to the engine, and as I am something of a novice I do not care to trust to my estimate of how the engine is running as a guide. Will you please advise me what to do?—O.W.R.

It is difficult for us to tell you exactly what to do, as you seem to be working absolutely in the dark with such a system of lubrication. All we can suggest is that you set the disc so that it gives a fairly generous amount of oil—say, turn it halfway on—and then, after a day's run, see how much oil there is left in the crank case. If there is a reasonable amount you will know that the lubrication has been approximately correct. Do not allow the engine to have enough oil to make it smoke. You will thus find out by experience at what number to set the disc.

Valve and Magneto Timing.

(1.) I have had a 3½ h.p. engine down for repairs, and have overlooked the valve timing, and should like to know what positions should the piston be in when the valves are opening and closing. (2.) I have been examining the magneto, and find that I get the hottest spark with the contact breaker in the advanced position. I am under the impression that the contact points should break when the armature is in a position to give maximum spark when fully retarded. Is this correct? (3.) When should the spark explode the mixture with magneto fully retarded, I mean with regard to position of piston? —ALPHA.

(1.) Set the exhaust valve to close just after the completion of the exhaust stroke. It will then commence to open when the piston is about one-seventh of the length of the stroke from the bottom of the firing stroke. The inlet should commence to open as the exhaust closes, and remain open for one complete stroke of the piston or while the flywheels turn through 180°. (2.) Magnetos usually give their hottest spark when almost fully advanced. (3.) Time your magneto as follows: Place the piston exactly on top of the compression stroke and connect up the magneto with the points just about to break and the ignition lever two-thirds retarded. This will mean that the explosion when fully retarded will take place when the piston has travelled about 3 mm. down the firing stroke.

Replacing a Cylinder.

Can you give me any special hint or tip about taking down and replacing cylinders after cleaning? The magneto and chain cover seem to be in the way of one of the nuts on the cylinder, the magneto being just behind the engine. Is there a means of getting at this nut without removing the magneto, which, of course, will upset the timing? I am rather nervous, too, about bolting the cylinders on again, as I have had one burst. I have been told to bolt it on across and across. The thing I really want to know is how to tell if the cylinder is on right and square, as the other one did not burst at once but after about a thirty-mile run.—H.R.C.

You should get a local mechanic to construct you a special tubular box spanner for the nut in question. A spanner could be made for a few pence, and we think this would get over your difficulty. As regards tightening down your cylinder, the opposite corner bolts should be tightened down as you suggest, but before locking up any nuts hard, all four should be tightened down as evenly as possible, *i.e.*, tighten until each one begins to get stiff, then go round, giving each opposite corner nut half a turn at a time. Beyond this there are no further precautions necessary, except that the face of both cylinder and crank case should be absolutely clean.

Passenger Carrying on a Lightweight.

I am thinking of buying a lightweight motor cycle. The particular one I fancy is the Popular Model Levis, 2¼ h.p. My weight is 9 st. 7 lb. Could I carry a passenger on back (her weight is 7½ st.)? What speed could I expect, and what mileage per gallon? If needed, could a very light sidecar be fixed on at any time?—B.C.

The machine, though excellent as a solo mount, is not really powerful enough to propel two people. The average speed would be about 25 miles an hour, and the consumption of petrol about 80 miles to the gallon. Fitting a sidecar is not to be recommended in the case of such a small machine, though it is practicable, and, in fact, some owners of sidecar outfits of this power derive great satisfaction from their running. (See letter on page 490, issue October 15th.)

RURAL MAIL DELIVERY IN U.S.A.

Whereas in America rural postmen ride motor bicycles, in England they are mounted on sidecar outfits.

Oildag.

I have recently used one gallon of oil mixed with one charge of Acheson's graphite Oildag, and thereby reduced the consumption of oil. I have, however, heard so many alarming suggestions from fellow motor cyclists as to the possible effect of graphite, in any form, on big end and other bearings, though I cannot find that they have had any experience in the matter, that I have been afraid to continue this practice. My object has not been so much to save oil as to increase the intervals between cleaning the cylinders of carbon deposit and thus save some labour in the course of a year.—H.W.K.

he preparation you are mixing with ur oil is absolutely harmless, and will t damage the bearings. We have tried e preparation ourselves and found it ite successful. We used it for some onths and never found any other than neficial results.

Knocking.

I have a 1910 2½ h.p. twin N.S.U. motor cycle, which I have just had all down and overhauled myself, and had new crank pin and bush fitted by makers. The magneto is timed exactly as the makers advise, *i.e.*, piston of cylinder No. 1 (which is the back one) is exactly on top dead centre of compression stroke when platinum points of magneto are just breaking on segment No. 1 (Bosch magneto) and the spark is fully retarded. The points, when broken, are apart about the thickness of a piece of paper. The trouble is that when I advance the spark when running on the level the engine knocks badly, and reducing the air does not seem to improve matters. I also find I can climb better with the spark retarded, as when I advance it the running seems to be upset. I am also troubled with No. 2 cylinder I presume), which stops firing when running at a low speed, but which picks up again as soon as I advance the spark; then the knocking commences. The bush on the pulley side of crank case is about $\frac{1}{32}$in. slack. The machine has an undergeared pulley and overhead mechanical valves. I may also mention that the last crank pin broke, and this I put down to the bad knocking, and also to the timing being too far advanced, but I find now I am no better than before, and know that the timing is correct, both by makers of engine and magneto. There is really no soot to speak of in the cylinder heads. The gear of the machine is high.—J.P.

e bush on the pulley side of the crank se, if a full $\frac{1}{32}$in. slack, is quite suffint to cause a bad rattle or knock, d you should make certain that your wheels are absolutely true, as in ting the new crank pin it is possible t they have got slightly out of line. is possible, too, that the engine will t stand quite the advance that you ve given it, in spite of the makers' rections. Before altering this, how-er, it would be worth while to prove t the carburetter is in perfect order, d all the petrol passages are clean, the trouble might be due to too weak a mixture. Re-make your inlet pipe joints and lag them with asbestos string and insulating tape; any misfiring at slow speeds is almost certain to be due to a leak between the carburetter and the engine, or possibly to an inlet valve which is very loose in the guide, in which case a new valve is required.

Light Two-stroke and Sidecar.

(1.) I was much interested in an article in your last issue giving the experiences of a Levis rider with a sidecar, and as my machine (Clyno two-stroke two-speed) is as good as the one mentioned, I am anxious to have a light sidecar attached — the frame appears very strong. Do you think, on fair roads, the engine would be able to do the work; if so, would you give me the name of a firm who make light strong sidecars? (2.) I have ridden my Clyno about 1,800 miles this season up to the present, and when the weather breaks I intend putting up for the winter. Is it absolutely essential that the engine should be taken down to clean? (3.) I am troubled with a slight leakage of oil on the pulley wheel side; it gets on one side of the belt, making it very greasy. Could I adopt anything to prevent this? The crank case compression is very good, so this leakage does not affect it. (4.) I find 35 m.p.h. the maximum speed with threequarter throttle. Could I do anything to get more speed with full throttle, as at present with full it goes off top speed? —I.X.

(1.) The two-speed two-stroke Clyno would probably be capable of dealing with a light sidecar, if you are prepared to use the low gear to a fairly large degree. We do not, however, recommend the use of a sidecar, however light, on such a small machine. If you desire to fit one, almost any of the best known sidecar manufacturers make a very light model for this sort of work, and consequently you have a wide choice. (2.) When laying your machine up for the winter you should certainly remove the cylinder and piston and scrape off carbon deposit. You will probably find quite a heavy deposit on the exhaust port, and on the underside of the piston. It is a particularly simple job to clean out this engine, and it can be done with care by the veriest novice. (3.) The oil leaking from the pulley-shaft points either to a slightly worn bush or the use of too thin a lubricating oil in the gear box: we should be inclined to suspect the latter. A first-class light gear oil will be found most satisfactory. Leakage in this hearing will not affect the crank case compression, as the gear box, although cast integral with the crank case, is entirely separated from it by walls. (4.) Thirty-five miles per hour is about the maximum speed of this machine, though you might get a slight increase in speed by thoroughly cleaning out your engine and using a slightly higher gear. With the carburetter supplied you will find that threequarter throttle is about the most efficient position with an ordinary touring jet, and you will obtain little or no gain by opening up further.

Time Limit for Summonses.

I should be much obliged if you would answer the following queries. I received a summons for recklessly driving a motor cycle which was issued more than six weeks after the alleged offence. Is this legal? It also says for driving a motor car. Is a motor cycle a motor car in the eyes of the law?—W.A.S.

It is quite legal to issue a summons for driving to the common danger or reckless driving six weeks after the offence; it is only speed limit summonses which must be delivered within twenty-one days. In the eyes of the law a motor cycle is a motor car.

Belt Breaking at Fastener.

I should be glad if you could give me a suggestion in a difficulty. I use a 1in. belt on a standard roadster Triumph with a Stanley fastener. Every time the fastener goes round the pulley there is a metallic click, and the belt gradually breaks off behind the fastener. I had the same trouble with an Amac belt fastener. It is as though the belt and fastener had to turn round too small a circle. But in three previous years with the same belt, fastener, and machine, I never had this trouble. Am I looking in the wrong place for the fault?—W.J.C.

Probably you have the adjustable pulley opened out rather too far, and the belt "bottoms" every time the fastener comes round, thereby putting an extra strain upon the belt. Try raising the gear slightly. It is also possible that the belt is faulty or the fastener not mounted centrally.

NEXT THURSDAY!

THE MOTOR CYCLE

Annual Buyers' Guide

OF

1915 MODELS.

AN INVALUABLE WORK OF REFERENCE.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

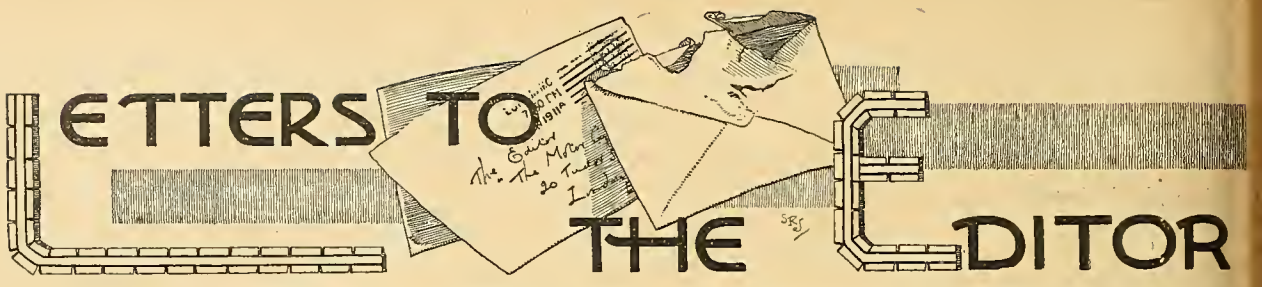
"R.S.C." (Galashiels).—Wooler two-stroke. Reliability and general efficiency.

"F.B." (Notts.)—Douglas (model B), A.B.C., and Bradbury. Reliability, petrol and oil consumption.

"G.C." (Hants).—4 h.p. B.S.A. combination and 4¼ h.p. James. Upkeep, reliability, and general efficiency.

"W.E.F." (St. Leonards-on-Sea).—2½ h.p. New Imperial. Efficiency, petrol consumption, and suitability for touring (weight 13 stone).

"D.T." (London).—Velocette two-stroke. Ease of starting, reliability, efficiency of two-speed gear and lubrication. Lowest possible speed on high gear without four-stroking.



The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Comforts for Despatch Riders.

Sir,—May I, through the medium of your columns, say that I am collecting comforts of all kinds for the Motor Cyclist Despatch Riders of the Second Army Corps? Socks, mittens, mufflers, tobacco, cigarettes, pipes—all such things as will be of use and comfort to these brave young men.

Should some of your readers be good enough to send any of the above-mentioned articles to 14, Scarsdale Villas, Kensington, W., I will gratefully acknowledge them, and see that they go through with the name of the donor.

(MRS.) L. A. SELWYN.

Standardisation of Controls.

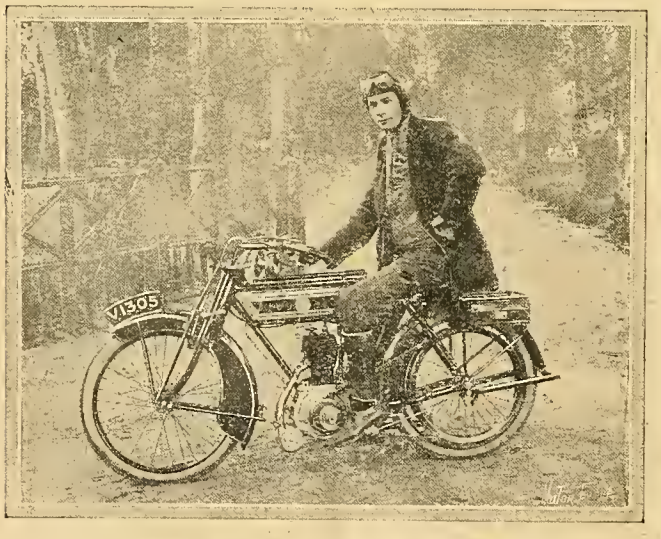
Sir,—So much has been said lately about the standardisation of carburetter controls that few seem to have given any thought for the other controls. I think that it would be a very good move if a definite form of clutch and magneto control could be decided upon. About the latter there is still a diversity of opinion as to whether tank or handle-bar control should be settled on. But for the clutch the handle-bar control is obviously superior to all others, both in the ease with which the clutch can be slipped in traffic and in the fact that the feet are left free. If all makers would fit hand-controlled clutches and standard forms of magneto and carburetter controls on their 1915 machines, the driving of a motor cycle would be easier and safer.

A. STATHAM.

Experiences with a T.T. Mount.

Sir,—I am enclosing you a photograph of my T.T. Premier, which I have had since the beginning of the season. Trouble has been nil. My petrol consumption averages about one hundred and twenty miles per gallon. The machine is fitted with semi-T.T. handle-bars and Philipson pulley, which I think make it an ideal solo mount.

GEORGE A. SEMPLE.



G. A. Semple, who writes of the satisfactory running of his 3½ h.p. T.T. Premier.

Petroil Lubrication.

Sir,—We agree with your remarks on the question of oiling on two-strokes. We may say we have experimented with most of the systems of oiling and find that the best system is that at present fitted to the Wooler, which is by pump through a sight feed lubricator, and which is controlled by the throttle.

We always read with interest any comments you make on current design in your interesting and instructive journal.

THE WOOLER ENGINEERING CO., LTD.
JOHN HULL (Managing Director).

Sir,—In an editorial in your issue of October 29th you predict that the popular "petroil" system of lubrication used on two-stroke engines is going out of favour. Now I venture to believe that the method of mixing the oil with the petrol as the sole system of lubricating two-stroke motor cycle engines has come to stay, and if you can spare me the space I will endeavour to explain my reasons for so thinking.

Whatever system is adopted it is evident that a large proportion of the oil must get into the crank case, otherwise a seized big end bearing would soon result. Those makers who exercise their ingenuity in devising means of keeping the petrol and oil separate, and at the same time adopt crank case induction for the petrol, are up against a hopeless proposition, because the churning of the crank will mix them up in a most thorough manner. Now, if the petrol and oil must be mixed together in the crank case, why not feed them in through the same pipe? Obviously the most convenient way of doing this is to mix them in the tank, both reaching the crank case *viâ* the carburetter and induction pipe.

Consider the advantages of such a system:

If the oil supply fails for any reason the petrol supply fails with it and the engine stops, so no harm results.

Again, as you, yourself, allow, "a throttle controlled lubricator is surely ideal and perfectly automatic," the amount of oil supplied being varied to a nicety with the work done by the engine, which is as it should be, and is found in no other system of lubrication.

Dealing with the objections to this system:

I have seen it stated repeatedly that if the machine is left standing for a time the oil settles at the bottom of the tank and the machine has to be shaken before making a start to mix the oil up again. This is not so, the oil goes into solution and the petrol and oil can no more be separated by standing than a mixture of whisky and water; like the whisky and water, they can only be separated by distillation. This is what happens in the engine. The volatile hydro-carbons (petrol) are vaporised; the fixed oils (lubricant) forming a cloud of oily particles which are thrown about eventually find their way into the bearings.

Another objection is the dirty appearance it gives the machine. My machine is ridden almost daily and it is no dirtier than other people's; indeed, it is much cleaner than most of the machines I see. A wipe down before putting it to bed is all that is necessary—the oily film on the carburetter serving to keep it as bright as a new pin.

Whether the interior of the engine carbonises more quickly than air-cooled two-stroke motors lubricated by other means, I am unable to say, and it would be interesting to hear the experiences of Levis and Peco owners in this respect. I will give you my own.

The machine is a Connaught, and I have had the cylinder off once since purchasing it, not because of any loss of

"SUNSTONE" for machines up to 8 h.p. A good anti-skid and unrivalled for heavy work. 26×2¼ 40/- 26×2½ 45/-

"COMBINATION"—the enduring Non-skid (steel studs and rubber bars). 26×2¼ 48/3. 26×2½ 50/-

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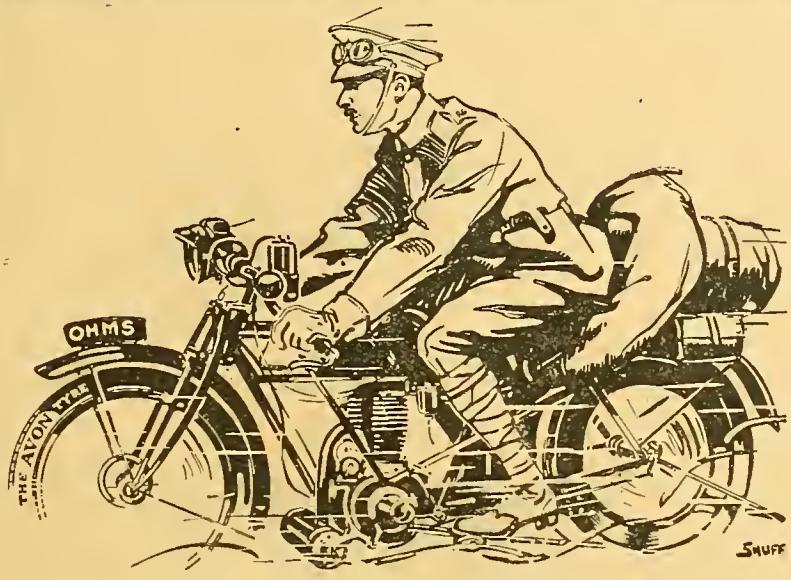

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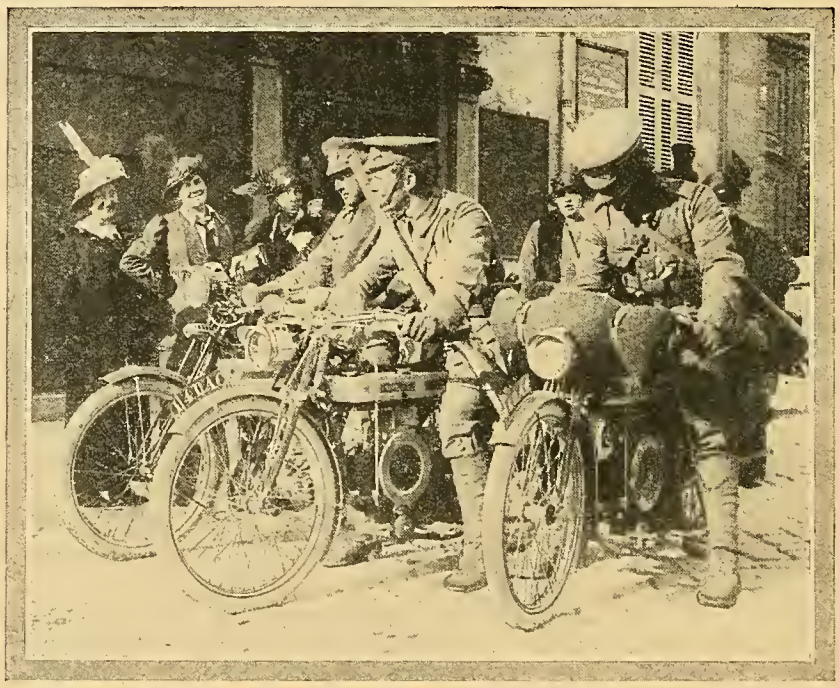

British motor cyclist despatch riders passing through ——— near the firing line in France.

The illustration shows the supreme confidence of the despatch riders who trust their lives and the success of their important mission to the Douglas. It is a confidence borne of long experience of reliability, durability, and utmost efficiency allied to silence, that most vital property for military purposes.

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tune, but because, after burning fifteen gallons of petrol I thought it would require cleaning. I had been in the habit of occasionally feeling the piston head through the plug hole, but could find no carbon deposit here; on taking the cylinder off, however, a different state of affairs revealed itself. The two top piston rings were gummed in their grooves. The corners of the exhaust ports were filled with carbon deposit, making them oval instead of rectangular, and there was a heavy deposit on the *inside* of the piston head. The cleaning process was quite straightforward, there being no inaccessible valve pockets, and it not being necessary to remove the piston.

To conclude, the "petroil" method of lubrication is so simple and withal so satisfactory that I feel quite sure that, as I stated at the outset, it has come to stay.

P. W. HAMPTON.

Crystallisation.

Sir,—I read with interest "Ixion's" article on single forks. Might I call attention to a fallacy in it? He regards the fracture of a bar of metal to be due to "crystallisation." All metallurgists nowadays regard this as totally erroneous. Fracture in such a case would be due to "fatigue." All metals are crystalline, the chief difference being the size of the crystals. Any metal suitably polished and etched, when examined under the microscope, shows definite crystals. These crystals have a certain amount of cohesion, and to this cohesive force the strength of the metal is due. After many reversals of tension and compression, a certain amount of amorphous matter is formed round the joints of the crystals, and breaks up the cohesive force. The metal loses its strength, and is more or less easily broken. This is known as "fatigue." This amorphous material when allowed to stand for a long time, or when heated to a low temperature for a shorter time, gradually crystallises, and the material again resumes its normal strength or becomes even stronger than it was before this treatment.

L. PHILLIPS SMITH.

Sir,—The question which "Ixion" raises in *The Motor Cycle* of October 29th is based upon a quite common misapprehension as to the nature of the steed he rides. As it left the factory it was already in a crystalline state. That the common crystalline substances, as sugar and soda, are brittle leads us to think that other substances which are not brittle are therefore not crystalline. Steel is a case in point. It consists of, in the case of mild steel, crystals of ferrite and pearlite. It is now quite definitely established, although not widely known, that steel does not change in structure at anything approaching ordinary temperature, and metal of over 4,000 years old is in the same crystalline condition as if it were made yesterday.

Provided the metal does not contain injurious impurities, fracture always occurs *across the crystals*, whether the fracture has been produced by shock, static stress, or "fatigue." The fracture never occurs by the metal forming crystals by vibration and then breaking at the boundaries, as is suggested by such terms as "crystallisation fracture." In fact, we know that in good metal the boundaries of the crystals are stronger, and it is only when chemical impurities are present in the steel, resulting in the formation of weak chemical compounds which accumulate at the boundaries of the crystals, that the inter-crystalline fracture, as it is termed, occurs.

As we know from readers' complaints, this weakness leads to fracture whenever sufficient shock is applied, whether it be after one mile or ten thousand.

The full explanation of the modern theory of fracture by "fatigue" under vibration is too lengthy to discuss in the course of a short letter.

The remedy for fractured forks is not to imagine that changes in the metal are likely to take place, the final condition being already present in the new metal; but, having determined by test the nature of the metal to be used, the remedy is to design the forks as girders which are going to be subjected to determinable static and dynamic loads. Given a good metal of known tensile strength, a good engineer can design perfect single forks, and these are to be found in the modern lightweights of good makes. If he finds that the design for the particular load to be carried is ugly and heavy-looking, he develops a stronger "form," which is lighter and more artistic—to wit, the girder fork.

One thing more, I have not got the description of the Splitdorf magneto and dynamo by me to refer to, but one would expect that the residual magnetism would be sufficient to set an induced current of increasing magnitude, which, by either series or shunt magnet windings, would give a strengthened field as the kick starter was operated, and that finally the batteries would cut in at a pre-determined voltage. This could, of course, be accelerated by passing current from the battery before starting up, but that the failure of the battery should put the engine *hors de combat* seems, for the above reasons, unlikely.

ARTHUR MARKS, F.I.C., A.R.C.S., A.R.S.M.

Chain Drive and Spring Links.

Sir,—Your correspondent "AS 129" writes complaining of the spring links on his chains breaking. I myself have had the same trouble. First I had the nut and bolt with split pin fastening. I found the thread on the bolt stripped, and the split pin was the only security, and as soon as it sheared through the trouble commenced. When the spring link came out it was a great improvement on the old idea. I have never yet broken a back chain with spring link in, but the front one was continually breaking. What I blame for it is the high speed at which the chain runs, and the small sprocket (compared with the size of the others) it runs over. The following is the way I got over the difficulty. First, scrapped the spring link; second, in place of the spring link I used an outer link, which made the chain endless; and third, removed the gear box forward about two inches to get the endless chain on, and then put it back to its ordinary position. The back chain cannot be treated like this, but in my case there is no need for it, as the chain never breaks, but dies of old age. The disadvantage of this is the front chain is not so easily detached.

615.

Sir,—I have now completed three years' experience with chain drive, and should not like to discard the spring clip. I have used two kinds, and I have never had one of the older pattern come off. The other comes off if not put on the right way, *i.e.*, the opening following the direction of travel of chain. Further, my experience of nuts and bolts on push cycle chains is that they come undone if not burred over each time they are fastened, which would not do for motor cycles, as one often wants the chain off to immerse in grease.

C. H. INGAMELLS.

J. S. Hyde and R. W. Gore, motor cycle despatch riders attached to the General Headquarters of the British Expeditionary Force. The photograph was taken near the Franco-Belgian frontier. Both riders have been at the Front since the commencement of the war, and are seen mounted on Douglas machines.

An Opportunity for Enlistment.

Sir,—I believe there are many men in the employment of motor and cycle manufacturing companies in the district who would be glad to enlist in a non-manual company, composed of men from the staffs of such firms. I should be glad to take the names of any wishing to join, and if the requisite number is forthcoming, I am quite prepared to form it. Recruits are coming in steadily, but I have room for a large number still, and I feel sure there must be many young fellows who should take this opportunity of serving their country. Applications should be made to me at the Drill Hall, Thorp Street, Birmingham.

T. J. GRAHAM, Lieut.-colonel,
6th (Reserve) Battalion Royal Warwickshire Regiment.

A Steam Motor Cycle.

Sir,—I was very much interested in the letter of your correspondent, Mr. J. H. Hatch, and entirely agree with him that a steam cycle would not be nearly such a bulky machine as many may think. Two small force pumps only would be necessary for the purpose of driving water through the coils of the "flash boiler," and for forcing paraffin to the blow lamp within the coils. A small 4-5 h.p. twin-cylinder would be sufficient power, enabling one to dispense with gears and clutch; in fact, one may just sit astride machine, open throttle, and glide away.

The ordinary petrol engine type of lubrication should, I think, be discarded, and several glass lubricators of the type one sees on gas engines substituted. I hope the idea will be taken up by some manufacturer in the near future.

J. WINDHAM HART.

Why an Engine Konks.

Sir,—Your contributor is surely in error in stating that the blow given to the piston is delivered at an angle. One of the very earliest principles that one learns in studying elementary mechanics is that "fluid pressure always acts normally to the surface pressed." If it be assumed that the pressure is distributed, as shown in fig 2, then there would be no pressure at all in the centre of the cylinder head, and on opening a compression tap there no gas would escape even at the moment of explosion, which is absurd.

It is probable that the cause of konking is that given nearly at the end of the article, viz., the reaction due to the angularity of the connecting rod So the tendency to konk would be the same for all types of combustion chamber, but would be more pronounced where the connecting rod is short in proportion to the stroke and with greater cylinder clearance.

I seem to remember that you published a very good article on this subject some years back.

C. E. SQUIRE.

Sir,—I was greatly interested in a short article in *The Motor Cycle* on the subject of engine knocking. Your contributor (as I see you have pointed out editorially) lays down the law in a surprisingly exact manner, and, whilst his article is very interesting, it is extraordinary to have the whole of the knowledge of any subject, together with the vast amount of experimental work that has been done by different persons all over the world, dismissed in two columns of print.

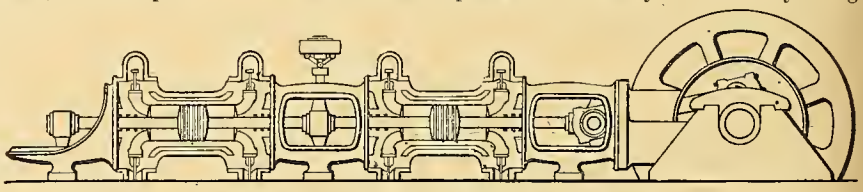
It is not possible to refer to different forms of knocking, and to separate up each different type of noise into pigeon holes. The internal combustion engine represents one of the most beautiful and yet complicated grounds for research known to the engineering world, and, as your contributor must surely have found, in two engines apparently exactly the same, absolutely different sounds will occur which it is quite impossible to classify under any artificial heading.

To take fig. 1 in your diagram, if the engine is made to revolve the other way with a detachable head whose shape can be varied, the same type of knock and the same variation is observable either with an electrical sonoscope or upon an ordinary manograph indicator card. How, therefore, does this fit in with the statements laid down as law? Truly, the explanations given may apply to some cases, but in many hemispherical headed engines one can obtain exactly similar sounds as occurred when the head is replaced on the same engine by the "Γ" headed combustion chamber. Another point which must be remembered is that experiments have shown many forms of knock, including variations of pinking or tapping, to be due to a variety of causes taking place at the same time, and to the slack being taken up over-rapidly and leading to actual mechanical contact. This has been actually proved by experiments by measuring the electrical resistance between bearing and shaft, etc., whilst in motion.

Another point of importance is the question of the piston "being blown from one side of the cylinder to the other by the rush of the explosive gases on the top." I quote from your contributor's remarks. Now during the initial portion of the explosion—that is to say, whilst the pressure is at all near the 300 per square inch referred to—the explosion pressure rises through the mass of the mixture with considerable speed, and the gas as a whole, apart from the valve entry whirling, is not passing over the head of the piston at all. Experiments will show that there is no enormous tendency for the gas to "hit" the piston itself unless it has some exit opposite to the point of ignition. I do not by any means wish to suggest that your contributor is not correct in some cases, but I do suggest that it is quite impossible to speak generally or with such extraordinary brevity and to attribute the konking of motor cycle engines to a cause which, as you, sir, yourself point out, *does not exist* to any appreciable extent in most motor cycle power units.

A. M. LOW, A.C.G.I., D.Sc., etc., etc.

Sir,—We do not suppose many people will agree with Mr. Watchorn's explanation in last week's issue of *The Motor Cycle* of how the noise of konking or pinking is produced in an engine. It has, of course, often been suggested that it is due to the piston moving from one side of the cylinder to the other, owing to the angularity of the connecting rod, but, to us at any rate, the suggestion is new that the firing of the gas on one side of the cylinder should be the cause of the piston moving over. That this is not a correct explanation can easily be tested by firing



Gas engine referred to in Lodge Bros. and Co.'s letter.

simultaneously at two plugs in a T-shaped cylinder, one plug over the inlet valve, the other over the exhaust valve. The pinking can still be produced by setting the ignition early enough.

That the noise of pinking is almost certainly not produced by the movement of the piston against the sides of the cylinder wall is suggested by the fact that the same noise can be produced on an engine which has both a piston rod and a connecting rod, with proper guides to take up the thrust of the connecting rod, as in the gas engine indicated in the sketch. Pinking is such a metallic noise that the cause is generally ascribed to two pieces of metal knocking together, but the noise can be produced without any concussion of metal parts.

If the gas is fired early while the piston is still rising on the compression stroke, the intensity of pressure is so great that the gas detonates instead of expanding at the usual rate. The effect of the sharp blow of the detonation sets up exactly similar vibration in the metal of the engine as if the metal parts had been tapped with a hammer.

The reason why this explanation of the sound is not accepted by many people is probably because the phenomenon of gas detonation is not met with in practice, except in the case of internal combustion engines. An analogy is the well-known water-hammer effect caused by turning off a tap too quickly. Anyone not knowing the true explanation might try and explain the water-hammer knock by saying that some metal parts were probably loose in the tap.

LODGE BROS. AND CO.

A DESPATCH RIDER'S DIARY.

THROUGH the courtesy of his sister, we are enabled to give some interesting extracts from a diary written by Corporal F. K. Langton, R.E., a prominent rider from Leeds. He would have taken part in last year's Tourist Trophy Race had he not had a serious accident after completing his final lap. The diary dates from the very beginning of hostilities, and continues to November 4th.

AUGUST 20TH.

We have had a great time to-day trekking from H———. All the Belgian villagers turned out solid with presents of chocolate, cigars, cigarettes, and bottles of wine. I did a nice steady business, as the motor cyclists led the whole lot when on the march. Three of us are stationed to-night at cross roads to wait for any despatches that may come from headquarters. We have just heard that the Germans have sacked and burned a village six miles away, and are advancing. There is one constant stream of people who have deserted their homes and are carrying all their portable possessions with them. They don't know where they are going, but wander aimlessly about; it is pitiable to see them.

Corporal F. K. Langton.

AUGUST 24TH.

I had my baptism of fire this morning. I was rather surprised that it worried me hardly at all. I was not even excited. I was with the General and his staff—about thirty of us—and the Germans spotted us. We sheltered under cover of a house, and they had six guns firing on us for about half an hour. We could hear the shells quite a few seconds before they arrived, owing to their peculiar whistle. Finally we got the order to clear out, as it was getting too hot. Three of us on motor cycles had to stick to the road and run the gauntlet for about a mile. One of our fellows had the whole of his kit blown off his carrier by a piece of shell, fortunately without hurting either him or his machine. Another shell burst in a field about fifty yards on my left, and the nose of it struck a tree and dropped just in front of me.

AUGUST 25TH.

We had some excitement yesterday. I have got a rifle now, and lost the whole of my kit. Owing to a false alarm, the drivers of some transport waggons got excited, and in the scrimmage my kit was lost.

AUGUST 28TH.

The headquarters were at a farm. Six of our fellows found a party of Germans. They killed four and captured two more, but one got away and brought up reinforcements. We have only cavalry with the General's staff, so the Greys charged before the Germans could get their artillery into action, and went right through them and back again: it was great! The German cavalry turned and bolted, while the infantry threw down their arms and lay down, pretending to be dead. One of our men got four within two hundred yards. There are five motor cyclists attached to the ——— Cavalry.

AUGUST 30TH.

Disaster. I lost my rifle just when I had got a "prong" for it, but still I will get another in the next scrap.

AUGUST 31ST.

They have been fighting all day in the woods, and I have brought two wounded men in on my carrier. Both tell me we are out-numbered six to one, and are getting badly knocked about, but one cannot rely upon what the men say.

SEPTEMBER 3RD.

We are south of Paris now, but a good deal to the east. Hardly a day passes without our having some kind of engagement; almost always artillery. "J." Battery are very fine. They have been in action practically every day, and only lost one man wounded.

SEPTEMBER 8TH.

The long talked of event has at last appeared, and we have turned round and are advancing, and rapidly, too, and carrying everything before us. We had a hot time yesterday morning, but the German shrapnel is no class. One struck the road and burst about two yards from me and never touched me, while another one went between one man's legs and burst within a yard of him. The shock knocked him on the ground, but he jumped straight up and ran for cover.

SEPTEMBER 10TH.

We have done very well to-day. Cavalry sighted the enemy about 2,000 yards, marching in column, got the guns to work on them, and the Greys charged and they surrendered in dozens. We lost another of our motor cyclists yesterday, shot clean through the head. (We have been made up to our full strength again.) I am beginning to think this is a riskier game than I first thought.

SEPTEMBER 14TH.

We have had a ——— of a time to-day. We crossed the river by pontoon bridge. The Germans let us all cross, and then starting shelling us. They had the range to an inch. It was a real death trap. I sheltered under a wall for about two hours, watching them knock the village to pieces by degrees, then was given a message to take back over the bridge. (This is the incident described by Corporal R.E., whose article appears on pages 520 and 521 of this issue.)

SEPTEMBER 19TH.

The Germans have apparently retired to a very strong position. Whatever the papers may say to the contrary, there is no doubt about it the Germans can use their big guns. I was crossing the river and one shell blew my hat clean off. Needless to say, I did not stop to pick it up. I was the only one of our motor cyclists who got my machine back, as all the others had to leave theirs stuck in the mud, and fetch them at night. We have nine motor cyclists now. During the retreat two of us were doing twice as much as the whole lot do now.

OCTOBER ——.

Some of the Indian troops arrived here yesterday. (We needed them.) They were put in the trenches to relieve the Greys. About midnight terrific firing began, and a man came running up to say that the enemy had broken through the lines. I imagine he must have dreamt it, as our men held them back comfortably, but it is funny how this kind of work preys on one's mind. The same man described how he looked up and saw a German only a few yards away, how he shot at him and ran, chased by three others, one of whom clutched his hat, but missed him, but finally arrived at headquarters, absolutely exhausted. He is now under arrest, and may get into trouble for leaving his post.

I am glad to hear —— is coming out. We need more men, provided they are good. When one comes to think of it the British Army is a mere nothing compared with the German numbers. If we had an army the same size as theirs, and as good as our present little one, we should knock spots out of them.

Some More Recent Experiences.

NOVEMBER 3RD.

There has been a severe fight going on for the last three or four days. We are very much outnumbered, and are being slowly driven back. The Germans broke through our lines the night before last, and we had to move in a hurry; we lost rather heavily, but the Germans lost hundreds. Taken man for man, the Germans are not half so good as our men, but there seems to be no end to them; our men in the trenches say that the Germans come in masses, and as fast as they are shot down their places are filled. One of the officers attached to our headquarters borrowed a rifle yesterday, and went out and bagged eleven of them.

NOVEMBER 4TH.

Things look considerably brighter to-day. We have quite a lot of French troops helping us; their Tommies are perhaps great, but their batteries are absolutely IT. This really is a ghastly business; our losses already are very heavy. The London Scottish (the first of the Terriers to come out here) lost half their number in one night's fighting, but one of our officers told me that the German losses were nearly 3,000 in the same fray. Another officer told me to-day that the road between two certain villages about a mile and a half apart was simply strewn with German dead, and was practically impassable. One hears some very funny things out here about the Indians; a party of them left the trenches a few nights ago without their officers knowing anything about it, and arrived back some time later with twenty-five prisoners. No one knows how or where they got them, but this is absolutely true. Poor devils, there is to be no quarter for them if they are captured by the Germans, and incidentally they give little or no quarter when dealing with the Germans.

ARMY MOTOR CYCLES.

A Suggested Combination of Hub and Engine Pulley Gears.

IN the case of motor bicycles used on active service, when reliability is of paramount importance, students of design have noticed with some amount of wonder that the authorities have selected machines of divergent patterns, some with hub gears and others with counter-shaft gears. There is no hiding the fact that hub gears during the past year or two have given a certain amount of trouble. In the ordinary way in the hands of a private owner they will perform satisfactory service for a twelvemonth, but under severe conditions, such as obtain in the Six Days Trials and the T.T Race, the hub gear has its shortcomings. The same remarks must undoubtedly apply when used in the severe work of a despatch rider, who is constantly ploughing his way on the lower gears over extremely rough surfaces and along muddy lanes badly cut up by heavy transport One can imagine the plight of a rider of a hub-geared machine with his gear gone wrong and with only a single gear to get him up a steep hill, or past that long transport train ahead which has left barely room for a bicycle to pass.

Now, seeing that hub gears are not by any means proof against trouble, it is somewhat surprising that the authorities have not considered the possibility of safeguarding hub gear users against defects. It has occurred to me that the combination of a variable engine pulley gear, such as the Philipson pulley, and the three-speed hub gear, would help a despatch rider out of difficulties of the kind enumerated, for not only does the fitting of a variable engine pulley dispense with the necessity for changing gear on many occasions, thus saving wear and tear in the hub, but also in case of the hub gear failing altogether the belt rim could be fixed to the spokes, and the variable pulley relied upon solely. This may seem an extreme measure, but nevertheless when safe delivery of a despatch may mean all and everything for the safety of an army, safeguarding methods of this kind must sooner or later be resorted to. Again, now that Russia is cut off from supplies of spares by the clutches of winter, any hub gear failing among the Russian army machines will incapacitate that machine almost entirely, as single gears are of little or no use in an army. Supposing that a supply of variable pulley gears were available for such breakdowns, the machines could again be made to perform useful service. PERFECTA.

SOME TWO-STROKE TIPS.

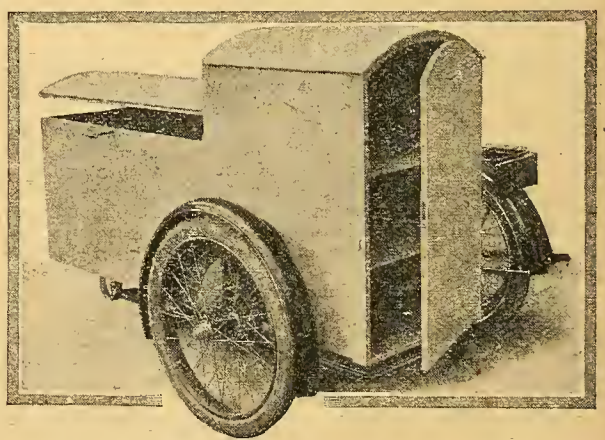
IN theory a two-stroke engine should maintain its power without other attentions than the periodic removal of carbon deposits. In practice this ideal perfection is hardly attained, and I propose to indicate the two or three very elementary details which might trouble a novice in the early weeks of possession. Oddly enough, all my 1914 two-strokes (three, of different makes) have misbehaved in precisely the same way during their first month on the road.

In each case the compression has gradually grown weak. In two cases the upper piston ring had stuck in its groove, in the third case the compression release valve failed to close tightly owing to fragments of carbon between face and seat. All three engines were cured by plenteous libations of paraffin, no part being dismounted for the purpose. Since the piston ring troubles occurred, I have found a preventive measure of some service, viz., injecting about a dessert spoonful of paraffin into the cylinder whenever the engine has got really hot on a long run, and a good deal of oil sludge might be expected to be present in the cylinder.

Secondly, it appears to be necessary to clean the sparking plug once a week and to use a plug of exceptionally long reach. Carbon deposits on the plug are rapid and heavy in character, and at low speeds of revolution, *e.g.*, in starting from cold, the current is very apt to prefer the short circuit provided by a film of carbon to the open gap between the points.

Thirdly, the carburetter requires far more frequent cleansing than on a four-stroke. On my present machine, a week's hard work casts quite an appreciable amount of thick black ooze into the carburetter, which will occasionally choke two of the penthouse jets in the Amac; moreover, perhaps because the tank is a cheap one, the gauze filter under the float chamber usually holds several blobs of a green chemical deposit; I always know when these are forming, because the carburetter floods so slowly when tickled. I do not remove the filter, because it is easier to clean it than to clear the jet.

Fourthly—and here I come to a curious point—the magneto of a machine purchased since war broke out has given quite unusual trouble, and there are indications that it has been assembled out of a job lot of parts made in different years. For example, the contact-breaker details date back to 1909 or so, though the high-tension terminal is 1914. A record amount of oil is always found lurking behind the contact-breaker, and I detach and clean this every week. I find that two-stroke engines seem far more sensitive to the width of the break between the contact-breaker platina than four-stroke engines.

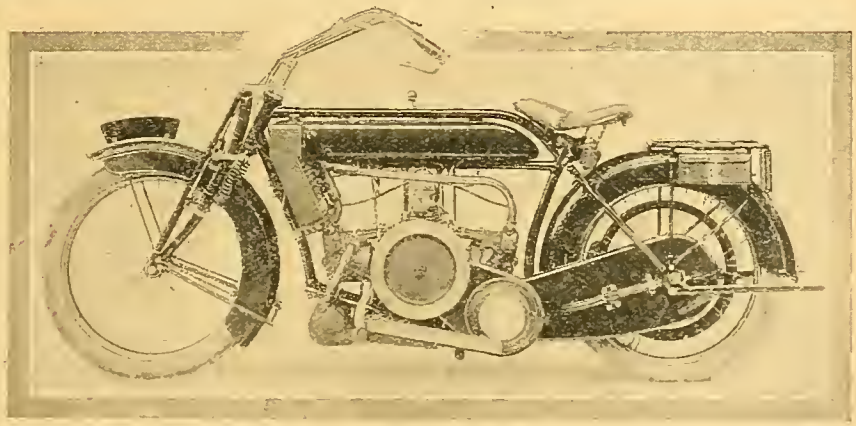


Messrs. Mills-Fulford, Ltd., have introduced another design of side-carrier which we illustrate above. It is particularly roomy, and the rear portion, as will be seen, is provided with shelves.

A 6 h.p. Horizontal Twin Humber.

A Water-cooled Sidecar Machine; Three-speed Box; Enclosed Chain Drive.

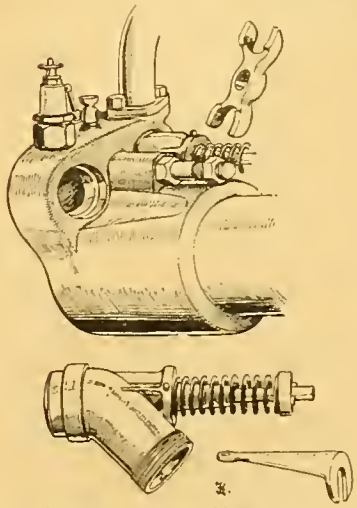
ONE of the most striking designs for 1915 which we have had the pleasure of inspecting is the 6 h.p. horizontal twin-cylinder water-cooled Humber. Apart from the fact that the principle of a horizontal twin has been adopted for the first time by the Humber Co., the engine itself possesses many new features and practical points of real interest. For instance, the cylinders are not in line, which allows of big end bearings of exceptionally large dimensions. The crank is a plain one of nickel steel, and the big end bearings measure 35 × 30 mm. Above the crankshaft and driven by a train of gears is a case-hardened steel camshaft formed from the solid and running in ball bearings, the cams operating direct on to adjustable tappets. The valves themselves are practically horizontal and arranged above the engine. The starting handle engages with the camshaft, thus giving a 2 to 1 gear, and making the starting comparatively easy.



Flywheel side of the new horizontal engined Humber.

Detachable Valve Pockets.

A practical feature of the engine is the detachable valve pockets, each pair of which are held in position by a yoke and a stout nut and bolt. By removing this single nut the yoke may be detached and each valve withdrawn separately, complete with its seating. It is almost unnecessary for us to emphasise the advantage of such a system, in view of the fact that the condition of the seating may be inspected with the greatest ease, and, moreover, the valves may be ground into their seatings in the clear view of the operator; but this is not all. An expedient which will undoubtedly be followed by users of horizontal twin Humbers will be to carry a spare seating and valve complete, so that, should the compression show signs of weakening after prolonged running, it will be the work of but three or four minutes to fit a new valve and new seating, and thus restore compression. The fact that the valve ports are not water-cooled, although the remaining part of the cylinder is liberally water jacketed, may cause surprise at first, but the experiments which the Humber Co. have made include a test of the design in an air-cooled form, and it has been found that the valves and their seatings have stood up wonderfully well. It is, therefore, practically certain that, working under the much more favourable conditions provided by a water-cooling system, the life of the valves and their seatings will be greatly prolonged. A Hallite washer is used for the joint, which is found to be superior to the copper and asbestos type of washer for this purpose. The sparking plugs are in a most accessible position. The cylinders can be removed without disturbing the crank case.



Showing one of the Humber valve ports detached complete with valve, and the yoke securing each pair of valves to the cylinder.

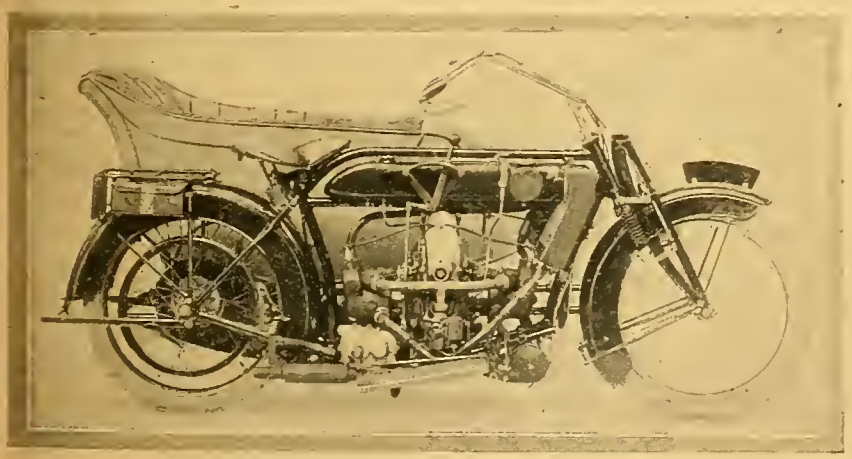
As regards the lubrication system, the splash feed is relied upon. The pistons have flat tops and a pair of rings. The crankshaft revolves on ball bearings, a double row of bearings being arranged on the flywheel side and a single bearing on the timing gear side. The oil retainer on the flywheel side is of interesting design, as it has phosphor bronze rings, which are kept in contact by the pressure in the crank case. We are told that this system works perfectly. The engine is secured to the frame, top and bottom, the top connection being affixed to the lower tank tube.

The cooling is on the thermo-syphon system, pannier radiators of one gallon capacity being arranged immediately behind the steering head and connected to the petrol tank. The circular oil tank is fitted into a recess of the petrol tank in the usual Humber manner.

Gear Box and Clutch

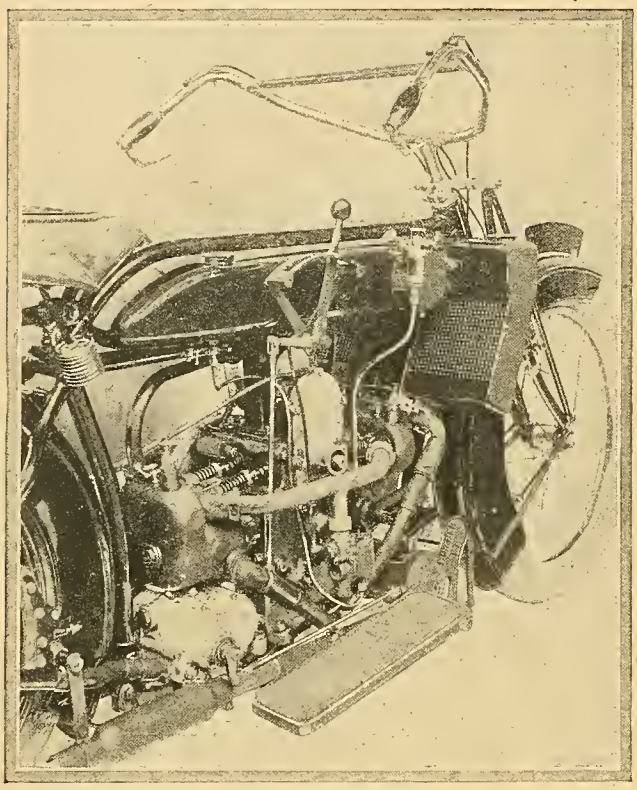
The gear box has three speeds, the shafts revolving on ball bearings, and the operations being effected by a single sliding wheel on a double dog clutch system. The gear ratios provided are 4.76, 7.33, and 13.8 to 1. The chain transmission is enclosed in oiltight cases.

A multiple-disc clutch is mounted on the main gearshaft, and is designed to stand any amount of slipping. Four rings of Ferodo are utilised as the slipping medium. The chain wheel, besides being sandwiched between Ferodo rings, has another member clawed to it again working between Ferodo rings. It is controlled by a foot clutch, a quick thread screw on the right-hand side operating a rod in the hollow shaft. A gate change lever is provided, two free engine positions being obtained.



Carburetter side of the 1915 model 6 h.p. twin Humber.

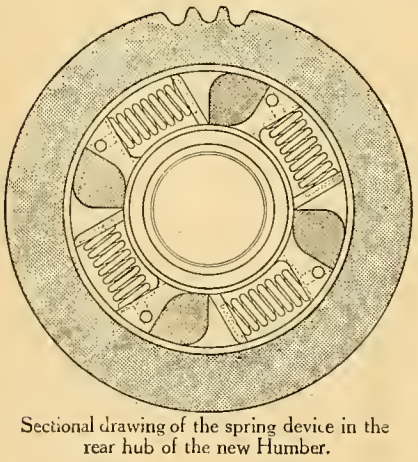
A 6 h.p. Horizontal Twin Humber.—



The new 6 h.p. Humber engine, which is of the horizontal type and water-cooled.

A detachable rear wheel, made under the Lea-Francis patent, is another feature, and mounted within the hub is a slipping clutch device which is very efficient in practice, the snatch of the engine being first taken up by the spiral springs and the recoil by the rubber buffers.

The detail work of this new Humber has received careful attention. We noticed that the links of the Druid spring forks—a source of wear, especially with sidecar outfits—are designed so that each wearing face in contact is of hardened steel. Moreover, each securing nut is of the castellated type with split pins. A Rotherham petrol filter gauge and filler cap has been adopted as standard, whilst a sight feed drip lubricator is mounted in a convenient position at the forward end of the tank. The silencing is well carried out, a separate pipe leading to a large expansion chamber in the front, an extension pipe being carried to the rear, near the end of which another chamber is formed.



Sectional drawing of the spring device in the rear hub of the new Humber.

The Running of the Engine.

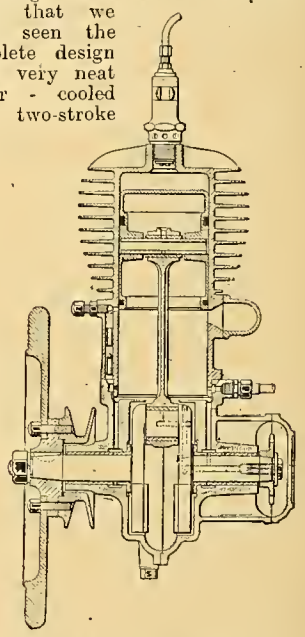
With the Claudel-Hobson carburetter the engine is one of the most controllable we have seen, and another good point that impressed us was the comparative silence of the valve gear. No doubt some of this silence may be put down to the water-jacketed cylinders, which are devoid of that ring which is so noticeable in an air-cooled casting. The engine would tick over so slowly that it was possible to count the explosions, and it will at once roar away on the throttle being swept open. The note of the exhaust is particularly pleasing.

The new 6 h.p. Humber is bound to make a strong appeal to that growing section who favour the moderate-powered twin-cylinder sidecar outfit, especially as the Humber will be sold complete with a handsome coachbuilt sidecar. The 6 h.p. twin and the 3½ h.p. air-cooled models—close upon four hundred of which, as we have mentioned, have been supplied to the Russian Government—will form the two patterns of Humber motor cycles which the company have decided to market in 1915.

THE VITESSE ENGINE—SINGLE AND TWIN.

THE Vitesse Engine Co., who have moved their works to Broad Street, Birmingham, have there erected a completely equipped factory, and are turning out a considerable number of their little two-stroke engines, which are being used by one of the largest manufacturers of two-stroke motor cycles. The engine, which has been previously described in *The Motor Cycle*, is most carefully designed, and the workmanship can hardly be excelled. One of the most interesting features is the lubrication system, which is most thoroughly carried out, and can be followed at once by reference to the appended section. Oil is led to a well round the bottom of the piston, whence it flows through ducts to the crankshaft bearings and through the drilled crankshaft to the big end. Besides this, however, a passage is formed at the side of the cylinder which contains a simple form of ball valve. At a certain point in the piston travel this passage is momentarily connected to the inlet port by means of the hollow gudgeon pin, and thus the ball valve allows a small quantity of oil to pass and to lubricate the small end bearing from inside. A small lead is also arranged through the crankshaft to pass oil to the magneto chain, which is kept just moist by the centrifugal action of the sprocket throwing the oil from the central lead.

Mr. Richards, the designer of the engine, has had a very wide and varied experience of two-strokes, both in this country and America, and the extent of his knowledge becomes obvious from a careful study of his engines. Some novel features are likely to appear on this engine in the near future, but at present we are unable to divulge the secret. We may, however, state that we have seen the complete design of a very neat water-cooled twin two-stroke at present on the stocks. The engine is fitted with roller bearings throughout, and has a central flywheel something after the manner of the Scott. The built-up crankshaft is a clever piece of work, and a simple and ingenious form of crank case pressure gland is used. The exhaust gases pass out at the sides of the engine, so that the pistons are set with their baffle plates facing each other. The whole design is most interesting.

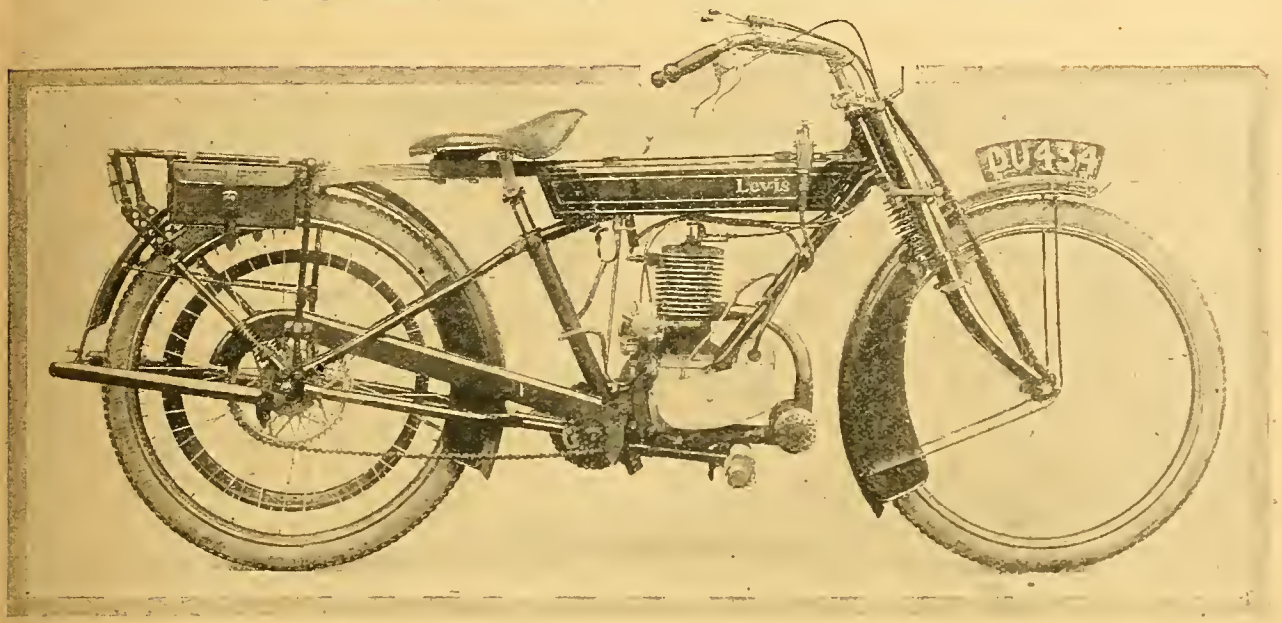


Section of the Vitesse engine.

FORTHCOMING
SPECIAL ISSUES OF
THE MOTOR CYCLE
November 19th.
BUYERS' GUIDE OF 1915 MODELS
December 10th.
EQUIPMENT NUMBER.

An Experimental Levis.

Spring Frame; New Engine; Enfield Two-speed Gear.



An experimental model spring frame Levis, a trial of which we refer to in the accompanying article.

WE have recently had the pleasure of some road experience on a forerunner of a very novel Levis. It is to be understood that the machine was purely experimental, though, in all probability, the finished article will be produced some time during the coming year. At present, however, it is not to be marketed in any form.

The most striking feature of the test machine is the adaptation of the Edmund spring frame. The top tube is hinged close to the head lug and carries two separate tanks arranged pannier fashion. These tanks are connected by a branch petrol pipe, and a special flexible tube conveys the fuel to the float chamber. The whole saddle and carrier are suspended on laminated leaf springs with coil spring shock absorbers to take up the smaller shocks, and a simple adjustment is provided to adopt the device to the weight of the rider. Druid forks attend to the front springing, and 26in. wheels help towards the general comfort. The machine we tried was fitted with a standard engine, but it is intended finally to utilise quite a new engine, designed somewhat on the lines of the Levisette. It has a single large inside flywheel mounted on two roller bearings on the driving side; a roller big end is also used, and a light lever is carried round by the crank pin to drive the magneto, which is mounted in line with the crankshaft on the opposite side to the driving shaft. The cylinder has a bore and stroke of 60 × 70 mm. respectively, and the inlet pipe is cast integral with the cylinder, and lubrication is by drip feed to a cast ring round the cylinder base, which, it is not generally known, forms the subject of an early Levis patent. The engine is surely the limit of accessibility, for, after removing the three holding down nuts and the cylinder, one side of the crank case, complete with magneto and magneto drive, can easily be removed with no possible fear of wrong timing when reassembled. The whole interior is then laid bare for inspection or cleaning purposes, and the piston and connecting rod can be slipped off the crank pin without any trouble.

An entirely new design Levis engine having an inside flywheel and a magneto bracket cast with one side of the case (which is removable), thus doing away with transmission.

A two-speed Enfield gear, comfortable footboards, ample mudguarding, and a large pan saddle are to be fitted, and the machine will be turned out with a full equipment and excellently finished.

Its Comfort on Pot-holey Surfaces.

On the road we can testify to the smoothness of the springing, and even over the worst parts of the Birmingham-Coventry Road it was possible to travel at quite a smart pace, not only without discomfort but with the peculiar floating motion of a really well sprung car. It was interesting to note, when travelling over bad roads, that the vibration of the machine, due to small road shocks, was almost entirely eliminated before reaching the saddle or carrier.

When finally marketed, this new type is to replace the present Baby Levis, and no attempt has been made to produce a cheap machine. The best only is the idea for this model.

With regard to the standard models for next year there will be but little change. The steering head ball races have been improved, somewhat larger saddles are fitted, and a better tank finish is employed.

The price of the popular model has been reduced to £25, that of the No. 1 2½ h.p. model to £33 10s., and that of the 2¾ de Luxe to £38 10s. Either of the last mentioned pair may be fitted with a two-speed counter-shaft gear at £6 10s. extra.

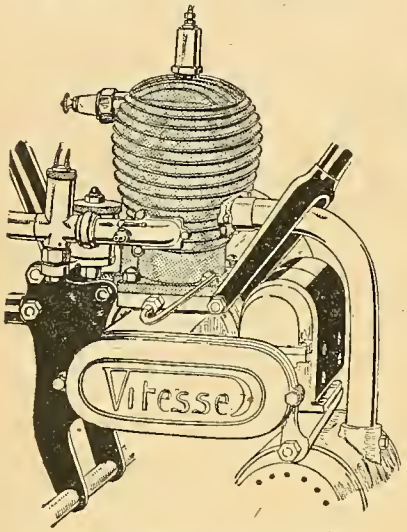
Another Well-known Rider Joins the Colours

We learn that E. A. Colliver, one of the leading lights of Godfreys, Ltd., and a well-known Indian exponent, is now a second Lieutenant in the Mechanical Transport Section of the 2nd London Territorials.

BQ

SUN MOTOR CYCLES.

THE Sun Cycle and Fittings Co., of Aston Brook Street, Birmingham, is specialising on two-strokes, and is busy turning out almost every possible type of machine with 2¼ h.p. engines The following list of models will give a good idea of the range which the company manufactures. The Sun de Luxe is fitted with a Vitesse engine, Thomson Bennett magneto, Albion two-speed and clutch, sight feed lubrication, and Brooks B190 saddle.

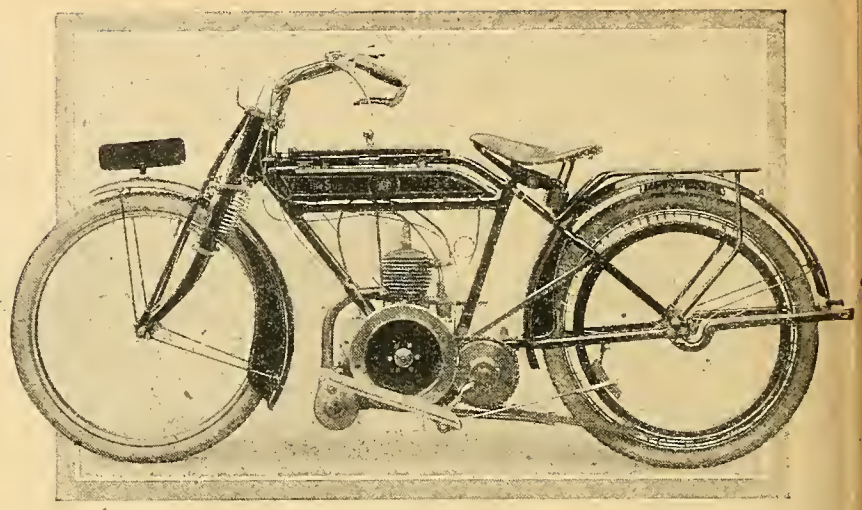


The Vitesse engine unit which is fitted to Sun de Luxe machines.

Another similar model has a Chater-Lea two-speed and no clutch, and a single-geared machine can be obtained with either Villiers or Vitesse engine. A two-speed machine with a Villiers engine is also listed.

Both Villiers and Vitesse engines have the same capacity, and it will be sufficient to describe the de Luxe model as the latest and most complete type turned out.

The Vitesse engine is very neatly designed and well constructed, and has been produced by experts on two-stroke work Apart from the excellence of port design its main feature is the lubrication



Transmission side of the 2¼ h.p. Sun-Vitesse two-speed motor bicycle.

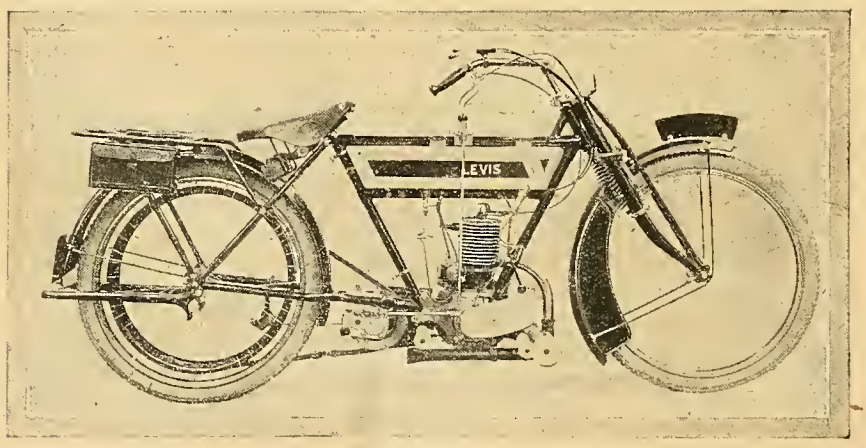
system. Oil is fed from a sight feed drip to a well at the top of the crank chamber. Thence the oil flows to the main bearings and big end, and by an ingenious method employing crank case compression is raised to the hollow gudgeon pin by a lead in the cylinder casting, and special provision is made for lubricating the magneto chain. The magneto is carried in front of the engine on a plate cast integral with the crank case and inner portion of the chain case. A large but neat silencer is attached to the unit, and has an extension pipe leading rearwards.

Two Strokes and Clutches.

Behind this unit and chain-driven therefrom lies the latest type of Albion two-speed gear, the most novel feature of which is the new clutch which is of the cork insert type. It is peculiarly smooth in action and very simple to dismount.

The addition of a clutch to a small two-stroke is a blessing which can only be fully appreciated after a trial, and in the coming year we shall see many so fitted.

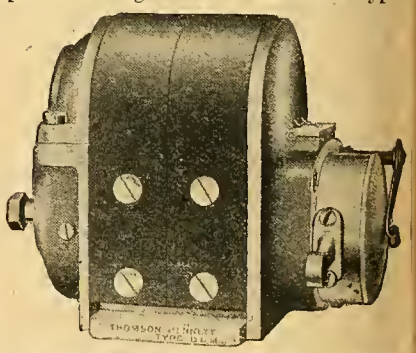
The cycle work is first rate throughout, and 26 × 2 tyres are fitted, while a large and comfortable saddle such as the Brooks B190 is a feature which will be greatly appreciated by all practical motor cyclists. Aluminium footboards, excellent mudguarding, strong but neat fittings, and a fine finish complete a really serviceable and luxurious little machine at a very moderate price.



Specimen of the new 2½ h.p. two-speed, counte.shaft-geared Levis for 1915.

THOMSON-BENNETT MAGNETOS.

WHEN it first became necessary to look around for a home-made magneto many people seemed to forget that a first-class article was being produced—in fact, has been produced for many years—by Messrs. Thomson-Bennett, of Cheapside, Birmingham. Many years ago we had some personal experience with the firm's magnetos, with most satisfactory results, and the machines have been kept up to date in a thorough manner. The design is on standard lines, all parts being solidly and accurately constructed, and, in the modern types, enclosed in waterproof housings. There are three types



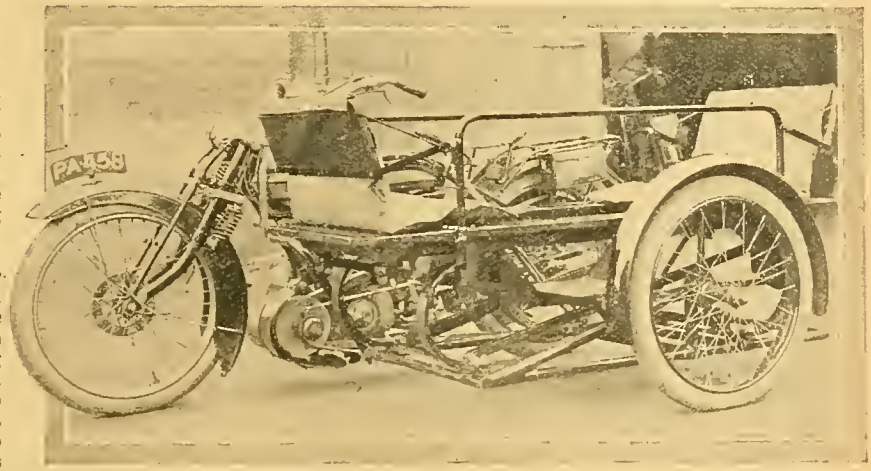
The new Thomson-Bennett lightweight magneto.

suitable for motor cycles—one for twins, one for large singles, and one for small engines or two-strokes. All are on exactly the same lines, and a very simple form of fixing for the high-tension cable is employed. A length of bared cable is turned back into a groove cut in the outer casing. The whole is then pushed into the terminal socket and held by a screw.

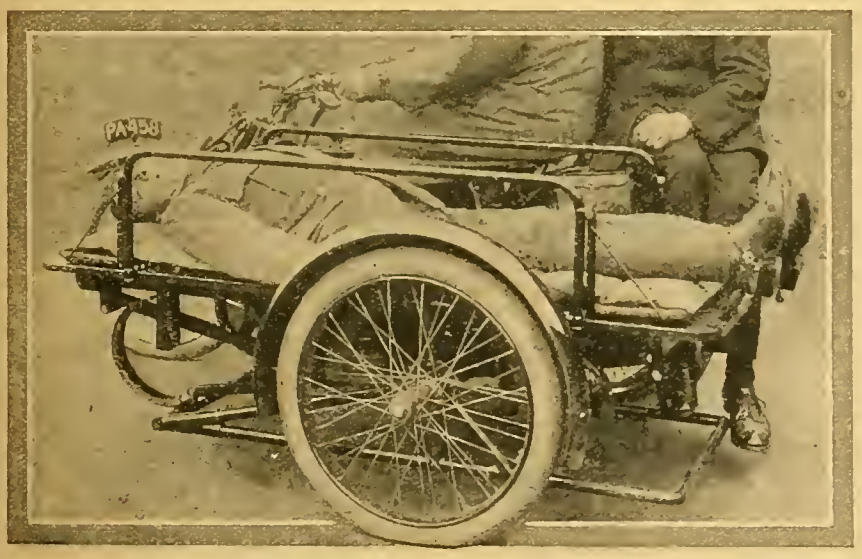
A Zenith Sidecar Ambulance.

Adapted for One or Two Persons. Efficient Springing.

A MOST interesting vehicle which we noticed on the occasion of a recent visit to the Zenith Works, Hampton Court, was a new ambulance, a design which has been patented by Mr. F W. Barnes. It may be remembered that years ago the first spring frame Zenith worked on the scissors principle, a principle upon which Mr. Barnes pins his faith, as he has embodied it into the springing arrangements of the Zenith ambulance. The illustrations show how this is carried out, and it will be noticed that the four parallel cross members have one end bolted to the ambulance body and the other to the frame, the other connection between the frame and the body being C springs, at the extremities of which there are supplementary coil springs to take up the small vibrations. The result of this design is that, no matter where the weight is placed, the springing works in the same manner as if the weight were in the centre. So much for the springing; the body is quite as ingenious.



The Zenith sidecar ambulance arranged to take two people. Note the scissor type suspension.



The Zenith sidecar ambulance for one person.

Our photograph shows that the cushions if pulled away from the centre raise up a short back, so that two slightly wounded men may sit opposite one another, the ample sides providing rests for the legs if necessary, while the bars running lengthwise on each side of the body provide a means for the passengers to hold on. A badly wounded man may be carried in a reclining position, and when the cushions are pushed inwards and strapped together the backs fall out of sight. A cover is provided to enclose the whole of the ambulance, though this is not shown in the illustration. The outfit is designed to carry not only one or two wounded men, but also a hospital orderly on the carrier and the driver in the saddle. The springing is wonderfully luxurious, so necessary in the case of an ambulance, and reflects great credit upon the ingenuity of the designer.

Enquiries concerning this sidecar should be addressed to Messrs. Zenith Motors, Ltd., Hampton Court.

THE BRISTOL OPEN TRIAL.

WE have already referred to the Bristol M.C.C. open eighteen hours reliability trial, the objects of which are threefold :

A. To enable manufacturers to test and exhibit their 1915 models.

A. To enable manufacturers to test and exhibit their 1915 models.

B. To enable prospective despatch riders to test themselves and their machines.

C. To assist a patriotic fund.

The start will take place on the evening of Friday, the 27th inst., and the finish will be on Saturday afternoon.

The route and first man's time will be as follows: Start from headquarters, the Queen's Hotel, Clifton, 9 p.m.; Bridgwater, 10.42 p.m.; Porlock (control), 12.18 a.m.; Lynton (timed check), 12.54 a.m.; Barnstaple, 1.45 a.m.; Launceston (timed check), 4 a.m.; Tavistock, 4.39 a.m.; Two Bridges, 5.3 a.m.; Ashburton (control), 5.39 a.m.: Exeter (timed check), 6.36 a.m.; leave at 8.6 a.m.; Sidford, 8.48 a.m.; Lyme Regis (control), 9.33 a.m.; Bridport, 10 a.m.; Dorchester, 10.45 a.m.; Blandford (timed check), 11.33 a.m.; Shaftesbury, 12.9 p.m.; Frome (control), 1.21 p.m.; Bath, 2.6 p.m.; Bristol (headquarters), 2.42 p.m.

The awards given in this trial will consist of gold, silver, and bronze medals.

Solo machines must not have sidecars attached, and passenger machines must carry an adult passenger. Sitting on carrier is barred.

The secretary for the trial is Mr F. G. Cox, 12, Perry Road, Bristol.

M.C.C. CINEMA SHOW.

A cinema show, comprising war pictures, the T.T., and Grand Prix Races, etc., will be held on the 27th inst. Admission will be by ticket, for which no charge will be made. A "cigarette" concert will take place on December 11th—admission 1s.—in aid of the Belgian Relief Fund. Tickets for both entertainments can be obtained from Mr. W. H. Wells, 366, Euston Road, N.W.

A 200 Mile Ti

TWO hundred miles in a day! Such was the fare provided by the Cape Peninsula M.C.C. for the small band of twelve enthusiasts who started at dawn on October 5th (a local holiday) to compete for the Barling Cup.

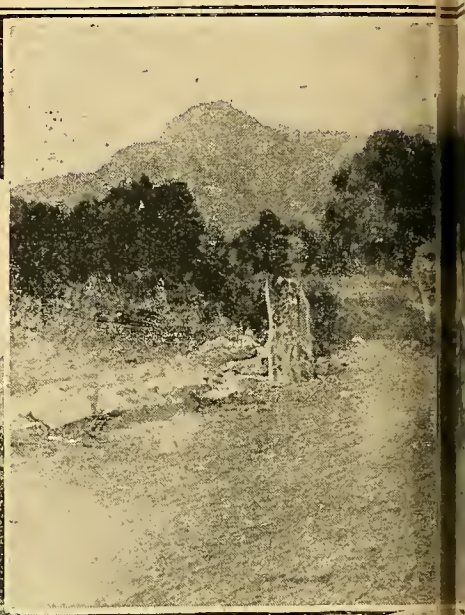
The roads were in fair condition, and all went well through Paarl and Wellington up the Bainskloof. The latter is a long mountain pass, renowned for its wonderful scenery, typical of South Africa, and a ravine that runs alongside for many miles. The first man to reach the summit was F. H. Fritchley (3½ P. and M.).

Descending over a stony surface towards the Breede River, where, in 1913, competitors were nearly carried away in the then roaring torrent, E. W. Watts (6 Enfield sc.) passed the leader at full speed, and was the first man successfully to cross the deep drift before facing the river. Here Fritchley came to a stop in midstream and subsequently pushed his mount through. J. F. Smuts (3½ P. and M.) and E. G. Alexander (8 Bat sc.) were the only competitors to ride through. The Bat's passenger, barefooted, was ready to jump out as succour, but Alexander's foresight in fitting two separate exhaust pipes to his twin engine, reaching to the height of the saddle, saved the situation.

The sensational killing of a puff-adder, which was caught by Wilmot's wheel, and the appearance of a small army of baboons on the higher slopes of the mountain are incidents worth recording.

A Clever Repair.

V. Cardinal was the first man to reach Worcester, but on nearing Villiersdorp, th



Top row—F. H. Fritchley (P. and M.
W. H. Eastoe (3½ h.p. T.T. Triu
Scene in one of the rivers, showi

Lower row—J. C. Faure Myburgh (7 h
other bank of the river.
A. Wilmot (6 h.p. Enfield sidecar
V. Cardinal (6 h.p. Enfield sideca

d at the Cape.

l cheon stop, fate overtook him, both cones o the front wheel breaking
)ne must praise his ingenuity, when later t axle gave way, in executing a makeshift j that carried him through to the end of t journey, but his misfortunes naturally put him out of the leading position, which was distinctly hard luck.

Bidding good-bye to Villiersdorp, a typical South African country place, and its controlling official, contestants followed the road through deep drifts and over the steep Ezerjagt Mountain—an ascent which will not soon be forgotten for the shocking loose and stony surface to the farm, Boentjes Kraal, nestled in the valley below

More Trouble

It was here that J. C. Faure Myburgh came to grief through the front fork parting company. He gladly accepted, after leaving the derelict mount at the wayside farm, the seat offered on the carrier of Alexander's Bat for the remaining sixty miles.

After joining the Caledon-Cape Town Road, F. Barling, the donor of the cup, found his Waterloo at the bridge over the Steenbras River, shedding the sidecar tyre and upsetting his Enfield outfit, while a similar accident happened to the front wheel of S. Knutson's 3½ James when approaching Elsie's River.

That Colonial trials stand out in severity and demand a greater skill of the riders and a notable courage and perseverance in face of the odds was proved once more, as long after night fell only five men had signed in at the finishing point outside the City Hall, and of these three tie for first place.

Result

1. F. H. Fritchley (3½ P. and M.)
1. E. W. Watts (6 Enfield sc.)
1. J. F. Smuts (3½ P. and M.)
4. S. Knutson (3½ James)
5. V. Cardinal (6 Enfield sc.)

s mit of Bainskloof Pass
t road to Worcester.
l. astoe being directed to a safe crossing.
.) who came to a stop before reaching the

g nold.
n the river Breede.

CURRENT CHAT

TIMES TO LIGHT LAMPS.

(GREENWICH.)

Nov.	12th	5.15 p.m.
,,	14th	5.12 p.m.
,,	16th	5.9 p.m.
,,	18th	5.7 p.m.

What Motor Cyclists on Active Service Really Want.

According to an officer in charge of Motor Cyclists Signal Sections, the comforts most required by despatch riders are warm gloves, scarves, and cigar lighters.

Motor Cyclists' Reserve.

Eighteen motor cyclists have been accepted for service during the past fortnight by the Rev. F. W. Hassard-Short, secretary of the Motor Cyclists' Reserve Committee, Home Counties Division.

The Rudge Year.

The profits of Rudge-Whitworth, Ltd., for the past year represent £16,746 11s. 9d., and a dividend of 6% on the preference shares is being paid. At the annual meeting on Monday it was mentioned that 360 of the 400 Rudge motor cycles ordered by the Russian Government had been safely landed on Russian soil.

Inconsiderate Driving of Motor Vehicles.

At the last meeting of the committee of the Royal Automobile Club a letter was submitted from the Commissioner of Police of the Metropolis stating that the statistics show a disquieting increase in the number of fatal accidents caused by motor traffic in the county of London during the past two months. This letter has appeared in the public press.

In the course of his letter the commissioner says: "The contention has often been advanced that the timing controls are unnecessary for the protection of the public, and are merely vexatious. The record of fatalities seems to dispose of this contention, and the controls have accordingly been re-established. It is, however, a matter for surprise and regret that a section of motor car drivers should have seized the occasion of a national emergency to endanger the public and embarrass the authorities. The proportion of drivers who have thus offended is probably not a large one, and their conduct has perhaps been rather thoughtless than deliberate."

The R.A.C. entirely concurs with the views expressed by the commissioner. If any case of inconsiderate driving by a member or an associate is brought to the notice of the R.A.C. immediate action will be taken.

Colwyn Bay Motor Races.

The motor and motor cycle races held at Colwyn Bay last summer were so successful that the Mersey (Liverpool) M.C. has decided to add another £100 to the prize money, making the cash prizes to be distributed amount to the sum of £260, in addition to cups and prizes in kind to the value of £65, or £325 in all.

Drivers Wanted for Sidecar Quick Firers.

J. H. Kerr, the N.S.U. rider, is one of the motor cyclists accepted by the Admiralty to handle a Scott Maxim. We have already mentioned that a large number of Scott machines fitted with sidecars, mounted upon which are quick firing guns, have been ordered by the Admiralty. An appeal for 300 motor cyclists for this work is published on another page of the present issue.

Belgians' Trip Round Birmingham.

The following letter has been received from one of the Belgian refugees staying at King's Heath by Mr. E. Bastock, who organised a motor trip: "In the name of the Belgian refugees staying at King's Heath, I wish to thank you very much indeed for the delicious attention of having given us the chance of visiting the beautiful surroundings of Birmingham. Will you be so kind to be our interpreter to your friends who so kindly placed themselves at our disposal to make the marvellous trip in the motor cars and sidecars.—T. BORDEAUX."

SPECIAL FEATURES.

ILLUSTRATED DESCRIPTIONS OF NEW MODELS.

DESPATCH RIDER'S EXPERIENCES.

200 MILE TRIAL AT THE CAPE.

Motor Trips for the Wounded.

There are a number of wounded British soldiers at the Coventry and Warwickshire Hospital, and the local club has offered to take them a trip into the country on sidecars and cars.

Case Against Despatch Rider Dismissed.

A case of considerable interest to despatch riders was heard recently by the Exeter magistrates, when H. Parsons was summoned for furiously driving a motor cycle in Bridge Street, Exeter, and also with having no identification plates. The defendant pleaded that he was on urgent official business, and that Government machines required no identification. The case was dismissed.

The War Funds.

The different war funds on Tuesday morning last stood as follows:

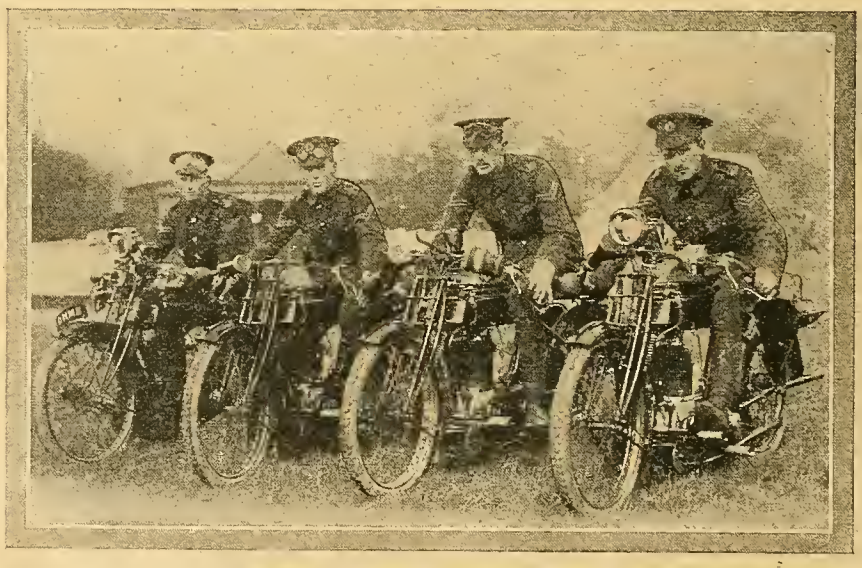
H.R.H. Prince of Wales's National Relief Fund, £3,704,000.

The Queen's Work for Women Fund, £85,758.

H.R.H. Princess Mary's Christmas Gift Fund, £50,000.

The Times Fund for the Sick and Wounded, £588,201.

Indian Soldiers' Fund, £78,204.



Corporals Jardine, Allen, Banner, and Buckley (all mounted on 3½ h.p. three-speed chain-driven Sunbeams), motor cyclist despatch riders attached to the Western Signal Companies at their Headquarters, Wavertree Camp.

Why every MOTOR CYCLIST should carry

HORLICK'S

MALTED MILK TABLETS

These Food Tablets supply sufficient nourishment for hours. They prevent fatigue, relieve hunger and thirst, and being the very essence of wholesome nutrition, they restore energy and strength, and increase the powers of endurance.

ESPECIALLY USEFUL TO

ARMY MOTOR CYCLISTS

The Motor Cyclist who has a supply of Horlick's Malted Milk Tablets is independent of any irregularities in food supplies. They are always handy, and keep indefinitely. No Motor Cyclist's kit is complete without them.

A well-made leather case for attaching to Hand'e-bars or Frame to carry a Flask of Tablets will be sent post free for 1/6, or case and flask complete for 2/6

Flasks at 1/- each, or larger sizes at 1/6, 2/6, and 11/-. May be obtained of all Chemists and Stores, or of us direct by prepaid post.

Liberal Sample sent post free for 3d. in stamps.

NEAT VEST POCKET CASE FREE.

HORLICK'S MALTED MILK CO., SLOUGH, BUCKS.

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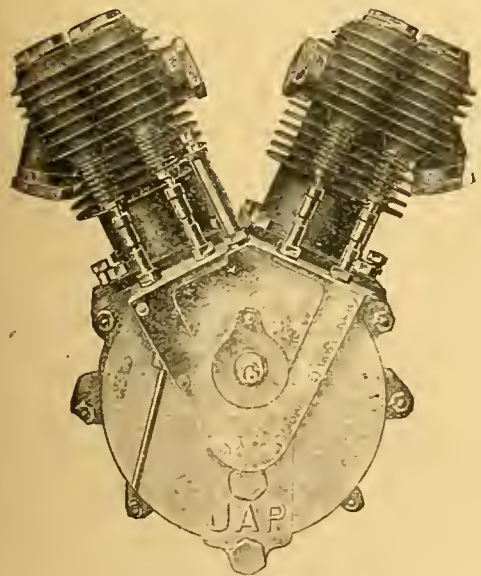
Juniors, Amateurs, Professionals,



are all unanimous in the sterling qualities of the J.A.P. MOTOR.

Irrefutable proof of the efficiency of J.A.P. Motors is to be found in every race or trial in the world. The overwhelming success attained this year has more than justified their title of "The motor of motors," and they continue day by day increasing the great popularit gained at their inception

Write now for our Illustrated Catalogue, containing detailed description of all Models, to Dept B

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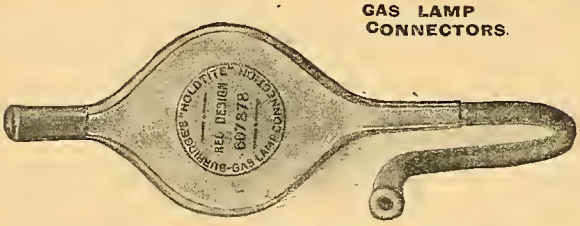
SURRIDGE'S HOLDTITE PATENTS.

GAS LAMP CONNECTORS.



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THE Bag Traps all Moisture.

6in.	1/-	9in.	1/2	12in.	1/4
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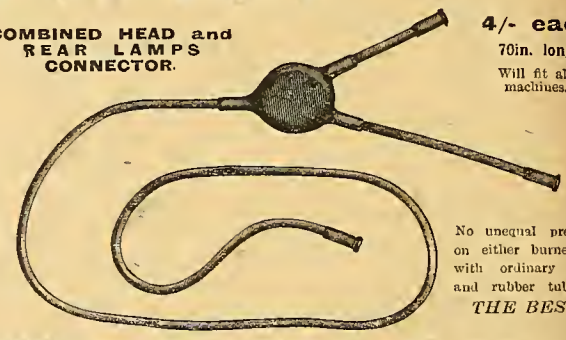
SEND FOR LIST and sample HOLDTITE LOCK PATCH. THE only Patch in the World that can claim Positive Prevention of a Punctured Tube extending under the Patch.

COMBINED HEAD and REAR LAMPS CONNECTOR.



4/- each.
70in. long.
Will fit all machines.

No unequal pressure on either burner, as with ordinary brass and rubber tubing—
THE BEST.

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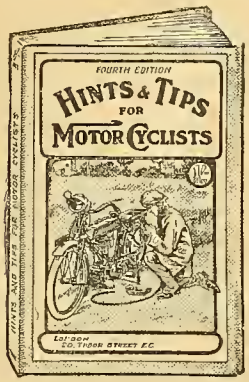

A Useful Little Pocket Companion.

¶ Every motor cyclist should make use of this book It is brimful of sound advice respecting the care, management, and repair of motor cycles. Every hint and tip is numbered, and reference is made very simple by a very exhaustive alphabetical index

Fourth Edition, Revised and Enlarged.

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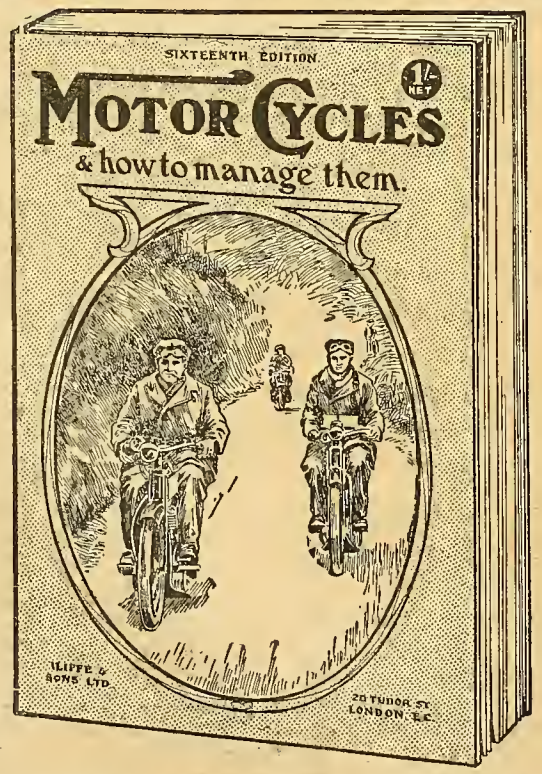


The Standard Handbook of the Motor Cycle.

¶ "MOTOR CYCLES AND HOW TO MANAGE THEM" is unquestionably the best and most complete handbook on motor cycles, their care and management.

¶ It will be found invaluable to beginners, and both useful and instructive to more experienced riders. It deals with a multitude of subjects relating to all types of motor cycles, and matter is also included dealing with cycle cars.

¶ The buyer of a second-hand machine will find the book equally useful, as it describes old type carburetters, ignition systems, etc., in a special chapter on second-hand motor cycles.

SIXTEENTH EDITION
(Revised).

Price 1/- net. By Post, 1/3.

Obtainable from
Iliffe & Sons Ltd., 20, Tudor St., London, E.C.,
and all booksellers and bookstalls.

915 Models.

In our special Buyers' Guide number ext week, we shall publish, among other escriptions of new models, photographs nd details of the 1915 pattern B.S.A. nd the new three-speed Indians, which, already mentioned, are twins of 3½ h.p., h.p., and 7 h.p.

Lulu with Harcourt Radiators.

We notice that a cycle car has just ade its appearance from the shops of e Kearns Motor Truck Co. named the ulu. We presume it is fitted with arcourt radiators.

H.M.S.

An order has been issued by the War ffice to the effect that all drivers of otor vehicles must conform to the regutions regarding speed, etc., except in ery special and urgent circumstances. he use of O.H.M.S. in place of the usual entification marks is forbidden.

vo-speed Machines for Russia.

In referring to the Russian Governent's preference for three-speed achines, it must not be supposed that vo-speeders were rejected, as both helon and Moore and the Enfield Cycle o. supplied a good number of machines r the use of the Russian Army, and, as well-known, these machines are uipped as standard with two-speed untershaft gears of the simplest possible pe.

ade in October.

During last month the number of motor rcles exported from this country was 124, against 1,004 in September. uring the same time 280 machines ere imported, which is a large increase rer the September importation of irty-six machines. The October figures r the last three years are given below:

VALUE OF MOTOR CYCLES AND PARTS THEREOF.

	1912.	1913.	1914.
xports ...	£94,325	£90,716	£84,474
nports ...	£41,590	£15,067	£13,239

The number of imported machines must largely increased by the consignment American motor cycles sent to Russia á Liverpool.

xports and Imports.

In spite of the war the exports show considerable increase over the ten onths of last year, the value being only st under one million sterling, the gures being as follow:

MOTOR CYCLES AND PARTS THEREOF FOR TEN MONTHS ENDED OCTOBER 31ST.

	1912.	1913.	1914.
xports ...	£572,065	£820,644	£999,536
nports ...	£173,118	£213,734	£181,248

cing in Italy.

A flying kilometre meeting was held Tradate on the 18th ult. by the Società o Gorla Sportiva. It was raining at e time, and though the road surface as fairly good, the wet caused a good al of belt slipping. Results:

	s.	Speed m.p.h.
500 c.c. CLASS.		
Belfanti (Stucchi) ...	38 1/10	58.8
Ghirlanda (N.S.U.) ...	38½	
Maffeis (Maffeis) ...	38⅗	
350 c.c. CLASS.		
Baj Badino (Douglas)	41⅕	... 54.5
Acerboni (Frera) ...	42⅖	
Scotti (N.U.T.)		

Bristol Open Trial.

An A.C.U. permit has been received for the trial which is fixed to take place on the 27th and 28th inst.

Motor Cyclists Honoured by the French Government.

In the list of warrant officers, non-commissioned officers, and men of the Expeditionary Force upon whom, with the approval of the King, the *Médaille Militaire* has been bestowed by the President of the French Republic for gallantry during the operations between August 21st and 30th, we notice the names of Sergeant C. Q. Roberts, R.E. (motor cyclist), and Corporal W. H. Tait, R.E. (motor cyclist).

The Benevolent Fund Dinner.

We are informed that the usual banquet on behalf of the Cycle and Motor Trades Benevolent Fund will not be held this year, owing to the European war. It is earnestly hoped that members and others will contribute to the Fund, as the longer the war continues the more insistent will become the demands upon its resources. The general hon. secretary and treasurer is Mr. A. J. Wilson, 154, Clerkenwell Road, E.C.

How to Appreciate our Soldier Motor Cyclists.

This journal had already announced its desire to send useful Christmas presents to our brave motor cyclists at the Front, when it was found that Princess Mary's Fund covered the same ground. Her Royal Highness's idea to alleviate the hardships and sufferings of *all* our brave soldiers with the Expeditionary Force is an excellent one, and those who wish to remember our gallant readers who are serving their country abroad should send their contributions without delay to Her Royal Highness Princess Mary, Buckingham Palace, W. Readers should not feel afraid of sending in small amounts; the other day the number of shilling postal orders received totalled £300.

The Patriotic Essex Motor Club.

Thirty-five members of the Essex Motor Club have now joined the Colours. A. R. Abbott, we learn, is now a sergeant in the A.S.C., while another prominent member—Ernest Bass—is also serving his country.

Motor Cyclist Despatch Riders.

We pointed out the other day that it was difficult to find who were motor cyclists in the various official lists published by the War Office. It is fairly safe to assume, however, that those whose regimental numbers run from 28,000 onwards are despatch riders.

Why Does an Engine Konk?

Some interesting replies to the above article are published in our Letters columns this week, including a communication from Dr. Low on the subject. It is curious that the true cause of the metallic knock known as "konking" has never been traced authoritatively, though the trouble is as old as the hills.

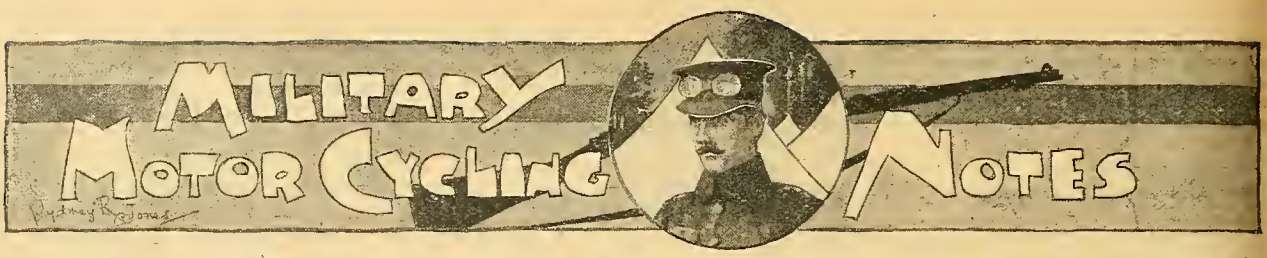
Injuries to Despatch Riders.

Quite a number of our gallant motor cycle despatch riders have returned home injured, but only one of five, whom we have interviewed, has been disabled by the enemy's bullets. Of the other four, one was shot by accident, another fell on the back of his head through striking a hole made by a shell, the third was kicked by a horse and injured internally, and the last unluckily charged a French barricade in the dark.

An Entirely New Design.

The 6 h.p. horizontal twin-cylinder Humber described in this issue is one of the most striking models of motor cycles introduced for 1915. Though the announcement will come as news to motor cyclists, the new Humber is not really new, for we have ourselves seen it many times on the road during the summer undergoing its tests. The secret, however, has been well kept.

THE COUNTRYSIDE IN WAR TIME. A peaceful scene in Richmond Park.



Hub Gears Stand up Well.

A lieutenant in the Army Service Corps writes: "Many thanks for copies of *The Motor Cycle*, which are greatly appreciated by all of us. Our machines are standing up pretty well considering, and the hub gears are not giving much, if any, trouble as yet. The roads are steadily becoming worse, but my boys keep worrying on. Thank heaven! they have any amount of pluck, and so far we have never failed to deliver a message. I am now speaking of my headquarter section. My two divisional sections have not always been so lucky, but all the same they do fine work."

Despatch Riders Wanted.

Mr. Philip Grout, secretary of the Motor Cycle Reserve, South Midland Division, will be in attendance at the Midland Hotel, Birmingham, from Friday afternoon, November 13th, till the following evening, for the purpose of registering the names of motor cyclists, with or without machines, who are willing to offer themselves for active service in the Royal Engineers. Full particulars will be given by Mr. Grout, but for the guidance of those interested the following machines, so far as arranged by the authorities, will be accepted, viz., Douglas Triumph, Rudge, P. and M., and B.S.A.'s, all to be fitted with two or three-speed or variable gears. Pay, 2s. 6d. a day, with engineers' pay of 6d. per day in addition after necessary training. Suitable machines may be taken over by the authorities at a valuation.

Brookdale Club and the War.

No fewer than eighteen members of this flourishing Catford club have already joined the Colours. Of the motor cyclists, one is serving with his 4 h.p. Triumph in the Signalling Section of the Royal Engineers. A relief fund has been opened at headquarters, Brookdale Hall, Catford.

Motor Cyclists Wanted to Serve Their Country.

Having completed the formation of a squadron of over two hundred motor cyclists, who are now attached to the Royal Naval Air Service in connection with the armoured cars' aeroplane support, Sub-Lieutenant Stocks is now looking out for a further three hundred expert motor cyclists to drive motor cycles with sidecars fitted with Scott-Maxims. Two men will be required for each machine, to take turns in driving and in working the gun from the sidecar. A knowledge of the French language, although an advantage, is not essential. Full particulars as to pay, rating, kit, provision of machines, etc., can be had on application, between the hours of 10.30 and 11.30 a.m., to Sub-Lieutenant Stocks, Naval Air Recruiting Station, Wormwood Scrubs, W., or, if it is not possible in the first instance to attend, the information will be sent on receipt of letter to the same address.

Extracts from Corporal H. C. Newman's Letter to his Parents.

"I shall be able to write letters more often now, but before, when I was with the First Army Corps, things were a bit difficult. We were supposed to have been cut up, and I may say we had a very near shave, but thank God for the timely assistance of the Munsters; they were brave men, and stood and fought like lions and saved the situation, but out of 900 men only 120 came out alive. I may tell you I have had a very hard time, as it was only a matter of luck whether I got back alive. I was sent to the 2nd Division headqnarters on the frontier, which was at a place called Vernall, where the shells simply tore down houses, and when I got outside I saw one of our men trying to run on the stump of his leg, he having just before had his foot blown off. I may tell you I am writing this letter in bed, as I am just getting over the fever; this is the first bed I have been in for the last seven weeks, having had to sleep in pigsties on straw, and not changing my things nor even taking my puttees off. My opinion is that the war will last about another four months, but I am satisfied to think I have done my share, even if I do no more. It makes me think that there is no civilisation at all. I have fired some shots, and have had a few spent on me, but have been very fortunate; one gets quite used to the ping of bullets within five or six inches, but a miss is as good as a mile. Well, I will tell you my experiences when I get back. The lorry drivers seem to have a good job, as there is very little risk attached to it." HOWARD.

Top row: Corporal Gore, Sergeants C. Q. Roberts and R. W. Lovegrove. Seated: Corporals H. C. Newman and Boyton, motor cyclist despatch riders on active service at the front.

Letter from A. J. Sproston.

We have received the following interesting communication from Corporal A. J. Sproston in reply to our congratulations to him and his colleagues on their excellent work and special mention in despatches: "Very many thanks for your kind remarks. The congratulations of *The Motor Cycle* staff are duly passed on to the fellows here, and appreciated. I can add little to what you already know as to the motor cyclists' part in this enormous struggle. We continue our hard work over terrible roads, machines standing up to the work in a manner that I should have thought impossible. Some of us are glad at times of the experience we have had of long distance reliability trials. Congratulations to *The Motor Cycle* on its share of bringing the utility of the machine so consistently to the fore. After the war, manufacturers may look forward to big business as a result of the prominence into which the motor cycle has been brought. The riders readily adapt themselves to all sorts af trying conditions. Personally, I started off with a Rudge, which did excellent service. Not once did it leave me in the lurch; handed it over after about 3,000 miles to another rider. Present machine T.T. Douglas, which is very handy for negotiating muddy side roads and fields. Falling into shell holes, running into barriers and waggons (we rarely ride with a light at night), left in the rain all night, these things have little effect on these sturdy little bicycles. Regret to hear there will be no Show. I think it will be found that this decision is unwise, and not in accordance with the 'Bnsiness as usual' motto. Again, many thanks, with best wishes, and in haste.—A. J. SPROSTON.

Ancient bridge and toll gate at St. Ives, Hunts.

A FEW weeks after war was declared I attempted a photographic tour with a motor cycle and sidecar through Cromwell's county—Huntingdonshire. Difficulties in obtaining petrol would be, I imagined, the only drawback to normal times; so tucking a couple of cans of the precious spirit in the toe of the sidecar and indifferent to the grumbles of my passenger, I, so to speak, weighed anchor. Huntingdon was to be our headquarters, and we arrived there one evening as twilight was creeping over the town. Instead of rural peace, the usually quiet and old-fashioned town was a scene of animation. Crowds of khaki-clad soldiers, on their heads the Glengarry bonnet, thronged every street and byeway, and motor cyclist despatch riders sped past at a pace that only a month before would have caused their appearance before the local magistrates. We learned that the Forfar and Inverness Territorials were encamped there. The wild strains of the bagpipes could be heard as squadrons marched past. During the earlier hours of the day, Portholme, once a racecourse, but now used as an aviation ground, was monopolised by the troops for drilling and manœuvring. Photography seemed out of place amid so much turmoil, so we packed our traps and made for the open country.

An Air-propelled Boat.

I noticed in Huntingdon close by the river bridge a large house that had been purchased by the A.A. to turn into a kind of club house for motorists. The house was undergoing alterations; builders and painters were busy inside and out. Another object which held our attention was a rowing boat that had been fitted with an early type Douglas engine—apparently there is no rest for such even when they have finished their work in a motor cycle frame. Instead of driving an ordinary screw this was fitted with an air propeller. I was informed this was preferred to a screw, as the river was so weedy that the screw would become fouled and so cause trouble. This fitment transformed a one-man power skiff into a neat little motor boat, a brilliant idea which deserved to meet with success. Driving on to St. Ives, the historical town where Oliver Cromwell lived about 250 years ago, we saw the quaint old bridge over the Ouse, which has a cottage and ancient toll house actually built in it. This is still in good condition, although the tolls for ordinary travellers have long since been abolished. Drawing the sidecar to the roadside, my passenger and I were in the act of erecting the camera when a special constable appeared on the scene. He examined my licence and wanted full particulars of our reasons for using a camera, our headquarters, and nationality. He certainly left no stone unturned to satisfy himself that we were British.

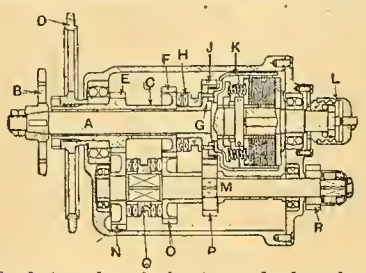
Despatch Riding No Game for Ladies.

We decided that the camera should be put aside until such a time that warfare is history only. Recently I have read in the current press of lady motor cyclists who have offered their services to the War Office as despatch riders. Personally, I imagine there are many ways preferable to such strenuous service in which my sex can assist. Few lady riders could be other than unfit for the hardships that must naturally accrue. Why even the Six Days Trials, from which we are debarred from competing, would be mere recreation compared with despatch riding on the frontier. Making garments for our soldiers would be more practical, even if more modest.

Until a few days ago the methods of the road pickets were but tales to many of us. Chancing to return from visiting a friend one evening at dusk, I was confronted by lights that were suspended across the highroad near Dunstable. A number of "Terriers" in charge of a sergeant and an officer were lined across the road, and all travellers and wayfayers were met with the military challenge "Halt!" Licences having been produced and examined, the company made way for us to pass on, the sergeant kindly offering me a "push off." These incidents are interesting by reason of their very novelty, but still I doubt if there are any among us but hope for the days when arms are laid aside and peace is once more universal.

B.S.A. Three-speed Gear B-

The shaft A is the driven shaft of the gear and carries a sprocket B, by which the motion is taken to the rear wheel. The driving element is the sleeve C, which receives motion from the chain wheel D. Integral with the sleeve C are two gear wheels E and F of different diameters, whilst a second sleeve G upon the shaft A is provided with a dog clutch H adapted to engage a corresponding dog clutch on the adjacent gear wheel F. This sleeve also carries a third gear wheel J, and is extended to form the outer member K of a plate clutch. The inner member of this clutch is com-

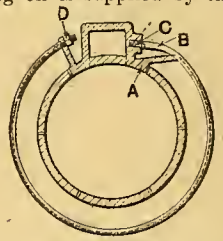


prised by the shaft A, and the clutch itself comprises interleaved plates engaged by splines in the usual way, operation of the clutch being effected by a push rod acted upon by a screwed cap L. The countershaft M has freely mounted upon it gear wheels N O, permanently engaging the gear wheels E and F respectively. A third gear wheel

P is fixed upon the countershaft and engages the gear wheel J upon the sleeve G. Between the wheels N and O is a sliding dog clutch, adapted to lock either of these wheels to its shaft. Suitable mechanism (not illustrated) is provided for actuating the dog clutches. When the clutch H engages the adjacent gear wheel F the driving and driven elements are locked together and a direct drive provided. The second and first gears are afforded by disengaging the clutch H and locking either of the wheels N O to its shaft by means of the clutch Q, when the drive is taken from the countershaft to the driven sleeve at a ratio dependent on which of the gear wheels N O is engaged. A free wheel pinion R is carried on the countershaft, and is engaged by the sector of a kick-starting mechanism (not shown).—The Birmingham Small Arms Co., Ltd., and R. Nicholls, No. 13,574, 1913.

The Peco Lubrication System.

Lubrication of the Peco two-stroke engine is effected by means of a positive supply passing through the cylinder walls, ducts being provided to conduct a supply to the crankshaft bearings and to a sump at the bottom of the crank case into which the big-end of the connecting rod dips. The cylinder casting A is formed with two ribs cast close together, and the space between these ribs is enclosed and rendered oil-tight by means of a wire B passing between their outer edges. This wire is screwed into the cylinder casting at one end C, whilst the other end passes through a projecting part of the flange, and is adapted to be tightened up by means of the nut D. Thus an enclosed chamber is provided to which lubricating oil is supplied by the pipe E.



The oil in this chamber finds its way into the cylinder through small holes, lubricating the piston and cylinder walls. To lubricate the crankshaft bearings the crank case is formed with passages, by which some of the oil reaches the points desired. After passing these bearings the oil falls into a sump at the bottom of the crank case into which the big ends dip at each revolution.—D. A. Pearson, No. 22,279, 1913.

Magneto Spares in War Time.

Taking into consideration the difficulty in getting foreign magnetos and spare parts during the present international crisis, Messrs. Simms Motor Units, Ltd., 191, Wardour Street, W., have made special arrangements to produce spare parts for all makes of magnetos on a large scale, and have increased their magneto repair shop to cope with all the demands that are made.

How to Keep Dry.

Now that the wet weather is beginning, after the long spell of drought, the catalogue of Messrs. J. Barbour and Sons, Ltd., South Shields, should be in the hands of every motor cyclist. In it will be found illustrations and descriptions of all kinds of waterproof garments, from head coverings to boots, several of the suits being especially designed for use on a motor cycle, both in Beacon oilskins and rubber-proofed suits.

A Despatch Rider's Experiences at the Front.

A letter has been received by the Dunlop Rubber Co. from Corporal J. K. Stevens, R.E., a despatch rider, who details his experiences while on service with the British Expeditionary Force. The corporal, who was one of the first motor cycle despatch riders to go to the Front, states that in three weeks' riding he travelled well over 2,000 miles with only one puncture. "The roads in Belgium," he continues, "were some of the most fiendish imaginable, and I frequently rode across fields of stubble and tracks of all descriptions. This shows that Dunlop tyres are the best and wear the longest, for active service is a sure test of endurance and fitness."

A New Appointment.

We extend our congratulations to Mr. Fred Starr on his rapid recovery from his recent accident, and also on his promotion from secretary to general manager of Hobart Bird and Co., Ltd., Coventry.

The Piccadilly Rifle Range.

It will interest our readers to know that there is a rifle range at 67b, Shaftesbury Avenue, where there are a dozen targets and modern fittings. All visitors connected with the Services are made honorary members.

Trade Announcement.

We are asked to state that the Gaby Motor Co., 37, County Buildings, Corporation Street, Birmingham, and the Metro Co., Adderley Road, Saltley, Birmingham, are in no way connected, although the engine unit fitted to the Gaby is made by the Metro Co.

An Autumn Sale.

Messrs. John Piggott, Ltd., are now holding an autumn sale, at which bargains in motor cycle clothing and accessories may be purchased. Special attention is given to motor cycle suits, gloves, etc., for winter wear, and outfits for despatch riders.

F.R.S. Lamps in Coventry.

Mr. J. Robert Reid, 1, Chester Street, Coventry, has been appointed agent for F.R.S. lamps in Coventry and district.

A War Office Order.

Zenith Motors, Ltd., inform us that they have received an order for a number of their single-cylinder machines from the British War Office.

New Precision Designer.

Mr. T. J. Biggs, who has been chief designer to Arrol-Johnston, Ltd., and Humber, Ltd., has lately been appointed chief designer to F. E. Baker, Ltd.

Hutchinson Tyres.

M. L. Arnaud, who for a long time was London manager of the Hutchinson Tyre Company, has been fighting in Eastern France, and was recently taken prisoner by the Germans and is now at Ulm. No less than 1,512 people from the Hutchinson factory in France have joined the Colours, and many have gone from the London depot. Despite this, the delivery of tyres has been in no way affected.

Attractive Accessories.

The Kumfort Motor Accessories Co., Cookham Rise, Berks., has been formed to place upon the market the different patents of Mr. F. Waigh, which have formed the subject of articles in past issues of *The Motor Cycle*. The patents in question consist of a highly efficient front wheel mudshield, a rear wheel carrier, pannier boxes, hammock footrests, besides a combination map, memo, and carrier for light articles for affixing to the centre of the handle-bars.

IN WAR TIME

as well as in peace SPLITDORF American IGNITION can be depended upon to give the rugged service that means endurance.

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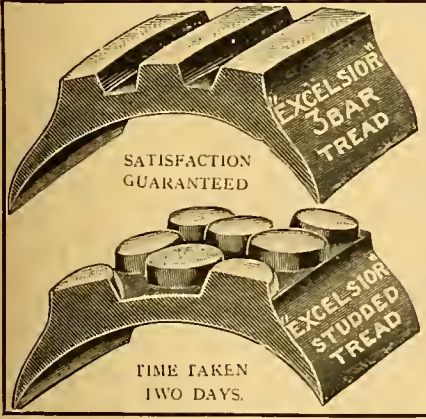

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A standard handbook on the Motor Cycle. A reliable guide to the beginner, and a helpful companion to the more advanced rider and expert. Splendidly illustrated and copiously indexed. Price, 1/- net. By post, 1/3.

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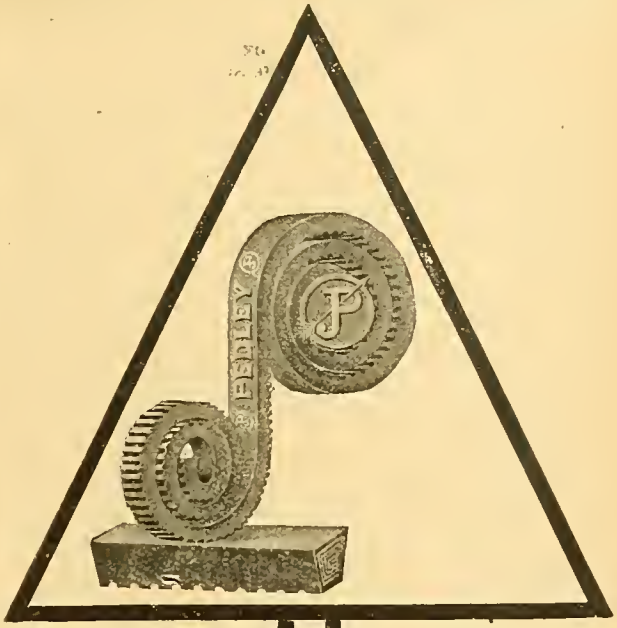
Full of useful "wrinkles" with regard to the care and management of motor cycles. Fourth edition. Price, 1/- net. By post, 1/2.

Obtainable (with remittance) from ILIFFE & SONS LTD., 20, Tudor Street, LONDON, E.C., also from all Booksellers.



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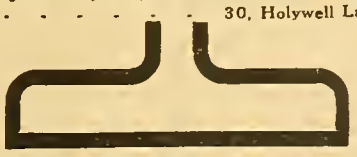

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed. "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Son: Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

Abingdon.

ABINGDON, 1913, 3½h.p., 3 speeds and clutch, splendid condition throughout, lamp, horn, tools, etc., complete; £32 cash, or extended terms arranged. —Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0552

A.J.S.

5h.p. A.J.S., complete with handsome coachbuilt sidecar, chain drive, 2-speed gear and free engine, in splendid condition; 40 gns.—At Wauchope's, 9, Shoe Lane, London. [X2832

A.J.S., 1914, 6h.p., 3-speed, and coachbuilt Gloria sidecar, perfect condition, Cowey speedometer, best accessories, spare valve, tube, and cover; any trial; £70. —Kendrick, 23, Cunningham Park, Harrow. [X2464

Alldays.

2½h.p. Alldays, B. and B., Hellesen, new tyre, belt; £8.—4, Rowland Rd., Leeds. [8678

ALLDAYS Matchless, 1914, 2-stroke, Sturmey-Archer 3-speed, new condition; offers. — 145, Fisherton St., Salisbury. [8757

ALLDAYS Matchless, 2-strokes; £26/5, or £7 down and 12 monthly instalments.—Lamb's, 151, High St., Walthamstow. [8696

ALLDAYS, 2-stroke, perfect, specially weather-proofed overalls unnecessary; cost £30 March last, accept 20 gns. quick sale.—Timmons, 66, Ilnabury Rd., King's Norton. [X2733

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8953.	3½	h.p. 3-sp.	**CALTHORPE** and Sc.	£32 10
8951.	3½	h.p. 1913 3-sp.	**NEW HUDSON**	£3S 0
8949.	3½	h.p. 1913	**RUDGE** Multi	£3S 0
8948.	2¾	h.p. 1914 2-speed	**ENFIELD**	£3S 0
8947.	2¼	h.p. 1914 2-speed 2-stroke	**CONNAUGHT**	£27 10
8946.	3½	h.p. 1912 twin	**HOBART**	£23 10
8944.	3½	h.p. 1914 T.T.	**DOUGLAS**	£S0 0
8943.	3½	h.p. 1911 2-speed	**HUMBER**	£2S 0
8942.	6	h.p. 1914	**ENFIELD** Combinat'n	£67 10
8940.	5	h.p. 1912 2-speed	**A.J.S.** and Sc.	40 Gns.
8939.	8	h.p. 1913 2-speed chain drive	**MATCHLESS** and Sidecar	£S2 10
8938.	5	h.p. 1914 3-sp.	**HAZLEWOOD** and Canoelet	£6S 0
8936.	8	h.p. 1913	**HUMBERETTE**	£67 10
8934.	4-5	h.p. 1914 countershaft	**ZENITH**	£47 10
8933.	2¾	h.p. 1912 2-speed	**ENFIELD**	£20 0
8932.	3½	h.p. 1913	**ZENITH-GREEN**	£32 10
8931.	3½	h.p. 1911 F.E.	**TRIUMPH**	£26 0
8930.	3	h.p. 1914 2-speed	**ENFIELD**	£3S 0
8929.	2½	h.p. 1914 2-stroke 2-sp.	**CLYNO**	£33 10
8928.	8	h.p. 1913 2-speed	**WILLIAMSON** Combination	£S0 0
8924.	3½	h.p. 1912 2-speed	**REX**	£17 10
8919.	8	h.p. 1913 standard	**MORGAN**	£57 10
8917.	3½	h.p. 1913 3-speed	**SINGER**	£3S 0
8915.	6	h.p. 1911 2-speed	**MATCHLESS** and Sidecar	30 Gns.
8905.	6	h.p. 1913	**A.C.** Sociable	£6S 0
8904.	3½	h.p. 1913 T.T.	**PREMIER**	£27 10
8899.	3½	h.p. 1913 T.T.	**RUDGE**	£27 10
8897.	8	h.p. 1914	**G.W.K.**	£110 0
8887.	2¾	h.p. 1911 2-sp. Lady's	**DOUGLAS**	£2S 0
8885.	3½	h.p. 1911 2-sp.	**HUMBER** & Sc.	£27 10
8876.	8	h.p. 1913 2-sp.	**WILLIAMSON** Combination	£S7 10
8842.	6	h.p. 1912	**ZENITH-GRADUA**	£37 10
8834.	8	h.p. 1914 W.C.	**HUMBERETTE**	£97 10
8832.	1¼	h.p. 1909	**MOTOSACOCHE**	£9 0
8798.	2¾	h.p. 1910	**DOUGLAS**	£16 10
8784.	3½	h.p. 1909	**BRADBURY**	£16 0
8782.	3½	h.p. 1912 T.T.	**TRIUMPH**	£2S 0
8776	6	h.p. 1913 2-speed	**ENFIELD** Combination	60 Gns.
8772	6	h.p.	**ROVER** Light Car	£2S 0
8762.	6	h.p. 1913 3-speed	**BAT**	£4S 0
8737.	6	h.p. 1912	**ZENITH** and Canoelet	£4S 0
8718.	3½	h.p. 2-sp.	**FAFNIR** and Sidecar	£22 10
8708.	2¾	h.p. 1910	**DOUGLAS**	£17 10
8706.	6	h.p. 1913 2-sp.	**ENFIELD** & Sc.	£5S 0
8682.	6	h.p. 1913 2-sp.	**V.S.-J.A.P.** & Sc.	£45 0
8654.	3½	h.p. 1910 Standard	**TRIUMPH**	£22 10
8619.	2¾	h.p. 1911 Standard	**DOUGLAS**	£20 0
8592.	3½	h.p. 1908	**QUADRANT**	£15 0
8568.	3½	h.p. 1910	**BRADBURY**	£18 10
8561.	3½	h.p.	**VINDEC** and Sidecar	£17 10
8551.	2¾	h.p. Twin	**FAIRY**	£10 10
8502.	3½	h.p 1908	**TRIUMPH**	£20 0

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'Phone: Holborn 5777.
Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

Ariel.

ARIEL, 1910, 3½h.p., mag., footboards; £15, lowest. —Skude, 101, Boundary Rd., Leyton. [X2911

ARIEL, 1914, 3½h.p., 3-speed, shop-soiled only; bargain, £45.—31a, Broomfield Rd., Chelmsford. [X2908

ARIEL, 1914, 6h.p., counter-shaft 3-speed, brand new model; £86/10; exchanges invited.—Bunting, Harrow. [X2917

ARIEL, 3½h.p., 1913, 3-speed, kick-starter, little used, exceptional machine throughout, lamp, horn; cash price, £32.—Layton's, Bicester, Oxon. [X2868

ARIEL, 1913¾, 3-speed model, as new, 3½h.p., kick starter, lamp, spare belt, all accessories, with new £12/12 (Kerry) torpedo sidecar, underslung chassis; £50, or nearest offer, complete.—R., 5, Ferndale Rd., Woking. [8661

Arno.

ARNO, 3½h.p., 1912, sidecar; £23; trial.—8, Aspinden Rd., Rotherhithe, S.E. [8605

Auto-Wheels.

AUTO-WHEEL, 1914, little used; sacrifice £10/15 nett.—Heyhourn's Motors, Maidenhead. [8654

AUTO-WHEEL (Wall), 1914, cost 16 gns., September, not done 200 miles; £10.—H.P., 72, Shooter's Hill Rd., Blackheath. [X2758

AUTO-WHEEL, standard model, 12 gns., or £5 down and 6 monthly instalments.—Lamb's, 151, High St., Walthamstow. [8693

AUTO-WHEEL, fitted to 10 gn. Premier cycle, both 2 months old, like new; 17 gns.—Auto Mart, 133, Hammersmith Rd., W. [8673

AUTO-WHEEL, 1914, perfect condition, complete set of spares; £10, no offers.—Bennett, 64, St. George's Av., Tufnell Park, London, N. [X2819

AUTO-WHEEL, Wall's, 1913, fitted to New Hudson, not done 200 miles; owner giving up; accept £12. —Frow, 87, St. Augustine's Rd., N.W. [8634

Bat.

BAT-J.A.P., 1910, 6h.p., 2-speed, coachbuilt car, good condition; £40.—Lemay, Beanacre, Melksham. [X2149

1913 6h.p. Bat-Jap Combination, 2 speeds, chain, kick starter, almost new; £48.—Bleucathra, Highfield Rd., Walton-on-Thames [X2854

BAT, 1914, 4½h.p., 2-speed, No. 1 model; catalogue price £57/10, brand new, cash price £47/10.—Layton's, Bicester, Oxon. [X2869

BAT-J.A.P., 1914 4½h.p. twin, 2-speed, horn, and lighting set; owner on active service; 40 gns.—31a, Broomfield Rd., Chelmsford. [X2909

1913 8h.p. Bat, with Gloria sidecar; £45.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1807

BAT, 1912, 3½h.p., spring frame, in very good condition; £22.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0603

Bradbury.

3h.p. Bradbury, B. and B., perfect condition; £7, or near.—203, Church St., Woking. [8657

1914 Bradbury, 4h.p., 3-speed, brand new; £50, no offers.—Willmott Bros., Norwich. [8438

1914 Bradbury, new, shop-soiled only, 4h.p., 3-speed Sturmey, kick-starter; £48.—Williams, 21, West St., Congleton. [X2828

BRADBURY, 4h.p., nearly new condition, 1912; £25/10, or lightweight and cash.—76, Summerley St., Earlsfield, S.W. [8737

BRADBURY, 1912, 4h.p., standard model, excellent condition throughout; £18.—P. J. Evans, John Bright St., Birmingham. [X2923

BRADBURY, new January, 1913, free engine, with coachbuilt sidecar, good condition.—Dewhurst, 42, Gt. Avenham St., Preston. [8708

BRADBURY, 1913, 4h.p., 3-speed, perfect condition, takes sidecar easily; £32/10; exchange entertained.—Holland, Clarendon St., Coventry. [X2883

BRADBURY, 1912, 4h.p., 2-speed, and new cane sidecar, P. and H. lamp set, rear light, speedometer, horn, spare tyre and tube; £28.—Cass's, 5, Warren St., Euston Rd., W. 'Phone: Museum 623. [8599

BRADBURY, 1912, 4h.p., standard model, semi-T.T. bars, enclosed type Bosch mag., Dunlop tyres and belt, large black P. and H. lamp set, powerful and reliable; extended terms arranged if desired, £20 cash.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0491

Brough.

BROUGH, marvellous motor cycle, nothing else like it.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [0581

MOTOR CYCLES FOR SALE.

Matchless.

MATCHLESS, 8h.p., 1913, 2-speed, chain-drive, combination, overhauled, renovated; £60; exange.—9, West Hampstead Mews, N.W. [8671

h.p. 1914 (June) Matchless and sidecar, electric hooter, lamps, etc., perfect; any trial; insured £90; £68, offer.—1b, Oxford Rd., Kilburn, London. [8676

MATCHLESS 1914 Combination, 8B., perfect, almost as new; any test allowed; £76, with accessories, ols, and spares.—M., 59, Bexley Rd., Erith. [X2866

MATCHLESS Combination, 8h.p., chain drive, counter-shaft, perfect condition, mileage 3,800; crifice, £50.—Motor, 215, Cowley Rd., Oxford. [X2817

MATCHLESS, T.T., specially built, 7-9h.p., overhead valves, delivered new June last, actual mileage 121, Watford coubined.—31a, Broomfield Rd., Chelmsrd. [X2910

Mead.

1914 2¾h.p. Mead Flier for sale, new in July, done about 400 miles, in splendid condition; cost £40. ll take £30.—H. Whitelock, Greasley Vicarage, Greasy, Notts. [8616

Minerva.

MINERVA, 3½h.p., B. and B., new Avons, running order; £6/10.—7, Castles Yard, Folkestone. [X2778

MINERVA Lightweight, dropped frame, mag., good appearance; photo; £8/10.—20, Chaucer St., Leister. [X2830

MINERVA, 3h.p., excellent condition, B. and B., speedometer, etc.; £11.—14, Wortley Rd., East am. [8665

1h.p. Minerva, mag., B. and B., spring forks, very low, takes sidecar; £9/10.—138, Catherine St., eicester. [X2825

1h.p. Minerva, Mabon, new Dunlop belt, new tyres lamp, horn, tools, excellent order.—Patricroft otor Co., Patricroft, Manchester. [8780

MINERVA, 3½h.p., mag., Villiers free engine, complete with accessories, good condition throughut; £12/10.—63, High St., Crawley, Sussex. [8792

M.M.C.

M.M.C., 4½-5h.p., and sidecar, good condition, powerful, easy starting; bargain, £16, offer.—19, Orlando d., Clapham Common. [8630

M.M.C. 3½h.p. Lady-back Tandem, low built, new belt and back tyre, engine in good condition; £12/10, offers.—S., 32, Gallwey Rd., Wyke, Dorset. [8623

Monopole.

MONOPOLE, 3¾h.p. Precision, 3-speed and free engine, with Millford sidecar, lamps, tools; £30.—dmonds, Market St., Bedworth, Warwickshire. [X2775

Moto-Reve.

MOTO-REVE, 2½h.p. twin, mag., excellent condition; £10.—Rogers, 42, Church Rd., Hendon. [X2823

MOTO-REVE, 1910, 2½h.p. twin-cyl. lightweight, mag., spring forks, good tyres, sound condition; £10.—lee and Co., 15, Bishopsgate Av., Camomile St., Lonbo, E.C. [0597

Motosacoche.

1913 Motosacoche Motor Cycle, second-hand; price £15; cash or easy terms.—R. E. Jones (Garages), ltd., Swansea, also at Cardiff. [0548

1910 Motosacoche, 2h.p., mag., Druids, free engine, jockey pulley, fine condition, low, fast; £10.—dward, Bungalow, Caruoustie, N.B. [X2771

MOTOSACOCHE, June, 1912, 2½h.p., variable pulley, new piston, belt, and lamp, accessories; £16; approval, deposit.—Robinson, Queen St., Horncastle. [8607

New Hudson.

1914½ New Hudson, 3½h.p., 3-speed, clutch; cost £57/10 July, sell £45.—Merriman, Kilgetty, Pembrokeegelly, Pem. [8638

1913 New Hudson, 3h.p., 3 speeds, kick start, first-class condition; best over £31.—Auson, Sepulchre ate, Doncaster. [X2704

NEW Hudson, 2¼h.p., 2-stroke, just arrived; £27/5, or £7/3 down and 12 monthly payments.—Lamb's, 51, High St., Walthamstow. [8695

NEW Hudson, 1912, 3½h.p. J.A.P., 3 speeds, and clutch, excellent condition throughout; £26.—P. . Evans, John Bright St., Birmingham. [X2922

3½h.p. New Hudson, 3 speeds, 1913, conchbuilt sidecar, lamp, horn, tools, all perfect order; £35.—atchelor, Clarence St., Kingston. [X2915

1914 2-stroke New Hudson, 2-speed gear, complete with horn, ridden 50 miles only, quite new, £29.—obinson's, Green St., Cambridge. [6866

NEW HUDSON, practically new 1914 6h.p., but slightly used, cost £90 with all accessories; will ell for £70.—Colmore Depot, 31, Colmore Row, Birmingham. [X2646

3½h.p. New Hudson, 3-speed gear, 1913 model, kick start, fitted with speedometer, separate generator, amp, hooter, ready for the road; £35.—Seen at Wauhope's, 9, Shoe Lane, London. [X2840

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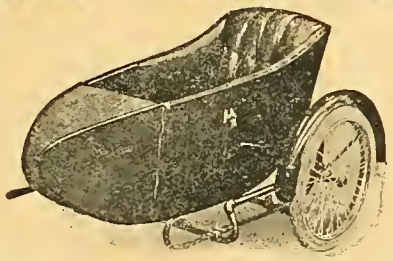

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WOLF 11 Guineas Sidecar, £8, new.

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2-3	h.p. Twin **MOTO-REVE**, magneto ignition, Druids	£11
3½	h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb.	£16
3½	h.p. **N.S.U., 2 speeds and free engine,** Bosch magneto	£17
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3½	h.p. 1909 **REX** de Luxe, **2 speeds,** handle starting	£19
3½	h.p. **TRIUMPH,** ball bearing engine, M.O.V.	£19
5	h.p. 1908 **REX** de Luxe, **2 speeds,** handle starting	£19
5	h.p. 1908 **REX, 2 speeds,** kick starter, Bosch, Amac	£19
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Also several New **FARLOW** Sidecars at big reductions.

NEW MOTOR CYCLE FRAMES.

Fully Guaranteed. 25/- each.

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3½h.p. New Hudson, 1913, and sidecar, almost new, only done 2,300 miles, 3-speed, Lucas lamp and horn, speedometer, wind screen to sidecar, in perfect condition; trial given; £50, or near offer.—Duke's Garage, Birchfield Rd., Birmingham. [X2463

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

N.S.U

1912 3h.p. Twin N.S.U., 2-speed, guaranteed perfect; £26.—Newlove, Pictures, Cefn, Ruabon. [8667

N.S.U. and Sidecar, 6h.p., twin-cyl., m.o.i.v., 2-speed; snip, £15/10.—10, Amersham Vale, New Cross. [X2891

1914 N.S.U., with 2-speed gear, done under 300 miles; £35.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1803

N.U.T.

EARLIEST deliveries of the famous N.U.T.—The West Lancashire Motor Co., Ltd., Southport. [0556

N.U.T., 2¾h.p. T.T., 1914, single geared, as new; best offer secures.—West Lancashire Motor Co., Ltd., Southport. [0573

P. and M.

P. and M., 1913; £32/10.—V., 97, Chamberlayne Rd., Kensal Rise. [8751

1914 P. and M., shop-soiled only; £60, or near offer. —Dumfries Motor Co., Ltd., Dumfries. [X2259

P. and M. and sidecar, good condition; £45.—Drever, Hazelcroft, The Grove, Church End, Finchley. [8740

1913 Phelon and Moore Combination, all tyres new since August, speedometer, 3 lamps; £40.—Ware, Foxley Hill Rd., Purley. [8622

1912 P. and M. and Montgomery sidecar, new 2½in. tyres and chains, 3 lamps, spares, splendid condition; any trial; reasonable offer considered.—81, North End, Croydon. [8612

Premier.

1911½ 3½h.p. Premier, Dunlops, competition bars, accessories; £20.—188, Wellgate, Rotherham. [X2641

PREMIER, 1914, 3½h.p., 3-speed counter-shaft, couch combination, new condition; £45.—P. J. Evans, John Bright St., Birmingham. [X2921

PREMIER, 1913, 3½h.p., 2-speed, counter-shaft model, excellent condition, very powerful; £35 cash; part exchange lightweight.—Alfred Holland, Clarendon St., Coventry. [X2884

PREMIER, 1913, 2½h.p., 3 speeds, clutch, kick-starter, footboards, Xl'all saddle, lamp, horn, speedometer, excellent condition, £29/10; without speedometer, £28.—Bunce, 3, St. Andrews' Rd., Surbiton. [8736

Puch.

1912 5-6h.p. Puch, Mabon clutch, good order; £16/10. —Sproston and Grace, 154b, Gt. Titchfield St., W. [8778

Quadrant.

3½h.p. Quadrant, watertight mag., pulls sidecar; £14. —Pike's, Peterchurch, Hereford. [X2640

4h.p. Quadrant, B. and B., Bosch, spring forks, enamelled, overhauled, pull sidecar; £10.—C. Lawner, Rancliffe Terrace, Redcross St., Leicester. [X2874

QUADRANT, 1912, 4½h.p., Armstrong 3 speeds, Sensprag carburetter, perfect, coachbuilt sidecar; bargain, £30; take lightweight part exchange.—430, Portland Rd., Smethwick. [X2779

Rene-Gillet.

TWIN Motor Cycle, Rene-Gillet, mag., B. and B. carburetter, Druid forks, good running order; £13/10. —Cohn, 55, Carnaby St., London, W. [8784

Rex.

1911 5-6h.p. Twin Rex, 2 speeds, perfect; £21.—W. Bannister, Ivory St., Leathley Rd., Hunslet, Leeds. [X2858

REX Sidette, 1914, conchbuilt, 2 speeds, perfect running order; what offers?—35, Belmont Rd., Wallington [8648

REX de Luxe, 1912, 6h.p., 2 speeds, free engine, very good condition; £25.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0593

5-6h.p. Twin Rex and Sidecar, Bosch, spring forks, good running order; £13.—C. Lawner, Rancliffe Terrace, Redcross St., Leicester. [X2873

REX Combination, 1913, 2-speed twin, 6h.p., purchased brand new this summer; any trial; accept £47.—10, Dryden St., Bradford. [X2773

3½h.p. Rex, £4/17/6; 3½h.p. Rex engine, £2; Rex frame, 20/-; old sidecar, 15/-; small cars, £5 and £20.—74, Upper Tooting Rd., S.W. [9699

REX, 1909, 5-6h.p., 2-speed Rex de luxe, handle starting, and sidecar, good order; £24/10, bargain.—Motor Exchange, Westgate, Halifax. [0390

REX, 5h.p. twin, Bosch mag., B. and B. carburetter, h.b.c., new Rom tyre on back; a bargain, £15.—The Premier Motor Co., Ltd., Aston Rd., Birmingham [0558

MOTOR CYCLES FOR SALE.

Rex.

5-6h.p. Twin Rex, good condition, 1913, B. and B., spring forks and spring saddle pillar; bargain, £8/10.—Warwick, 80, Dorset St., Leicester. [X2815

REX 6h.p. 1914 3-speed Coachbuilt Combination, chain drive, an ideal all-weather turnout, silent, reliable, powerful; £58, bargain; exchange lightweight, cash adjustment.—37, Clarendon St., Coventry. [X2885

REX Sidette, 1914, 5-6h.p., 1913 engine, 2-speed gear, coachbuilt sidecar, large P. and H. lamp set, horn, tools, and spares, splendid order, purchased new 3 months ago; bargain, £42.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0481

Rex-Jap.

REX-J.A.P., 1913, 6h.p. De Luxe model, 2 speeds, free engine, 650×65 Kempshall tyres, special coachbuilt sidecar; combination cost £90, and has not done 3 000 miles, guaranteed perfect; £52.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0432

REX-J.A.P., 1914, 8h.p., 3-speed, only done 2,000 miles, coachbuilt sidecar, Watford speedometer, Lucas lamp and horn, combination cost over £100, and has been used for demonstration only; £65.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0596

Roc.

ROC, 4h.p., 2 speeds and free, handle start, Bosch mag.; £12.—4, Great Eastern St., Nottingham. [X2821

Rover.

1914 3-speed Rover, good horn, Lucas lamp; £42, genuine bargain; approval, deposit system.—Mitson, Mahille House, Newmarket. [X2649

1913 3-speed Rover, in first-class condition; £38.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1801

ROVER, Bosch, automatic carburetter, tyres, enamel and plating in excellent condition, B100, very silent running; £14.—96, Richmond Rd., Leytonstone. [8609

ROVER, 3-speed S.A., sidecar, speedometer, lamps, etc., cost £78, all new condition; £48, worth £55, genuine.—Pope, 41, White Horse Lane, Mile End. [8750

Royal Ruby.

ROYAL Ruby 2-stroke, 1914, brand new; reduced, 23 gns., or easy payments.—155, Goldhawk Rd., Shepherd's Bush. [8669

Rudge.

1911 Rudge, 3½h.p., good condition; 20 gns.—Colmore Depot, 31, Colmore Row, Birmingham. [X2645

RUDGE, 1911¾, 3½h.p., free engine, engine perfect, tyres, belt good; £25.—Kirke, Burnham, Somerset. [X2732

1912 F.E. Rudge; £32/10.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1804

RUDGE-MULTI, 3½h.p., 1914, all latest improvements, as catalogue, shop-soiled; offers wanted.—Heybourn's Motors, Maidenhead. [8655

3½h.p. Rudge Multi, 1913, in splendid order; £35.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0569

RUDGE Multi, 1914, T.T. Isle of Man model, brand new, all latest improvements; £52 cash, or extended terms arranged.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0480

RUDGE Multi 5-6h.p. Combination, coachbuilt sidecar, new last November, splendid condition, Lucas lamp, horn, speedometer; £55, or near offer.—Stradwick, 34, Ashvale Rd., Tooting. [8760

RUDGE Multi, 1913, 5-6h.p., multi-speed gear and free engine, Cowey speedometer, lamp, horn, coachbuilt sidecar, with wind screen, outfit in new condition throughout; £42.—Peacock, 274, High Rd., Balham. [8702

LATE 1912 Rudge, 8 speeds, free engine, Watford, guinea horn, 5 gn. lamp set, and wicker sidecar; £35, or would exchange for higher power; also Kerry clutch, fit Rudge, £1.—Gurney, West St., Maidenhead. [8734

RUDGE Multi, 3½h.p., 1913, cane sidecar, speedometer, lamps, and spares; £45 the lot; would entertain exchange 1914 2-seater; appointment.—16, Sibella Rd., Larkhall Rise, Clapham. 'Phone: Brixton 671. [8621

Scott.

1912-1913 Scott, perfect condition; trial with pleasure; £32 cash.—West End Garage, Blackburn. [0615

1914 Scott, in first-rate condition, engine overhauled by makers last week; £50.—Goodman, Finstall, Bromsgrove. [X2774

1914 Scott, Binks carburetter, F.R.S. lamp, horn, run 300 miles; owner enlisted; £50.—Smith, Woodworth, Keighley. [X2760

SCOTT, 1912, all accessories, with coachbuilt sidecar, £36, without £34.—Particulars and photo, Howie, Gilingate, Kendal. [X2273

1912 Scott, in first-class condition; £35.—The Uxbridge Motor Co., Ltd., 101, High St., Uxbridge. 'Phone: 184 Uxbridge. [X1802

SCOTT, 1912, 2 speeds, kick-starter, condition and appearance excellent, accessories; £23. — 15, Hamilton Rd., Ealing, W. [8668

Shop-Soiled 1914 Light Cars, Etc.

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LAGONDA, 11 h.p., 4-cyl., hood, and screen	£145 0
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G.W.K. 8 h.p. Light Car, 4-speed and reverse	£150 0
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SUN-VILLIERS, 3½ h.p., 2-speed, F.E.	£42 0
PERFECTION, BRAMBLE, and GLORIA SIDECARS.	

BARGAINS IN BRAND NEW 1913 REXES.

Fully guaranteed by Makers.	Makers' Price.	Our Price.
6 h.p. 2-speed twin	£62 10	£53 2 6
1912 new 4 h.p. 2-speed chain drive, handle starting	£61 5	£49 10 0
1912 new 6 h.p. 2-speed twin	£62 10	£48 10 0

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1914 **SUN-VILLIERS,** 2-stroke (new)	£26 15
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1912 2¾ h.p. 3-speed **NEW HUDSON**	£29 15
1912 2¾ h.p. 2-speed F.E. **F.N.**	£29 10
1911 2¾ h.p. 2-speed F.E. **A.J.S.**	£22 10
ARIEL, 2½ h.p., magneto	£15 10
MOTOSACOCHE, magneto, Druids	£13 10
BIRCH, 2½ h.p., F.E., mag., wants tuning	£8 15

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1912 5-seater **FORD,** well equipped	£70 0
G.W.K., 1914, in grand condition	£116 0
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BEDELIA, 8-10 h.p., twin, very speedy	£39 10
1913 3½ h.p. 2-speed **L.M.C.,** fine machine	£38 10
1913 3½ h.p. 3-speed **TRIUMPH**	£39 10
1913 6 h.p. **REX** de Luxe, and Sidecar	£44 10
1913 7-9 h.p. 2-speed F.E. **INDIAN**	£52 10
1913 4¼ h.p. 2-speed **LINCOLN-ELK** and Sc.	£39 10
1912 New 6 h.p. **REX** de Luxe, reduced to	£45 10
1912 3½ h.p. (Bowden 2-speed) **BRADBURY**	£29 10
1912 2¾ h.p. F.E. **REX,** almost as new	£24 10
1912 3½ h.p. 2-speed F.E. **ALLDAYS**	£29 10
1911 2-speed **SCOTT,** late model	£29 10
1912 3½ h.p. 3-speed **BRADBURY** and S'car	£33 10
P. & M., 3½ h.p., 2-speed, grand condition	£32 10
1911 3½ h.p. 2-speed **HUMBER**	£28 10
1911 3½ h.p. 2-speed **HUMBER** and Sidecar	£29 15
1911 7-9 h.p. 2-speed **REX** and Sidecar	£29 10
1911 5-6 h.p. 2-speed **REX** de Luxe	£27 10
1911 3½ h.p. 2-speed **REX** 84½×89	£27 10
1911 3½ h.p. Tourist **REX,** spring forks	£19 10
1911 3½ h.p. **LINCOLN-ELK**	£21 10
1911 T.T. **TRIUMPH,** Bramptom gear	£29 10
1910 5-6 h.p. 2-speed **REX** de Luxe	£26 10
1910-11 5-6 h.p. 2-speed Twin **REX**	£25 10
1910 **V.S.** 7-9 2-speed and sidecar	£29 10
V.S., 6 h.p., P. & M. gear, and Sidecar	£27 10
CHATER-LEA-J.A.P., 8 h.p., 3-speed, chain drive, Turner coach-built Sidecar	£47 10
PEUGEOT, 5-6 h.p. 3-speed Twin	£29 10
MINERVA, 3½ h.p. magneto	£15 10
N.S.U., 3 h.p., 2-speed, as new	£27 10
N.S.U., 3½ h.p., 2-speed, spring forks	£19 10
N.S.U., 3 h.p., 2-speed, spring forks	£16 10
EXCELSIOR, 3½ h.p., 3-speed, free engine	£24 10
REX, 5½ h.p., 2-speed, magneto	£24 10
REX, 1909, twin de luxe, and Sidecar	£24 10
REX, 3½ h.p., 1908, Roc clutch	£19 10
REX, 5½ h.p., twin, magneto, and Sidecar	£19 10
REX, 5½ h.p., magneto, twin, handle starting	£17 10
REX, 5½ h.p., magneto, 1908 model	£19 10
REX, 5½ h.p., magneto, twin, and Sidecar	£22 10
3½ h.p. **VINDEC,** magneto ignition	£15 10
JAMES, 1910, 3½ h.p., magneto	£12 10
TWIN KERRY, 6 h.p., and sidecar	£19 19
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EASY PAYMENTS AND EXCHANGES QUOTED.

PERFECTION Sidecars ..... from £5 5

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WESTGATE, HALIFAX.

MOTOR CYCLES FOR SALE.

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SCOTT, 1914 (August), rare bargain, £49/10, or exchange T.T. Douglas and cash.—Slatting, Danescroft, St. Agnes Rd., Moseley, Birmingham. [X2781

1913 Scott, excellent condition throughout, speedometer, Lucas lamp and generator, horn, and tools, new Palmer tyres; absolutely dirt cheap, £32.—Kiog, Stapleford, Cambs. [X2905

1912 Scott, recently overhauled, new frame fitted, in splendid order; worth £35, will take £28 quick sale; also nearly new coachbuilt sidecar for same, £6/10.—Blunt, Bedford St., Coventry. [X2429

SCOTT, 1913 (late), 3½h.p., 2-stroke, kick start, coach built sidecar, lamps, speedometer, spare tubes, all accessories; no reasonable offer refused; owner going to front.—44, Star Rd., W. Keosington. [8783

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SUN-VILLIERS, 1914, 2-stroke and 3½h.p. 2-speed models, shop-soiled; offers wanted.—Motor Exchange, Westgate, Halifax. [0445

SUN-VILLIERS, 1914, 2½h.p., 2-stroke, lamp, generator, horn, etc.; £20.—Cass's, 5, Warren St., Euston Rd., W. 'Phone: Museum 623. [8803

Sunbeam.

2¾h.p. Sunbeam, shop-soiled only; 45 gns.—Watson, Tuxford, Notts. [8618

1914 3½h.p. Sunbeam; cost over £70; bargain £54.—Binks, St. Benedict's, Lincoln. [X2703

Swift.

SWIFT, 1913, 8h.p., 3-speeds, hood, screen, and all accessories; exceptional value, £85.—P. J. Evans, John Bright St., Birmingham. [X2926

Triumph.

1914 Triumph, clutch, tuned Triumph Co.; 41 gns.—26, Morley Rd., Lewisham. [X2777

3½h.p. Triumph, late model, mag., splendid condition; £25.—Palmer's Garage, Tooting. [8732

TRIUMPH, 1910¼, just overhauled, grand climber, tools, spares; £15.—82, Walton, Oxford. [8604

3½h.p. 1912 Triumph, F.E.; £30.—V. O. Clarke, Dawson Place, Mansions, Pembridge Sq., W. [8711

TRIUMPH, 1911, clutch model, in splendid condition; £27, offers.—Tomlin, Rossdale, Maidstone. [X2744

TRIUMPH, 1909, good machine, speedometer; £18.—V., 97, Chamberlayne Rd., Kensal Rise. [8752

3½h.p. Triumph, free engine, clutch model; a bargain at £22/10.—Wauchope's, 9, Shoe Lane, London. [X2844

TRIUMPH, 1910, standard model, just thoroughly overhauled, lamp, horn, etc.; £20.—The Morris Garages, Oxford. [8745

1913 Triumph, 3-speed, clutch, Cowey £4/4 speedometer, fine condition; absolute gift, £34.—Else, Derwent Mill, Matlock. [X2805

TRIUMPH, 1911, splendid machine, excellent condition; £24/10; head lamp, tools.—Stevens, 160, London Rd., Camberley. [8662

1910 Triumph, free engine model, new Kempshalls, Millford sidecar, just been renovated; £25.—15, Northall St., Stockwell. [8786

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1912 Triumph, free engine model, in excellent condition; £28, cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0546

1911¼ Triumph, T.T., perfect condition, 55 m.p.h., guaranteed, new tyre, lamps, tools, spares; any trial; £30.—Buuk, c/o White's, Camberley. [X2886

TRIUMPH, late 1912, free engine, new Palmer cord Amac, belt, with horn, lamp, excellent condition; £36, or near offer.—Hambly, Raafurly, Wembley. [8645

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1914 Triumph, 4h.p., 3-speed, only ridden 800 miles, Lucas lamp, horn; approval, deposit system; £48.—Fred Hammond, St. Phillips Rd., Newmarket. [X2882

TRIUMPH, 1914, 4h.p., 3-speed, with cane sidecar, guaranteed in good order and condition throughout, all accessories; £45.—The Morris Garages, Oxford. [8744

3½h.p. Triumph, 1912, free engine, in splendid condition, with Lucas lamp and horn; £25.—Apply, Major Bairnsfather, Bishopton, Stratford-on-Avon. [X2759

TRIUMPH, 1914, 4h.p., 3-speed model, in new condition, lamp, horn, generator, tools and spares; £45, no offers.—Reply, Triumph, 466, Fore St., Lr. Edmonton. [8606

GREAT Bargain.—1914 T.T. Triumph motor cycle, 3 gear, as new, very little used, £50; also spare tyre, 20/-.—Apply, Kaines-Thomas, Ormesby, Norfolk. [8790

TRIUMPH, 1911, 3½h.p., free engine, 26×2¼ Michelin and Clincher tyres, horn; £20.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0595

TRIUMPH, 1908, N.S.U. 2-speed gear, in good order; £20.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

TRIUMPH, 1912, 3½h.p., free engine model, fitted with 1914 silencer, overhauled, and in perfect condition; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0609

1914 Triumph, 3-speed, Bramble sidecar, lamps, speedometer, horn, spare belts, etc., just overhauled; any trial; £60, cost £82.—60, Dangan Rd., Wanstead. [X2700

TRIUMPH, 1909, and cane canoe sidecar, excellent order throughout, overhauled completely this summer; sacrifice.—96, Ellesmere Rd., Lower Walton, Warrington. [X2757

TRIUMPH, 1914, 4h.p., type C, 3-speed Roadster model, used 600 miles only, guaranteed perfect order, lamp, horn, speedometer; £49.—Tollady, Hemingford, Bicester. [X2871

TRIUMPH, free engine, 1910, splendid condition, only done 5,000 miles; owner having car; new tyres back and front, F.R.S. lamp; any trial; £24.—Preen, Longbourn, Kidderminster. [8705

1912 Triumph, Armstrong 3-speed gear, lamps, horn, Cowey speedometer, spares; £33/10; or with Jimson coachbuilt sidecar, £40.—Apply, Moseley and Son, 70, St. Ann's Rd., Harrow. [X2697

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TRIUMPH, 1914, 4h.p., 3 speeds and clutch, delivered 10 days ago, used on road once, guaranteed perfect; £49.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0551

T.T. Triumph, late 1913, used only 600 miles, free engine, Philipson pulley, new Palmer cord, and Wall saddle, back rest, Leamington pannier seat; quick sale £38.—Apply, 116, Richmond Rd., Kingston-on-Thames. [6674

TRIUMPH, 1913, 3½h.p., T.T. roadster, 3-speed, free engine, new tyres, P.M.C. 15 gn. coachbuilt sidecar; combination cost £75 last year, and is guaranteed perfect; a bargain, £45.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0592

TRIUMPH, 1912, free engine, Philipson pulley gear, Bowden controls, semi T.T. bars, fishtail exhaust, all accessories, electric horn, speedometer, tube and tube case, grand condition; only £33.—R. Rowell, 57, Redcliffe Rd., South Kensington. [X2731

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TRIUMPH, 1913, 3½h.p., 3-speed, clutch, £17/17 Millford wicker sidecar, enclosed lamps, speedometer, horn, tools, X'all bucket seat, £10 worth spares, insurance policy, guaranteed; £45; any trial.—Charles, Meadow View, London Colney, St. Albans. [8462

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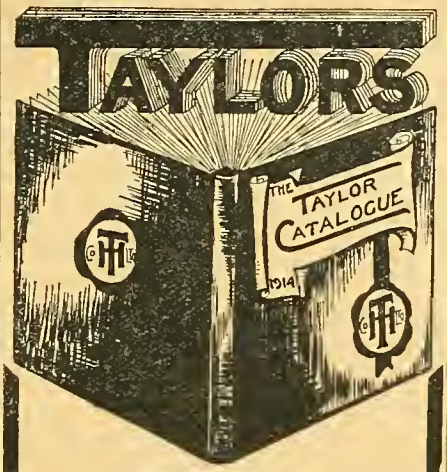

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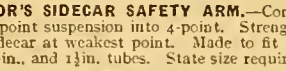

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8h.p. Williamson M.C. and sidecar, grey in colour, 1913, only ran 2,600 miles; cost £111; complete with accessories, 2 lamps, and generators, bulb and electric horn, Stewart speedometer, engine overhauled by maker; owner gone to the front; no reasonable offer will be refused.—Apply, Colonel Perkins, R.G.A., Royal Engineers Office, Gravesend. [8617

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ZENITH Combination, 1912, 6h.p.; bargain, £38/10; must sell, going abroad.—63, Bayswater Row, Leeds. [X2851

ZENITH-GRADUA, 1913, 3½h.p., splendid condition, overhauled, many accessories; £30.—82, Walton, Oxford. [8603

ZENITH, 1913, 3½h.p., Gradua gear, sound machine, no accessories; lowest cash price £24.—Layton's, Bicester, Oxon. [X2872

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Miscellaneous

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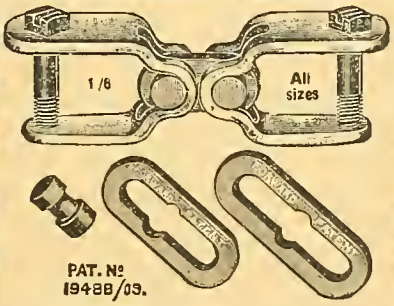

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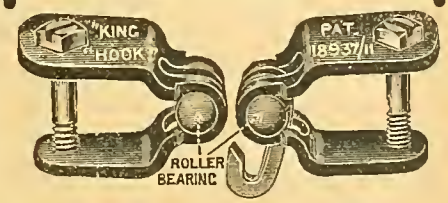

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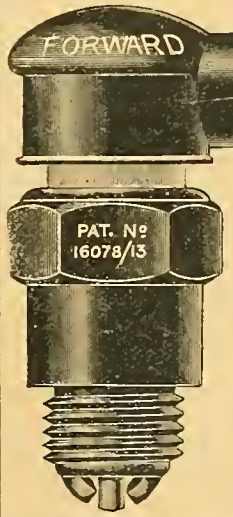

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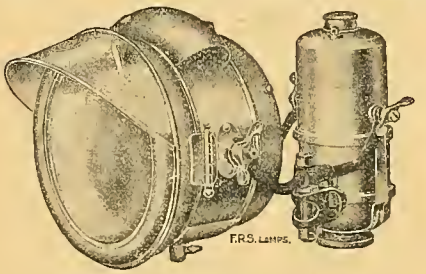

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GENT'S 3-speed Cycle, new this year; wanted, 4-cyl. F.N. mag. engine, complete, or offers.—F. Greenfield, 27, Coolinge Rd., Folkestone. [8698

1909 Triumph and sidecar, perfect; £24, or exchange machine with cash for 3-speed, or higher power.—21, Chester Rd., Gillingham, Kent. [8759

WILLIAMSON and Rex-Jap 1914 Combinations, also few 1914 light cars; liberal exchanges quoted.—Motor Exchange, Westgate, Halifax. [0616

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EXCHANGE Cycle Car, 1913¾ Precision, 3 speeds, for combination, or sell 40 gns.—Dodson, 50, Perkins Rd., Newbury Park, Ilford, Essex. [X2648

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1913 15.9h.p. R.C.H. Car 2-seat., dickey, full equipment, new condition, guaranteed, £100, for combination and cash.—Walton's, Dawson Sq., Burnley. [X2898

EXCHANGE 4h.p. Bradbury and Sidecar, 2-speed, free, kick start, for 2¾h.p. Douglas, model R or W; sell £35.—Manor House, Lees, near Oldham. [X2639

EXCHANGE 3½h.p. Magneto Motor Cycle, spring forks, new piston, etc., for higher power, sell £14.—James, Highfields, Northwingfield, nr. Chesterfield. [X2807

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QUARTER-PLATE Reflex Camera, focal plane shutter, exposures time to 1-1300th sec., for low, light coachbuilt sidecar.—Johnson, 121, Nottingham Rd., Loughborough. [8761

EXCHANGE nearly new Humber combination, 3½h.p., free engine, 2-speed, handle starting, for higher power; must be late model, or will sell.—194, Philip Lane, Tottenham. [8724

TRIUMPH, 1913, clutch model, in excellent condition; will exchange with cash balance, for Baby Triumph, or 1914 3½h.p. Douglas.—Pyefinch, 212, Brownhill Rd., Catford, S.E. [8714

1915 Enfield 6h.p. Combination, speedometer, all necessories; cost over £90 late October; sell or exchange for 2-seater car, must be good hill-climber.—Captain Mott, Jellalabad Barracks, Tidworth. [X2789

EXCHANGE good lady's and gent's cycles, both good condition, new gramophone and records, new massive 6-pillar marble clock, for magneto motor cycle, any make.—18, Magdala St., Smithdown Rd., Liverpool. [X2845

EXCHANGE magnificent upright iron grand piano, full trichord check action, by eminent maker, only purchased recently, value £45, guaranteed perfect, for reliable motor cycle of equal value.—Apply, 92, Eccleshall Rd., Sheffield. [8664

REPAIRERS.

MORGAN and Maxwell, Streatham, for cheap, quick, good repairs. [X2794

BRADBURY Spares and Repairs a speciality.—Bright and Hayles, Church St., Camberwell. [8681

VALVES.—Nickel steel valves, any size, 3/6; per pair 6/-.—C. R. Foster, Kirkstall Rd., Leeds. [0253

ALUMINIUM Crank Cases, gear boxes, etc., repaired neatly and promptly without distortion.

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EVERY Repair is guaranteed; every repair is machined ready to fit; every repair has immediate attention; and everybody sends to Weldings, Ltd., Holt St., Birmingham. [8031

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CRACKED Cylinders, castings, forgings, etc., successfully repaired by Lea's metallurgical process.—Lea, Engineers, Runcorn. [5197

The RIGHT DESIGN

"IXION,"

in "The Motor Cycle," Oct. 22, says:

"I find that some manufacturers fail to grasp the special problem presented by the modern plate fastener in conjunction with a ¾in. belt on a lightweight machine. Supposing the width of the end plate be half an inch, its edges can only clear the pulley by ⅛in. on either side at the very best. If the frame be even a trifle out of truth, or apt to whip, if the rear belt rim be mounted a shade out of truth or become strained, if the fastener be carelessly fitted on the skew, if the back wheel be not adjusted absolutely plumb in the rear forks, the edges of the end plate are bound to foul the pulley flanges. . . . The unfortunate owners suffer from belt troubles, and their pulleys get damaged."

Now LOOK at this illustration of the famous

STANLEY

BELT FASTENER.

It will be seen that the lower plates are cut away in order to avoid the trouble referred to, whilst the maximum of strength is secured by the design—the result of long experience.

9d.—OF ALL AGENTS.

STANLEY MOTOR BELT AND FASTENER CO.,
Inventors of the Original Hook Fastener
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NOTE THIS **WE GUARANTEE** ALL PETROL TANKS MADE BY US OF EVERY DESCRIPTION

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RELIANCE WORKS, GREEN STREET, BIRMINGHAM
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Singer, dynamo £185
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First Cheque secures.

All Models DOUGLAS Machines in stock for immediate delivery.

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1912 6 h.p. **ENFIELD** and cane Sidecar .. £42
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1913 Water-cooled **ZENITH-GREEN** & S'car £45
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1912 **ALLDAYS**, 3½ h.p., F.E. £23
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1913 **MATCHLESS**, 6 h.p., twin belt, and coach-built Sidecar £50
1914 Model B **DOUGLAS**, 3½ h.p. £50
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A. P. REY,

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WELDINGS, Ltd., Dept. M.C., 235, Gt. Ancoats St., Manchester.—Oxy-acetylene welding experts.

BROKEN Flanges, valve seats, pistons, crank cases, water jackets, welded and machined complete.

SEND Your Old Engines or complete machine for overhauling, re-bushing, cylinders re-ground, new pistons, rings, and gudgeon pins fitted.—Weldings, Ltd., Dept. M.C., Manchester. [6234

ENGINES Re-bushed, 17/6; pistons, valves, frames modernised, tanks; adjustable pulleys; list free.—Lee Bros., 9a, Ada Rd., Camberwell. [8775

WELDING.—All metals, cylinders, and crank cases. We have the plant, experience, and method for every job. Quick delivery.—Below.

CYLINDERS Re-ground, new pistons fitted, complete with rings, etc.; 22/6.—Oxy-Acetylene Welding, 349, Lillie Rd., Fulham. 'Phone: Hammersmith 1617. [6430

WELDING, broken cylinders, flanges, pistons, crank cases, repaired and machined. Scored cylinders filled in and re-ground to existing pistons.

CYLINDERS Re-ground, new pistons fitted complete, overhauling, re-bushing.—West London Welding Co., Essex Place, Chiswick. Tel.: 536. [7103

CCCCCCCCC Cylinders Re-bored, new pistons fitted, bear 13 stone on compression.—Gradior Machine Co., Compression Specialists, Stafford. Est. 21 years. [7314

MINERVA Spares, cylinders ground, pistons fitted, re-bushing, parts duplicated. — Ellenborough Motor Works, Ellenborough Rd., Wood Green, N. [8394

PISTONS, fitted with top and bottom step-cut rings, hardened steel gudgeon pin, and your cylinder re-bored and ground, 24/-.—C. R. Foster, Kirkstall Rd., Leeds. [0310

HIGHEST Efficiency is secured by our method of cylinder re-grinding, price with new piston, gudgeon, and rings, from 15/-. — Motor Repair Co., Stretford, Manchester. [X2806

UNBREAKABLE Chrome-nickel Valves. — Numerous testimonials prove superiority. Guaranteed one year. Any make, 3/6 each, 6/- pair, free per return.—Capacity Tool Co., Broseley, Shropshire. [X0693

PATRICROFT Motor Co. for all classes of motor repairs, old frames modernised, cylinders re-ground, new pistons fitted, re-bushing, etc.—Patricroft Motor Co., Patricroft, Manchester. [8782

COMPRESSION.—Cylinders re-bored and ground, new pistons, rings, and gudgeons, complete, 16/-; overhauling, re-bushing, efficiency guaranteed.—Reliance Motor Engineering Co., Spon Lane, Smethwick, Birmingham. [7282

F.N. Owners Note.—W. Earl, late foreman at the Highbury repair works, is at your disposal for all repairs. Our special engineering plant and the personal attention of a recognised F.N. expert will ensure best results at minimum expense.—Below.

F.N. Spares; special announcement.—We have a large stock of new, also sound second-hand, parts. Enquiries solicited.—Below.

3-SPEED Gears for any model 4-cyl. F.N. Special offer during war period only. We will make liberal allowances for older pattern gears in part exchange for our latest 3 or 2-speed gears. Particulars and quotations gladly on application.—Earl's Engineering Works, 5, Heath St., Hampstead. 'Phone: Hampstead 3287. [X2783

LOWEST Prices Quoted for any repairs or complete overhauls to motor cycles, cycle cars, or cars, or work done on the premises and fully guaranteed; cylinders cleaned by oxygen process, 2/6 single, 4/6 twin.—Maudes, 136, Gt. Portland St., W. [7348

NEARLY New 700×85 Stepney Wheel, cover, and tube, 50/-, cost double; nearly new 26×2⅜ Palmer cord, 20/-; brand new 51/- Rom combination, 26×2½, 35/-; guaranteed Cowey speedometer, with trip and maximum hand, 45/-.—Brown, Gloucester Rd., Chesterfield. [X2761

MORMAN and Bliss, London Rd., Hounslow.—Reduced prices during war. C.I. pistons, rings, and gudgeons, from 9/6; bushes, 2/-; valves, 3/-. Simplex steel pistons, hollow connecting rods, supplied to order. Special silencers, aluminium ends, steel barrel, and extension pipe, smart, efficient; twins 18/6, singles 14/6. Illustrated list free. [7541

WAR, because of it we need work. Our need is your opportunity. To keep our factory going we shall sell at virtual cost. Cylinder re-bored, fitted complete new piston, rings, and gudgeon, 15/6; re-bushing equally cheap; frames altered and repaired, welding successfully executed, and every description of motor work undertaken. Each job finished in Tennant's irreproachable style, and bears full guarantee; thorough satisfaction assured. Present quotations hold good only if work is sent immediately. Our standard rates will be charged as soon as normal times return.—Tennant Engineering Co., Pershore St., Birmingham. Official repairers A.C.U. [X2848

MISCELLANEOUS.

85mm. J.A.P. Cylinder and valves; 12/6, bargain.—53, Brownhill Rd., Catford. [8713

XL'ALL Saddle, unused Amac, B. and B. carburette; cheap.—The Cottage, Waddon Rd., Croydon. [8813

COWEY Speedometer, 29/-; Lucas lamp set, complete, 20/-.—Blencathra, Highfield Rd., Walton-on-Thames. [X2855

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THE NEW MASCOT FLAG MATERIAL

WEARING QUALITY UNSURPASSED.

Superior to Silk—which frays quickly. "SCILKA" Flags are printed with fast dyes and can be washed when required. Write for List No. N 14.

P. & P. "TRIPLE" Flag Mascots.

Can be supplied with two to five flags on one clip.

Cheap Handlebar Fittings

	Scilka	S
2	1/-	1
3	1/3	1
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5	2/-	2

Best Quality Fittings. Handle-bar No. Plate C

	Scilka	S
2	1/3	1
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4	2/-	2
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Post 1d.

P. & P. Combined Belt Punch and Cutter.

Fully Guaranteed. British Made.

To ensure having the Genuine article, RELIABILITY and STRENGTH, refuse any Tool not having the registered improvements.

None Genuine unless marked P. & P.

As used by numerous Despatch Riders engaged in the present WAR.

No tool-kit is complete without it.
Size 1 takes 1 to 1¼in. Belts.
Size 2 takes up to ⅞in. Belts.

High-class finish and workmanship.

Price 4/- each.

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P. & P. ENGINEERING CO., LTD., Manufacturers, ILFORD.

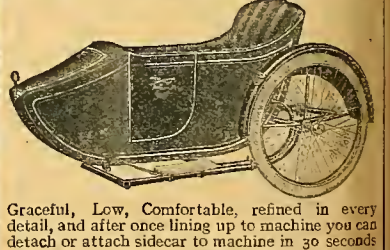
1915 MODEL.

WE WANT YOU to FIT a

SUPREME Sidecar

TO

YOUR NEW MOTOR BICYCLE.



Graceful, Low, Comfortable, refined in every detail, and after once lining up to machine you can detach or attach sidecar to machine in 30 seconds with the Supreme Lightning Connections.

Models from £9 to £14

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An index to advertisements will be found on the page facing the back cover.

Design in 1915.

ON the eve of the Show it is our custom to review features of motor cycle design which mark progress in each succeeding year, and this outline is largely based on the information provided by our annual Buyers' Guide. The Olympia Show having been abandoned this year, the Guide fills an important breach, for not only will buyers find it convenient for reference purposes when deciding upon their new mounts, but the machine specifications are of considerable value in reflecting the trend of modern design and showing how once popular fancies have gradually given way to improved ideas. All this is for the general good in the perfection of the motor cycle, which is, after all, what everyone has in view The Guide throws a searchlight on the path of the manufacturer; he is warned of dark paths by the disappearance of features once the vogue, and knows that to revert to such features before the weak points have been eliminated will be courting trouble.

If we gauge popularity by predominance in numbers, the leading features of design for 1915 are single-cylinder four-stroke engines, all belt transmission, countershaft gears, and as regards lubrication the simple hand pump or drip feed governed by the rider. These facts will cause no astonishment, as they represent no change for the last few years in numerical strength if we except the item countershaft gears. But studied more deeply the Guide shows that in 1915 some of the features enumerated will be closely pressed for supremacy, and next year's Guide will most probably record changes. For instance, how many realised that, so far as four-stroke machines are concerned, the multi-cylinder engine had increased in popularity among manufacturers to the extent of being numerically but little weaker than what we have become accustomed to regard as the all-powerful single?

There are 277 machines included in the Guide, and of these 117 are four-stroke single-cylinder machines, 95 multi-cylinders, and 65 two-stroke mounts. This rapid increase in the number of twins is the more significant when coupled with the knowledge that a number of firms now manufacture twins only—firms, too, who know what a good single-cylinder machine is like.

Those who have predicted the demise of the belt for so many years past will learn with surprise that it is still an easy first, and, in conjunction with the combination drive, totals 207. The figures are: all-belt drive 135, chain-cum-belt 72, chain 64, and shaft 6. Mechanical lubrication, we are glad to observe, shows an increase to twenty-six machines, whilst three-speed geared mounts have jumped to 121. No less than 151, that is 54.5%, of standard pattern motor cycles embody countershaft gears in their specification

The lightweight, especially the two-stroke lightweight, is still gaining in popularity, and next year will see the use of this handy mount still further extended, as it is by far the cheapest form of motoring extant—and this fact alone is a powerful attraction. The lightweight, too, is doing good work as a stepping stone to higher powered mounts.

The automatic carburetter makes very slow progress, but the benefits to be derived from the use of a pilot jet are being appreciated. We note with pleasure the tendency to enclose kick-starter mechanism, it needs but a single long run in bad weather to render exposed gear quadrants very stiff in operation.

It is impossible to dwell upon detail design in this brief review of current tendencies, but from our opportunities of inspecting next year's models, we have formed the opinion that decided progress has been made, in particular concerning increased engine bearing surfaces, countershaft gears, clutches having greatly increased contact surfaces, frame design, and efficiency of two-stroke engines.

AN OPEN LETTER TO THE TRADE.

By B. H. DAVIES.

GENTLEMEN,—Your customers are once more grateful to you for another delightful season, during which the weather has enabled us to make the fullest use of your excellent machines. We are proud to realise that British motor cycles are still the best in the world. We desire to express our sympathy with you in the anxieties and inconveniences which the war has caused, and our congratulations on the fact that you have secured large contracts from all the belligerent nations except Germany and Austria.

Our gratitude for the special favours of the past season centres round three special points—you have brought transmission to such a perfection that the veriest duffer can now climb the worst freak hills with ease and confidence; you have developed the cheap lightweight to an astonishing pitch of efficiency; and you have made marked strides in the reliability and convenience of your minor fittings.

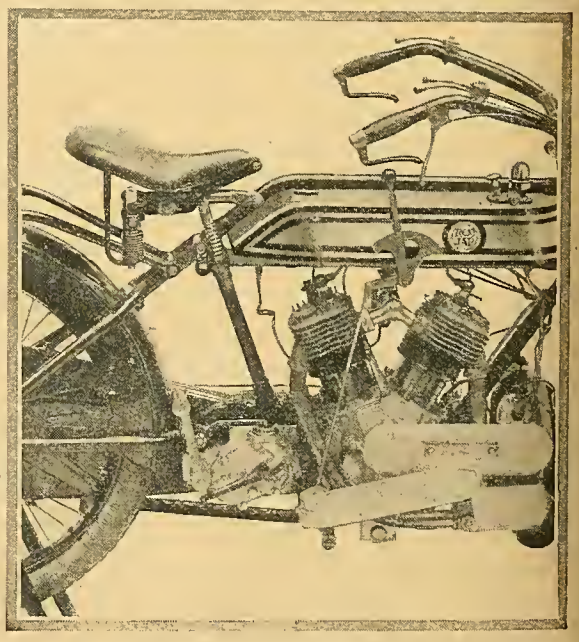
We hear with interest that you are busy planning still better transmissions for 1915, including quite a number of four-speed gears; that you are concentrating on improved lighting systems; that you are extending the "duct" system of oiling, by which a direct supply of oil is assured for the hardest-worked details in the engine; and that your valve gears, on an average, will show very genuine advances.

An Ounce of Practice—

With due deference, we humbly suggest that you are apt to regard the design of a motor cycle as a pure engineering job, and that most of you would do well to employ a practical rider, neither too young nor too dashing, as a check on your brilliant engineers. For you turn glassy and callous eyes in two directions where most of your customers ardently long for determined progress. Your engineers care little about springing; but your clients have sensitive vertebræ and long to see your machines equipped with a light, neat, and efficient system of rear springing which will do for the back wheel what most of your spring forks have already done for the front. Such an innovation would influence more trade than 100 miles in the hour at Brooklands. Further, you obstinately ignore the cleaning difficulty. When a dirty machine comes into your running sheds, the manager sends a telephone call into another department, and four girls, armed with paraffin pots, bristle brushes, selvyts, and metal polish, enter, assault the travel-stained jigger, and leave it resplendent in twenty minutes or so. Your customer has to tackle this job for himself, and as he gouges congealed filth out of the chinks and crannies of your intricate advertising crank cases, and dives in and out of the numerous plated interstices of the rear wheel or the counter-shaft bracket, his curses of motor cycle engineers are deep and loud. Is there any real reason why the whole of the lower half of your engines, up to, say, the foot of the valve guides, should not be as smooth and polishable as fine marble? What genuine excuse is there for embossed crank case letters, protruding valve lifter details, naked tappets, and valve springs? Nowadays the average counter-shaft gear box, with its kick-starter racks and so forth, is beginning to provide another harbourage for indescribable accumulations of tough and glutinous dirt. Your back wheels have always been the limit in this respect, and the three-speed hub has trebled the number of plated dirt traps which always mustered there. Have you ever pictured the ideal of a stove enamelled artillery wheel, of the drop-out type, minus drawbolts, gear rods, chain cases, and the like? We loathe cleaning our machines; we want a motor cycle which can be drenched clean by a powerful hose in five minutes, and dried bright in another five; and you consistently ignore our pathetic appeal.

Bearing Wear.

You may further have noticed that you still get quite as many engines as ever returned to the factory for rebushing within their first season. You know what men would say if a car required new big end brasses inside three months. As you pile up engine efficiency you must either improve your lubrication systems or increase the size of your bearings. In this dilemma, few of you have done more than attempt to lead a little oil by gravity direct to the more heavily stressed bearings; and some of you go so far as to admit that there are better lubrication systems on the market than you employ, but that they cost too much. We would ask



Colonial model of the 8 h.p. Rex-Jap, showing new gear box, kick-starter pedal, and gate change lever. This mount has 28in. × 3in. tyres.

An Open Letter to the Trade.—

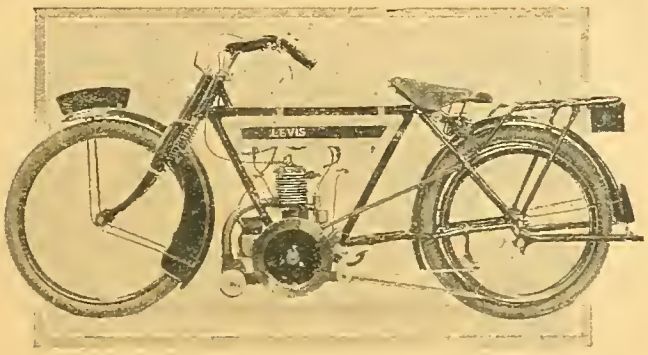
whether it is not true that a mechanical oiling system need not cost more than the crude systems of 1900? The situation is that engine efficiency is advancing by leaps and bounds; bearing design and dimensions are almost stationary; and lubrication design is all but stagnant. If you realise this, we are sure you will act.

Last season has seen the general adoption of the two-step drive, and a growing tendency to transfer the gears to the centre of the machine. Both tendencies are beyond question sound. But in the process the drive has lost something of its old sweetness, and this ground should be regained as rapidly as possible, alike in the interests of rider's comfort and engine durability. Please attend to a few members who fit appallingly ugly or troublesome chain cases. Some of your clients think that the chain-cum-belt drive is preferable on all grounds—reliability, simplicity, smoothness, and appearance. Those of you who prefer the two-chain drive on technical grounds must be careful not to handicap it by practical carelessness or stupidities.

Your old love of plating continues—whether there is a drop of blood from the gorgeous East in your constitutions, or whether you mostly hold shares in plating works, we cannot guess; but we tell you frankly that we hate the sight of a six month old machine, all dropping and dull after one night in a cold stable; and the less nickel there is about our 1915 mounts, the better we shall all be pleased. We admit there is a phase in the evolution of a motor cyclist at which he spends hours with selvyt and metal polish; but it is a brief and pitiable phase—please ignore it.

Sidecars and Cycle Cars.

In passenger machines we notice that you continue to lavish the wealth of your ability on the sidecar outfit de luxe, and regard it as a selling proposition at prices up to £120. You are doubtless justified in supplying a real market, but you cannot believe that a vehicle which exposes the driver so ruthlessly, which affords him so little insulation, and which costs as much as a good second-hand light car, has a tremendous future Cannot you do something with cycle cars inside this price limit? If you cannot, this department of your business will soon be hard hit by the second-hand light cars. We hinted there was too much of the engineer about your bicycles; may we now hint that the average heavy sidecar chassis needs a little engineer: serious fractures are too common in real hard work. Most of us believe that the moderate-powered sidecar outfit will be the one of the future, for it is economical, will go anywhere, and bring you home again in comfort, but we would like to see more attention paid to its design—that is the whole vehicle designed from the first with the knowledge that it is going to be a sidecar machine.



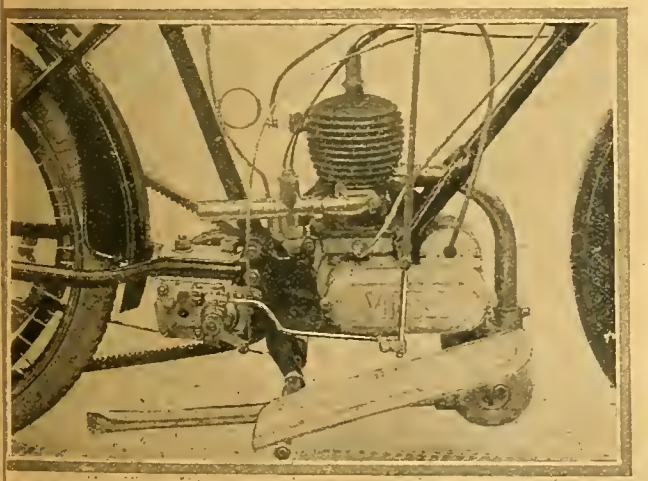
Flywheel side of the direct drive 1915 model 2¼ h.p. Levis.

In the lightweight class, some of your leaders appear to ignore the main opportunity. We have tried your £40 130 lb. lightweights, and very charming they are. We have also tried the £25-£30 100 lb. machines made by more daring concerns, and we see clearly that these need very little improvement to rank as equal to your best successes in other fields. Lightness is a great factor, but cheapness will sell two machines for every one that lightness can sell.

Electric Lighting.

We suppose electricity is bound to win in the field of lighting, and we quite think it will be very fairly reliable from the start. In the meantime, please do not overlook the claims of compressed acetylene. In any case, it is likely to be the cheaper of the two alternatives, alike in first cost and in upkeep, and it must always remain the more reliable. These are points not to be dismissed without a hearing. Imagine that you are a novice; then compare the handbook provided for a dynamo with the simple turn-on valve of a cylinder of acetylene. Picture methods of stowing away this cylinder on a bicycle frame modified for the purpose, and reckon out the reduction in costs which would be possible if these cylinders were pushed as they are pushed in the States. Finally, remember that electricity is only gaining ground in the States because exchange depots are separated by such enormous distances, and that here you could have one in every village, if necessary.

In conclusion, *Salaam!* Here's a quick end to the war, a boom in motor cycling, a safe return with V.C.'s to the despatch riders, and a fine summer to herald the return of peace!

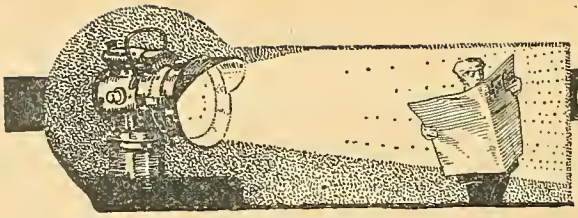


Carburetter side of the 2¼ h.p. Vitesse two-stroke engine fitted to a Sun.

"The Motor Cycle" Photographs.

Duplicates of photographs appearing in "THE MOTOR CYCLE" will be supplied at the following rates: Unmounted prints half-plate, 1/6 post free; mounted, 1/9 post free This refers to photographs taken by "THE MOTOR CYCLE" operators.

Orders, which must be accompanied with remittance should be addressed to the Photographic Department Iliffe and Sons Limited 20, Tudor Street London, E.C.



Occasional Comments

"By Ixion"

Rather a Surprise!

When I disposed of my last machine I thought to economise by taking off the speedometer, and ordering new fittings to attach it to my next mount. Everybody knows that accessories add very little to the price a second-hand machine will fetch. The economy was hardly as large as I expected. The new machine, being of a different make, demanded two new gear wheels, new gear box, bracket, and driving shaft, for which the total retail price amounted to a couple of sovereigns.

Spring Clip Chain Links.

I was rather surprised to see a recent correspondent denouncing spring clip chain links on the ground that they are apt to come adrift and disjoint the chain. Often as I have one of the old joints (made with a bolt and nut) part company, I have never had a spring clip link fail when once put in position. My sole criticism of the spring clip is that it is a very easy matter to open the split end too widely and smash the clip, for which reason I always see that I have three or four spare springs before essaying a long trip on a chain driver.

Knee Grips.

Will those designers who retain the tank lever control of the ignition kindly make a note to shift the lever so far forward that it will not prevent the fitting of a pair of knee grips? My present machine has a spark lever boss so protuberant and so far back that these fitments are impossible. During last summer I have been riding with a pair of Waigh knee grips, which consist of leather pads, housing a tin box, wrapped in a duster. They are quite as comfortable as the older patterns, and supplement the pannier bags very conveniently on tour, as their tins are just big enough to house the extra touring outfit which cannot be packed into the carrier bags.

Tendencies in Tank Contours.

What do the public think of the new tanks? Until comparatively recent days, all our tanks were practically rectangular oblongs. Then the desire for large fuel capacity, combined with ultra low saddle positions, resulted in curving the tail of the top tube of the frame downwards, with a slight loss of frame strength (doubtless compensated for by an increase of gauge) and a slight gain in handsomeness. At the present moment tank shapes are growing a trifle chaotic. A common 1915 type is deep in front and shallow astern, wide in front and narrow astern. It is the result of the attempts to obtain a cheap, strong frame, in combination with a low saddle position and high fuel capacity, but it certainly looks appallingly ugly to my conventional eye. I wonder whether I am really conventional—for I always regard the extremely original Scott make-up as one of the very best looking on the road.

Rubber Gloves.

Not long ago I wrote perhaps a little slightingly of rubber gloves, because they are rather costly in proportion to their somewhat brief life. They may cost from 10s. to 15s per pair, and they are easily torn, whilst they are rather apt to perish unless the owner is careful to preserve them from frequent contact with oil. Nevertheless, they deserve to be ranked as the best rough-weather glove. Asbestol gloves are almost equally waterproof, but are inconveniently stiff. Rubber gloves are not only genuinely waterproof, but owing to the fact that they are practically innocent of ventilation, are also extremely warm. Thus they give us two very desirable and excellent features for winter use.

Speed and Gearing of Baby Two-strokes.

One or two letters recently to hand enquire whether two-speed gears are really essential with baby two-strokes and what hill-climbing powers and average speed can be relied upon. The enquirers remark that the cheapness and exceedingly light weight of single-geared models would induce them to buy samples as tenders to their heavy touring machines; but that they do not care to pay nearly £40 for a comparatively slow machine to be used for all purposes, including touring. If a baby two-stroke is single-geared, the gear ratio cannot well be higher than 6 to 1. On this gear a good machine *may* be capable of 40 m.p.h., but, owing to the low gear, there will be some fuss and vibration when 30 m.p.h. is exceeded, and few riders would habitually drive one faster than 30 m.p.h. on the flat. As all grades are bound to slow such a tiny engine, the highest touring average, non-stop, in ordinary country can hardly exceed 22 m.p.h., and it will not be easy to maintain a legal limit average during a day's touring. In respect of hill-climbing, the machine will romp up grades up to 1 in 9, even if of considerable length; but a hill of stiffer gradient will usually puzzle it. Dashwood and the Fish at Broadway represent quite the limit of its achievement in ordinary hands; Birdlip would be a somewhat speculative proposition. The more refined and costly machine, equipped with a variable gear, will climb anything, and will maintain a faster average speed in easy country. In difficult country it will not be faster than the single-geared types, because its top gear is higher, and, if it is faster on the flat, it is slower uphill. In other words, the two-speeder is desirable on long cross-country journeys and for regular use in the more mountainous counties; but the single-geared models are absolutely efficient for ordinary use. I think all tiny machines appear at their very worst in flat, dull country, as they are not fast enough for rides on which there is nothing of interest to hold the attention of the rider, and his sole desire is to reach his destination as fast as possible. Neither type is capable of a high average speed without a good deal of forcing.

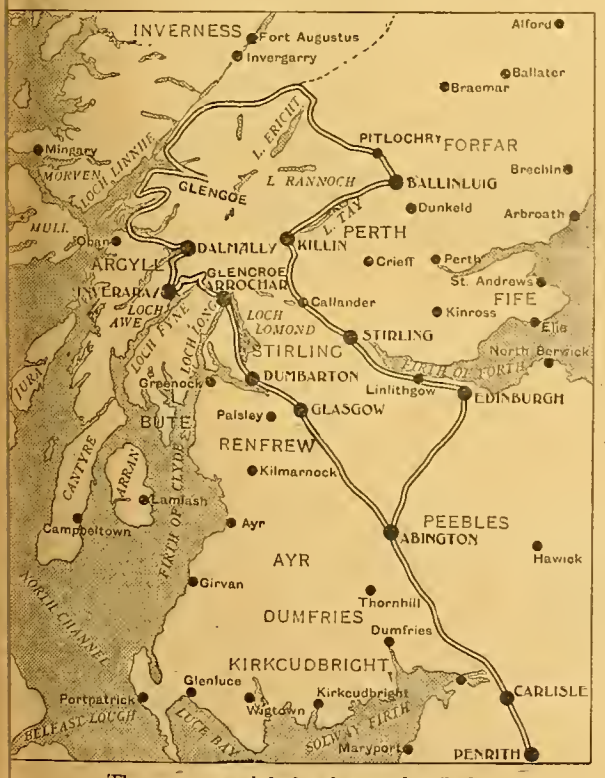
AUTUMN 'MIDST SCOTTISH CRAGS

AN IDEAL ROUTE THROUGH THE HIGHLANDS

By GEORGE D. ABRAHAM,
Author of "Motor Ways in Lakeland," "The Complete Mountaineer," "Mountain Adventures at Home and Abroad," etc., etc.

A typical scene on the shady shores of Loch Tay where the road in the lower reaches skirts close by the water.

THE ancient slogan of the Campbells, "'Tis a far cry to Loch Awe!" has nowadays lost much of its meaning. The mountains, which in earlier times cut off the great "lonely loch of the Isles" from civilisation, are crossed by roads which afford easy passage to the motor cyclist, or other enthusiast of the modern means of locomotion. But even yet the long, winding, but wonderfully beautiful road up by the western lochs is very little known, and this fact led us to choose it as a route up north into the wildest recesses of the Highlands. A fully and heavily equipped 1914 Clyno was the machine chosen for the expedition. Its aid and behaviour made us agree that nothing can beat a motoring and mountaineering holiday in the Highlands.



The route covered during the tour described.

Over the long, wind-swept wilds of Beattock we had come north to Glasgow, with its wearisome sixteen miles of suburban traffic putting the finishing touch on a long day's run. Next morning almost similar conditions prevailed on the north side of the city, and there was little relief from trams, and crowds of young Scots who made the streets their playground. But once beyond the stately frontage of the Argyll works at Alexandria, the scene changed suddenly. The road darted out of city smokiness into sunny, oaken avenues all tinged with the gold of autumn. Purple mountains gleamed ahead through the leafy screen, and a final glide down another glade brought us quickly out to the open shoreline of Loch Lomond. The contrast with the workaday world only a few miles behind was remarkable. The old Ben which takes his name from the loch was mirrored on the still surface, and the slow movement of the fleecy cloud which capped his breezy head was the only sign of life or movement in the land of mountain peace; all purple and grey and golden, it was a scene typical of many succeeding days.

Road Repairs.

With the road close neighbouring the calm water there came fresh beauties at every turn but one. At this point extensive road repairs made their presence felt unpleasantly. Masses of sharp, broken fragments of the adjacent mountain side covered the roadway, and former experiences led us to dismount and push our heavily laden vehicle over this stretch. This and the sight of our bulky climbing boots amused the native workmen vastly. My remonstrances regarding the repair methods employed brought forth the suggestion from the "canny Hielander" on the steam roller,

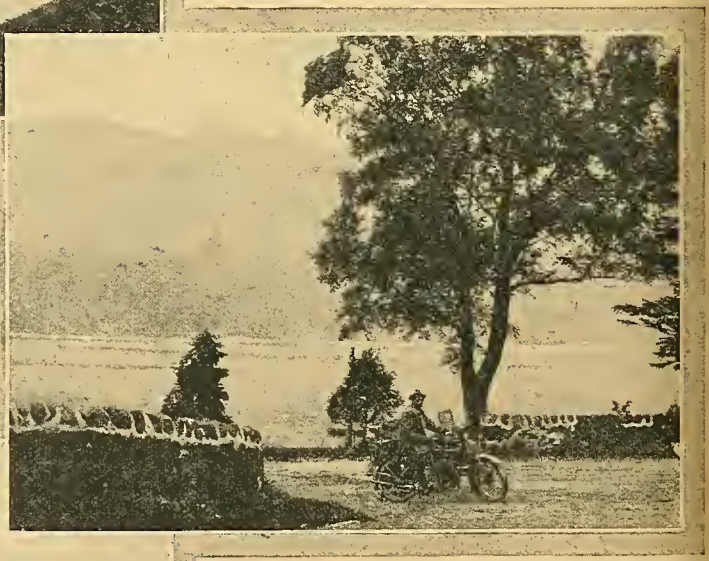
Autumn 'midst Scottish Crags.—

"Hoch! me lad," he said with a glance at my feet, "just thee walk aboot a bittock an' the road'll be aw reet."

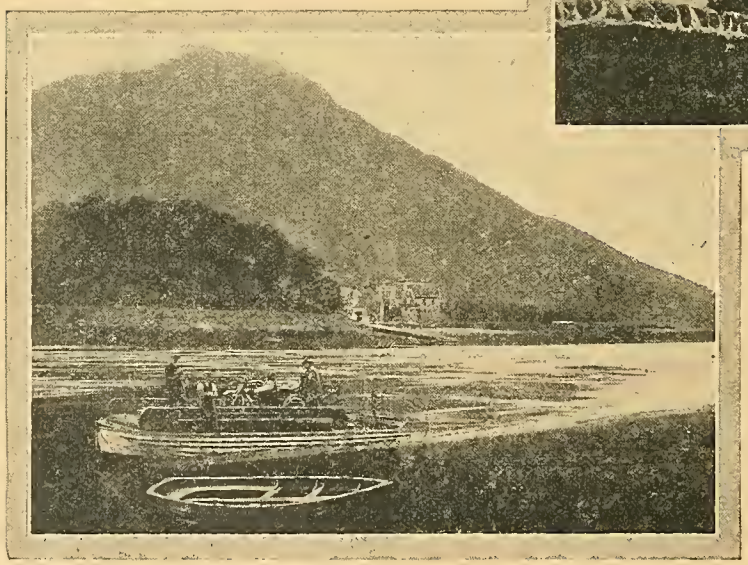
However, towards Tarbert matters improved, and soon we were swinging down the long hill to the sea-level at Arrochar, near the head of Loch Long. The

Amongst the great mountains of Glencoe. The central peak is a buttress of Bidean nan Bian, the loftiest peak in Argyllshire. The little loch on the left is that of Triochatan.

weirdly-shaped peaks of the Cobbler looked down on the once secluded valley which now echoes with busy life. A great torpedo-testing depot recalled thoughts of the far-distant world of strife, and the cheerful soldiers who guarded the lonely road seemed almost to hail us as deliverers from their dull vigil. Prophecies that our unkempt appearance would lead to trouble were not justified, and soon we were away again, whirring up into the wilds of Glencroe. The Cobbler still peeped superciliously down upon us with his nose in the air, and at his feet the well-known gradients leading up to one of the most famous of Scottish hill-climbs. A grey line curled up the mountain façade ahead, and the signpost told us it was the "Rest and be Thankful Hill—ascent 461 feet in 2,161 yards." But our mount made light of the climb—in fact, the ascent was almost made on second gear, the lower gear only being needed on the final corner, and that as a matter of safety on the slippery cobbles which have been used to pave the turn. As it was, the speed of our approach flung us crab-wise across the slippery turn, and the excitement of this caused us to forget to halt and test the merits of the famous Rest and be



Near the head of Loch Long, at Arrochar, with the peaks of the Cobbler in the distance.



On the Northern side of Ballachulish Ferry, with Ballachulish Hotel at the foot of Sgurr Dhonuil. An excellent motor boat now makes the crossing safe and inexpensive.

Thankful Stone which Wordsworth has immortalised. The comforts of the sidecar induced the same feeling during the descent by gloomy, treeless Loch Restil and Glen Kinglas to the foliaged shores of Loch Fyne, where Scotland's most famous fish comes from. One encounters more of the homely haddock than the sporting salmon in the Highlands.

Rabbits and Grouse.

Then around the winding shoreline we hurried to Inveraray, with Scotch mist altogether enfolding the distant landscape. The celebrated castle was noticed, but before entering the town there came a sharp turn to the right under a curious granite arch, and

Autumn 'midst Scottish Crags.—

the way led mountainwards once more. Up through the most wonderful woods, whose shades recalled thoughts of the Dolomite Forests, we mounted to the brackened heights, where Highland cattle gazed dreamily under their fringed eyebrows. Rabbits darted swiftly in front, each showing a white danger signal to its mate as our forceful Clyno seemed to revel in the speed rush up to the heights. A covey of grouse almost misjudged our approach. One of these only escaped by the skin of its "tee-al fitthers," as the genial keeper said, who shortly answered our question as to road divergence. The roughness of the long descent to Loch Awe

A scene at the head of Loch Creran, with the Ben rising in the distance. The loch is scarcely more than a mile across, but one has to travel eight or nine miles inland to gain the road so temptingly seen on the other side.

precluded quick travelling, and there was full time to enjoy the glorious scenery ere the road dipped down to the tree-hung shoreline. "Up hill and down dale" brought us to Dalmally, where a sharp turn to the left led to the main, westerly-running road to Oban.

The Pass of Brander.

Hopes had been entertained of a better surface on this section, but these were soon is shattered as the once perfect highway. t was evident here as elsewhere, except on parts f the north trunk route, that Scotch road surfaces adly need conforming to modern traffic. When ome miles from Dalmally we felt the need of eeking out a comfortable resting place for the ight. One of those most useful signs erected by he Scottish Automobile Club, which locate native eatures of interest, proclaimed the approach to he Pass of Brander. A "misty, moisty twilight" poilt the scene, but now and again on the left big nountains loomed across the still waters of Loch Awe. The road, with great tree-hung crags overhead, cut along a narrow shelf almost overhanging the gloomy depths, and one sudden skid induced by the attack of a sheep dog very nearly inclined the Clyno to break still another record, this time in the way of a high dive.

Farther on, the "narrows" widened out, and through the Pass of Awe, a wild spot whose name acquired force by memories of savage deeds by Bruce and Wallace, we came to rest at Taynuilt.

This latter place proved most suitable for climbing Ben Cruachan, and in due course we started westwards once more on a perfect morning. The plan was to reach Glencoe by the little-known coast route. Loch Etive, grandly mountain-tended, was revealed in cloudy beauty on the way to Connel Ferry. It was an exhilarating run over the lofty moors. Now we were up on some heathy height where shaggy Highland cattle kept guard, and ofttimes acted as natural speed limits ere there came the wild rushes down into the hollows, where grouse and pheasant fled to shelter. At Connel Ferry the outstanding feature was the unique bridge over the mouth of Loch Etive. Under the great span the tide roared and fumed against the downcoming water, the bore

A still day on the shore of Loch Linnhe. The Ardgour peaks are seen across the water.

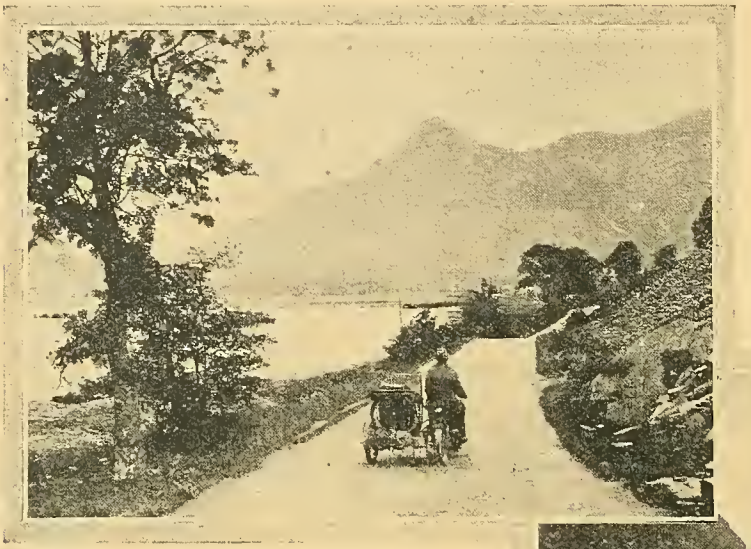
forming at the time of our visit the remarkable Falls of Lora.

An Expensive Ferry!

The once notoriously dangerous and famous ferry was fortunately found in a state of disuse. A dry old "Hieland salt" offered to "tak' us ower for fifty pun if we wad wait till t' sma' hours." Luckily it was found that the railway company have now made a road over the viaduct alongside the railway. This saved us a big sum on the former offer, though

Autumn 'midst Scottish Crags.—

5s. 4d. was paid for the crossing. Of the two tickets given us one was for the machine and the other for "one passenger and one dog." The identity of the latter remains unsettled. Incidentally it may be mentioned that this Connel Ferry Bridge road, which was only opened last June, will have a great effect on motor traffic in the Highlands. It opens out a magnificent northward route through the grandest scenery in Scotland. For driving a motor cycle or car across the bridge the tariff is 2s. 6d. and 15s. respectively. Doubtless many will be tariff reformers in this district.

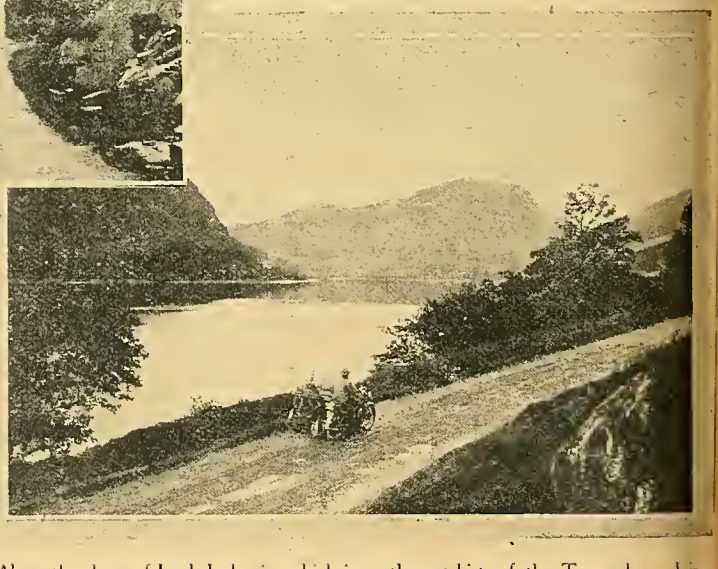


On the shore of Loch Leven, with the Gap of Glencoe rising ahead. This well-known mountain sentinel guards the entrance to the famous pass.

Once across the bridge, with its unique view of troubled waters below and blue peaks encircling all afar, it was found of some importance to take the left-hand turn Then we were soon cheered by the sight of the long open "straights" over the mosses by Benderloch to Loch Creran At the entrance to what seemed to be a richly-wooded private park the driver halted, expecting toll of some kind. "No need ever to stop unasked to offer payment in Scotland" was the curt advice, and ere long we were threading miles of beautifully wooded glen where dense gloom reigned in the silent depths. The surface became decidedly rough round the head of Loch Creran, but the slow pace thus needed allowed full time to appreciate the grandeur of the scenery. The driver had more thought for his tyres, but the Avons came scathless, as usual, through miles of stony ordeal. Once round the head waters of the loch the surface improved, and soon came the cut across country to Appin and the bracing descent to the shores of Loch Leven, with the shapely peaks of Ardgour on its farther shore. A shower chased us along to Ballachulish, and thence up into the purple shadows of great mountains that form the portals of gloomy Glencoe.

Famous in History.

To the climber, Glencoe is the most fascinating spot in Scotland, and from the little inn at Clachaig we made many sallies on the surrounding peaks. Most were so close at hand that one almost stepped out of bed on to the crags. The scene of the historic massacre was visited, with the great cone of Bidean nan Bian, the loftiest peak in Argyllshire, towering overhead. The Three Sisters, which form such a magnificent granite phalanx on the southerly wall of Glencoe, are merely the offshoots of the Bidean. The terrific hole high up on the front of the nearest "sister" to Clachaig is known familiarly to the tourist as Ossian's Cave. The climb up into this was a long and difficult problem. The Clyno proved a useful friend in reaching the peak of Buchaille Etive, over eight miles away and above the easterly end of Glencoe. A day of wind and storm made the expedition exciting throughout, and the Clyno's ascent in a gale up the rugged zigzags of the Pass to the "Study" was an event to remember. But the descent that same evening after almost becoming benighted on the crags above was even more memorable. In dense darkness and driving mist we felt our way literally down into the abyss on the lower gears, the Clyno straining and jumping as though anxious to get away on the easier lower gradients At one point the high gear was tried—but only once



Along the shore of Loch Lubnaig, which is on the outskirts of the Trossachs and is still open to motorists. A shoulder of Ben Ledi rises on the left.

A few days later we took the journey to Fort William, crossing the celebrated ferry at Ballachulish on the way. An efficient motor provided the power The arrangements at this once dangerous and expensive place were excellent. The amount paid for the crossing was 4s., instead of the £2 charged about two years ago. In those days a car was charged £4, now it is only 15s., whilst 2s. is the fee for a motor bicycle No one should grumble at these new charges, for to avoid them a round of over 150 miles is necessary in order to reach Fort William and the North. W

Autumn 'midst Scottish Crags.—

learnt the good news that during the coming winter a road will be made round the head of Loch Leven, the survey already having been finished. At Fort William we found the Palace Hotel the most comfortable abode encountered during the whole tour, and this tempted us to spend much time in the neighbourhood and on Ben Nevis. The run up Glen Nevis and also round the shores of Loch Eil should be taken by all who visit the district.

A Cold Bath en Route.

A morning of heavy rain greeted us on the occasion of departure for the south. The driver refused his usual cold bath, saying that he would take it later on in the saddle. He did. In some respects it seemed unsatisfactory for the writer to be comfortably tucked away in the sidecar, all sheltered from the downpour by hood and screen. Some day these machines may probably be provided with some well-deserved shelter for the driver. Our route lay up over the wild moors to Loch Laggan, all mist wreathed and wild in the autumn storm. Near the end of the long lake the rain ceased, and, avoiding the main road run to Kingussie which everybody advised, we risked the short cut over the moors to Dalwhinnie This was a notable success. It saved twenty miles of running, and the road was almost superior to the trunk route. A height of over 1,200 feet was gained almost imperceptibly, and the long downward swoop was enlivened by continuous encounters with packs of grouse.

Near Dalwhinnie the Great North Road was joined, and soon we were speeding over the crest of Drumochter Pass (1,500ft.), where the Highland Railway close alongside reaches the highest point of any railway in Britain. It was a bracing downhill run for miles until the wild, bare moors were far behind and the wooded lower depths of Glen Garry gave shelter from the keen mountain breezes. Then through the historic Pass of Killiecrankie, where graceful silver birches, now in full golden splendour, added to the indescribable beauties of the glen, we came to Pitlochry. In gathering twilight the trunk road was left at Ballinluig, and ere Aberfeldy was reached as resting place, the twisting, tree-shaded road had brought the average speed down unpleasantly.

Next day we set forth for the Trossachs along the shores of Loch Tay, through Killin and down Glen Ogle, passing Lochearnhead on the way. Unfortunately, we found that romantic and beautiful district, with Loch Katrine the queen of all, closed to motors entirely. The beauties of Loch Lubnaig on an evening of wondrous stillness somewhat atoned for the disappointment. Next day we left the Highlands at Callander, and through familiar Stirling and Edinburgh sped southwards with memories of the grandest sights of mountain, woodland, and loch that Britain can show.

Our sidecar outfit had carried us faithfully for more than 700 miles over roads that many a machine would have resented. A strong luggage grid fixed behind the sidecar proved indispensable, the more so as thereon was fitted a special receptacle for a spare tin of petrol. In the remoter districts motor spirit was almost unobtainable. The D.A. cylinder was excellent, it made us independent of daylight on the worst mountain roads. Thanks very probably to the large size of the Avon tyres the use of the special spare wheel equipment on the Clyno machine was never required until the night approach to Carlisle on the return journey. Considering the darkness and dampness of the night it proved a true friend indeed during the one and only attack of the puncture fiend.

Training Military Motor Cyclists.

For Co-operation with the Armoured Car Service of the Royal Navy.

AS will have been gathered from paragraphs published in recent issues of *The Motor Cycle*, Sub-Lieutenant Stocks—known in the motor car world as J. W. Stocks, of the De Dion Bouton Company—has been engaged in the formation of motor cycle squads for military work. He has already completed a squadron of over two hundred men for attachment to the Royal Naval Air Service, and now he is engaged in getting together three hundred men to drive Scott motor cycles fitted with sidecars, mounted upon which are quick-firing guns.

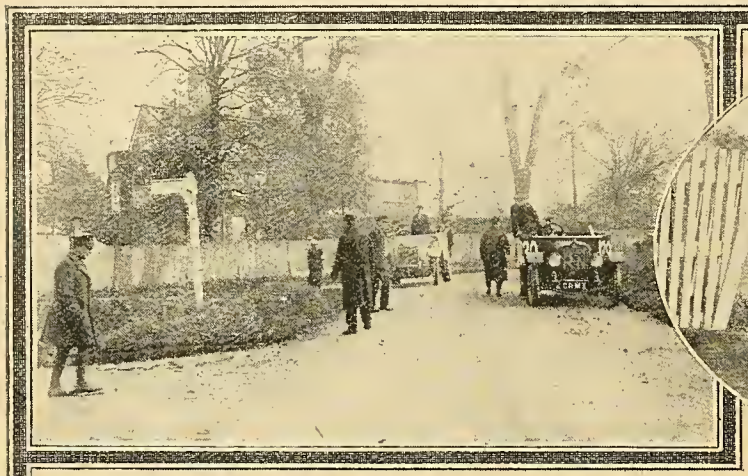
After having proved their ability in the handling of a motor cycle and sidecar and been accepted for service, the men undergo a military test, so that when they arrive on the Continent and undertake the real work they will not be "working in the dark." The illustrations on the next page show the raw motor cyclist in course of transformation into an efficient military motor cyclist. As they are to operate in connection with the armoured cars' aeroplane support of the Royal Naval Air Service, several armoured cars are taken on the road at the same time. Thus the crews and cars are tested and trained with the motor cyclists with whom they will have to co-operate. Incidentally, it may be mentioned that for armoured car work high-powered touring car chassis of established make are being used.

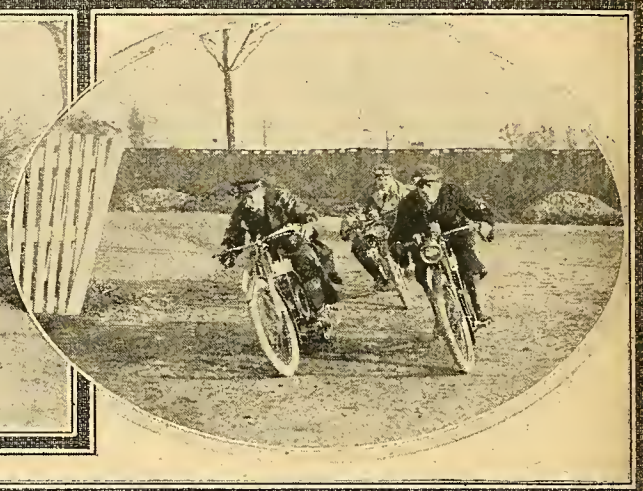
An important part of the military test is the reconnaissance work and subsequent reports of the state of the road, and the illustrations show various phases such as map reading, preceding the armoured cars, hiding machine and oneself in an exposed village street. In this way the men learn quite a lot of things that they must not do under certain conditions. For instance, it is interesting to observe how the man lying behind the heap of stones in one of the pictures would be able to shoot the two riders coming round the corner abreast before they had seen him. However, abroad these two men will be on their guard, and, if similar circumstances arise, one can imagine them drawing lots to decide who shall go first!

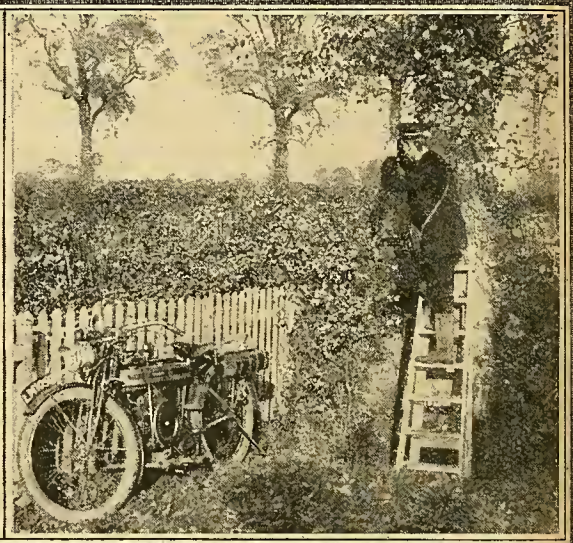
It is difficult to imagine work that would appeal more to the keen motor cyclist desirous of serving his country than that for which these men are training. Of course, the risk run is considerable, and there is a certain amount of roughing it, but that is all in the day's work; one is doing one's bit for the country and thoroughly enjoying oneself at the same time.

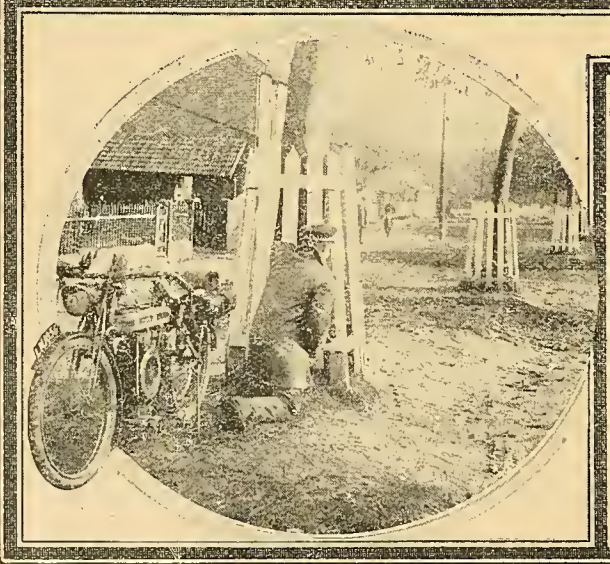
TRAINING MOTOR CYCLISTS FOR WORK IN CONJUNCTION WITH ARMOURED CARS.

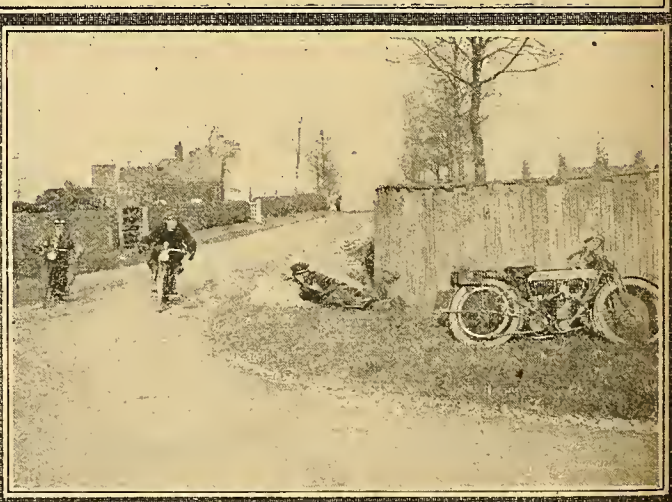
(See article on previous page)









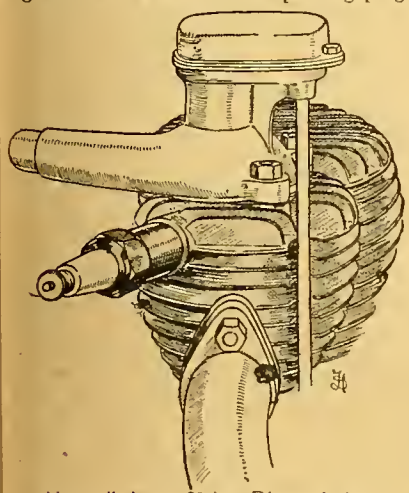


1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

A NEW SPORTING DIAMOND.

A MACHINE which embodies many interesting features, all of which are mechanically excellent, is the new sporting model Diamond manufactured by Dorsett, Ford and Mee, of Sedgley Street, Wolverhampton. Our readers will recall that the salient features of the Diamond machine are the extremely large valves (the inlet being overhead), the unusual double bevel two-speed gear, and the sloping top tube. All these features are retained, but modifications have been made in a few places. The sporting type has a somewhat altered cylinder, vertical ribs being cast at an angle across the head. The sparking plug



New cylinder on 2¾ h.p Diamond, showing the enclosed overhead valve mechanism, new plug position, and additional radiating fins.

is now placed horizontally in the side of the valve chamber, and the inlet pipe is curved away so as to be well clear of the frame, and to allow easy access to the valve. The bore and stroke of the engine are 75 × 79 mm. Both inlet and exhaust valves provide a clear port of 1⅜in. diameter.

Engine and Frame Modifications.

The only other alteration to the engine is a somewhat improved crank pin fixing, and the gear remains as before. The latter is particularly simple in action, as by the removal of a single cover plate it is possible to examine both gears, the clutch, camshaft, and magneto drive.

The frame is slightly altered, the pronounced slope to the top tube having been modified, and though the straight tube still remains, the actual seat-pillar lug is cast with a slight curve in it, consequently, the effect of dropped tube is obtained without any bends being formed in the actual tube. It will be remembered that the Diamond was one of the very earliest machines to be fitted with all straight tubes and a sloping top rail.

The sporting model has no kick starter. It is fitted with a long silencer pipe, with a small expansion chamber close to the rear end.

The standard model will in future be fitted with somewhat wider guards and a hinged footrest, which leaves plenty of room for the kick starter pedal.

Commendable Kick Starter Design.

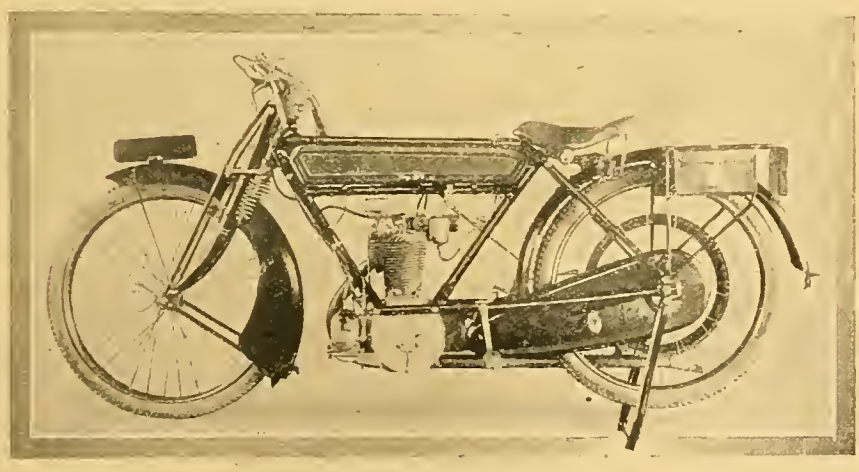
The kick starter itself is worthy of attention, as it acts direct on the crankshaft through one pair of gear wheels only, consequently there is no intermediate transmission to cause stiffness. The clutch remains as before, consisting as it does, of a double metal cone running in oil. The fittings throughout are excellent, and include drip feed lubricator, a pan seat, and a stout stand and carrier.

From a short run on one of the sporting models we may safely say that we have seldom ridden a machine of the same capacity which has more life than the Diamond. It might be thought that the bevel and chain drive would produce considerable noise, but this is not the case, and the gearing was almost equally quiet on both low and high gear. The riding position is comfortable and the speed is surprising; from which it will be gathered that our impressions were favourable.

EDITORIAL NOTE.

IN the following pages we illustrate and describe a number of 1915 model motor cycles. Already many full descriptions of other 1915 models have appeared in these columns, and as a guide to readers we give below the dates upon which the different descriptions appeared:

Sept. 3rd.	Henderson and Levis Popular.
„ 24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct. 1st and also 29th.	Three-speed shaft-driven Rex.
„ 8th.	Radco and Abingdon.
„ 15th.	Ivy, Vindec, and 4 h.p. Brown.
„ 29th.	Calthorpe, Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and Two-stroke Ariel.
Nov. 5th.	Sparkbrook, Lady's, Metro, 2¾ h.p. and 6 h.p. Enfields, Omega and 4 h.p. A.J.S.
„ 12th.	6 h.p. Humber, Sun-Vitesse, and Levis.

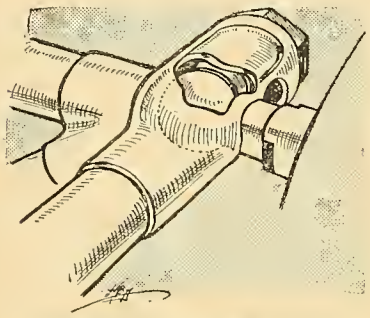


1915 model T.T. pattern Diamond

THE 7 h.p. MATCHLESS SIDECAR.

Improved Design Sidecar Chassis, embodying a Spring Wheel.

THROUGHOUT the year 1914 Messrs. Collier and Sons have been very successful with their Matchless sidecar combination. The 7 h.p. sidecar machine is a thoroughly well-designed and practical vehicle, which has stood a year's testing with the greatest success, and has undergone even further improvement for next year.



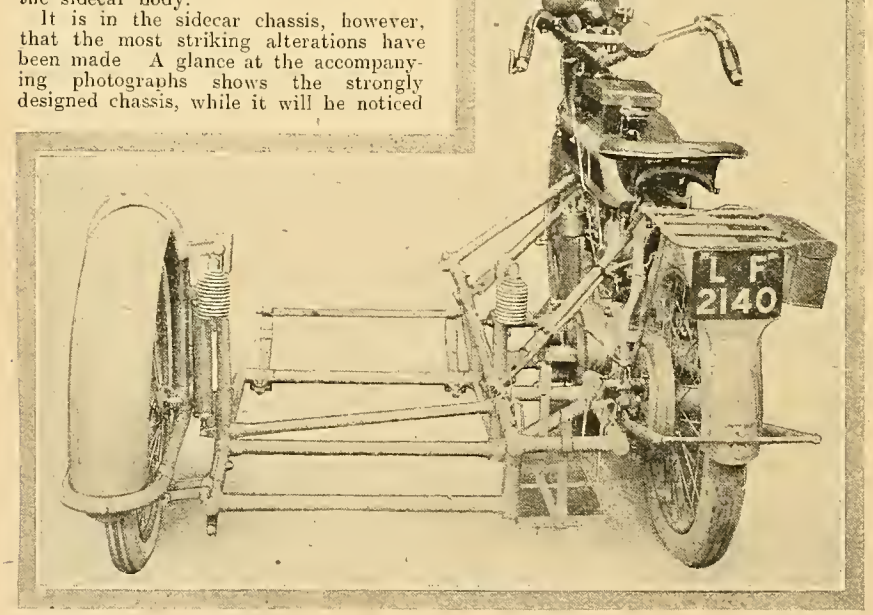
Matchless sidecar ball joint attachment to back fork.

In the machine itself little has been done, as practically no alterations were necessary. Its chief points are the silent chain drive from engine to countershaft and the practical three-speed (sliding type) gear box. The chief alteration, however, on the new model has been the introduction of detachable wheels, brought about by using a hollow spindle and the provision of dogs for coupling the wheel to the driving mechanism. All three wheels of the combination are therefore detachable and interchangeable. The spare wheel is arranged to be carried in the back of the sidecar body.

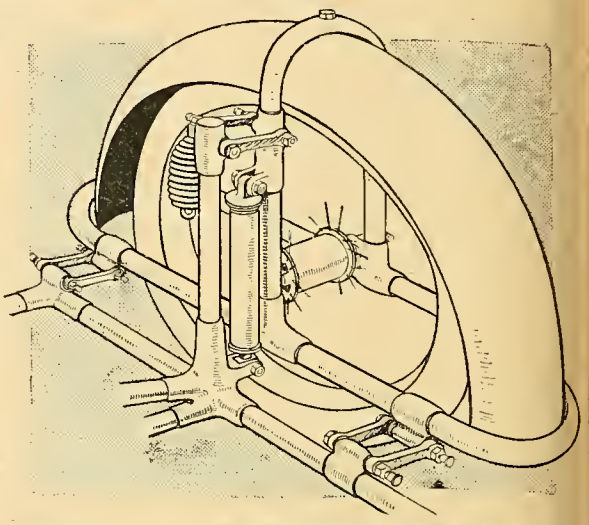
It is in the sidecar chassis, however, that the most striking alterations have been made A glance at the accompanying photographs shows the strongly designed chassis, while it will be noticed that an ingenious form of spring wheel has been introduced, the working of which is shown in detail in the line drawing. The wheel is self-contained in its own forks, and is attached to the rest of the chassis by means of three long links. Its movement, however, is restricted by means of an enclosed coil spring, which may be clearly seen in the illustration. The combination has been photographed without the body, so as to show the method of springing and also the neat coil springs upon which the body is supported.

An interesting feature is the ball joint coupling the chassis to the back forks of the motor bicycle, the object of which is to ensure perfect alignment and the minimum amount of strain between motor cycle and sidecar. Another interesting point is the provision of a framework for carrying a spare petrol can. This outfit may be fitted with the excellent Lucas lighting installation, which we described in detail in our issue of October 22nd.

Another new model for 1915 will be the 4 h.p. three-speed solo touring machine, which, however, at the time of writing is not actually on the market.



The new spring wheel Matchless sidecar chassis ; the spiral springs support the body



Sidecar spring wheel showing complete adjustment and links to frame. Note the grease cups to all the shackle spindles.

A TRIUMPH ANNOUNCEMENT.

WHEN Mr. M. J. Schulte, speaking at the annual general meeting of the Triumph Cycle Company, Limited, stated that the company was not resting on its laurels, but was pursuing a vigorous policy in improving the machines, chiefly the motor cycles, he gave the first public intimation that an entirely re-designed Triumph motor bicycle would appear for 1915. It has been common knowledge in inside circles that the Triumph Co. had designed a new engine, and that, moreover, after tests extending over a period of many years, had produced a three-speed countershaft gear which satisfied the firm's ideals, and embodying chain and belt drive.

The specification of the 1915 Triumph is given in our Buyers' Guide this week, from which it will be noted that the 4 h.p. engine is retained with a bore and stroke of 85×97 mm. The motor has a new design crank case, a new cylinder casting, re-designed timing gear with external cams and a new carburetter. More details cannot be divulged at present, as the final design will be ready shortly.

ADDITIONAL O.K. MODELS.

Messrs. Humphries and Dawes, Ltd., of Birmingham, the makers of the O.K. machines, announce that during next year the O.K. Junior—which has had such a run of successes this year—will be continued, though it has been improved in detail parts. There will also be a lady's model, and a second O.K. model of 2½ h.p. with side by side valves. The firm have recently erected large and well equipped new works, and in future O.K. machines will be British-built throughout.

IMPORTANT ANNOUNCEMENT.

STURMEY-ARCHER GEARS, LTD.,

BEG TO ANNOUNCE THAT THEY HAVE ACQUIRED THE BUSINESS OF THE

ARMSTRONG TRIPLEX 3-SPEED CO., LTD.

STURMEY-ARCHER 3-SPEED GEAR FOR CYCLES AND MOTOR CYCLES WILL HENCEFORTH BE SUPPLIED IN PLACE OF ARMSTRONG.

Repairs and Sundries for Armstrong Gears will be dealt with by the New Hudson Cycle Co., of Birmingham.

1915 Programme.

THE new Sturmey-Archer 3-speed countershaft gear, with enclosed kick-starter. Gears constantly in mesh. Light and neat. A revelation in countershaft gears. Suitable for 3 to 6 H.P. engines.

THE 1915 Sturmey-Archer 3-speed Motor hub as supplied for the Russian and British War Office Motor-cycle Contracts.

THE STURMEY-ARCHER 3-SPEED AND TRI-COASTER GEARS FOR CYCLES.

SEND for 1915 PRICES and Full Particulars.

STURMEY-ARCHER GEARS, LTD.

NOTTINGHAM.

BUILT IN THE LARGEST FACTORY

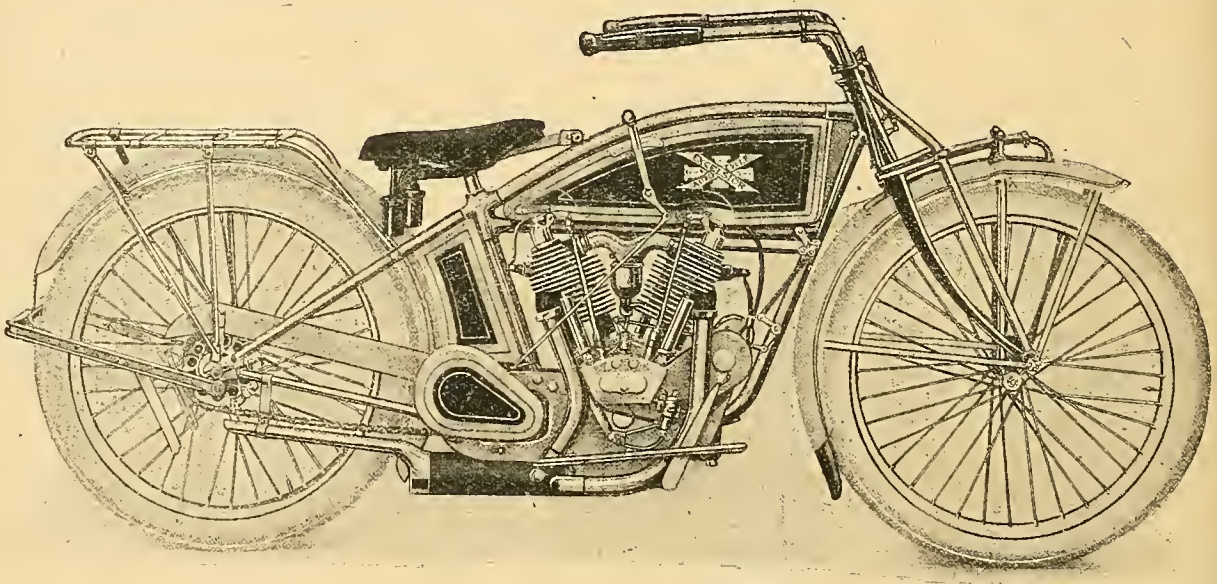
IN THE WORLD DEVOTED SOLELY TO THE MANUFACTURE OF MOTOR CYCLES.

THE NEW

AMERICAN EXCELSIOR

THIS IS THE REASON WHY WE CAN MAKE THIS STARTLING OFFER.

7 H.P. 3-speed, Chain Drive, Kick Starter, £59



BRIEF SPECIFICATION.

ENGINE.—7 h.p. Twin (84 × 89).
LUBRICATION.—Mechanical and Hand Pump.
IGNITION.—Bosch.
VALVES.—Extra large.
STARTER.—Kick Starter with Folding Foot Lever.
CARBURETTER.—Schebler.
SPEED GEAR.—Sliding type.
CLUTCH.—Multiple Disc.
FRAME.—New style, very low saddle position.
CONTROL.—Throttle by right grip, Clutch by left grip, or left pedal. Magneto Lever on tank.
BRAKES.—External and Internal Bands.

DE LUXE MODEL, EXTRA £9, includes Splitdorf Combination Lighting and Ignition System, powerful Head and Tail Lamps, Electric Horn, and Speedometer.

DEALERS WHO ARE NOT ALREADY AGENTS FOR THIS MACHINE SHOULD WRITE FOR PARTICULARS BEFORE FIXING SEASON'S BUSINESS

CATALOGUE WITH PLEASURE

SOLE CONCESSIONNAIRES—

HARRIS & SONS,

10. 11, 12, GREAT CHAPEL STREET, OXFORD STREET, LONDON, W

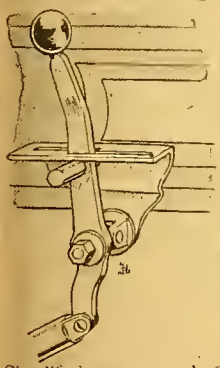
Telephone—Regent, 3906.

AN ENTIRELY NEW B.S.A. MODEL.

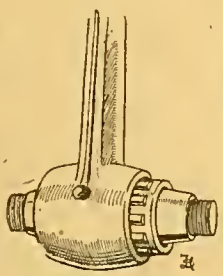
A 2¼ h.p. Four-stroke—Detail Alterations only to Present Machines—Caged Roller Bearings Adopted for Big End.

As the result of experience gained, the B.S.A. Co. have found it unnecessary to make any radical alterations to their present machines.

The 3½ h.p. engine is now only fitted to the T.T. model; the engine has undergone practically no changes, with the exception of the fitting of a roller bearing big end. This bearing is unusual, in that the rollers are mounted in a cage, and consequently are not allowed to touch each other, but bear only on the crank pin and the inner end of the hardened connecting rod. An interesting alteration has been carried out in the frame, for the head lug is curved slightly upwards. This construction, when properly carried out, is extremely strong and yet light. The addition of a long tail pipe for the exhaust completes the innovations in this type, which is, of course, still fitted with a B.S.A. carburetter and spring forks.



Simplified gate control of 2¼ h.p. B.S.A.



New caged roller bearing big end on 3½ and 4¼ h.p. B.S.A. machines.

Improvements to Existing Models.

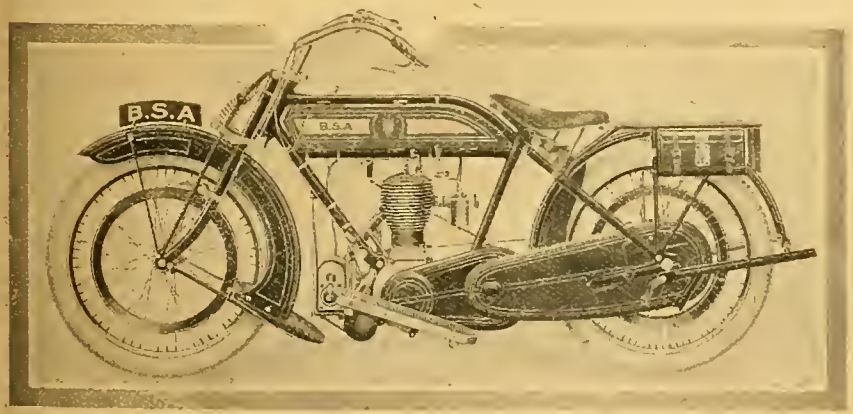
The three-speed countershaft geared models, fitted with big 4¼ h.p. engines, are particularly suitable for all types of sidecar work. The construction throughout is extremely solid, while the engine develops its full power at speeds which can be conveniently used on the road. The engine in practice is very flexible, and has a good turn of speed. In this engine, also, a roller bearing has been introduced in the big end. The tank has been enlarged to take 1¾ gallons of petrol. The front forks are made somewhat wider to accommodate a specially wide front guard. A refinement which will be fully appreciated by practical riders is that an internal V type brake has been fitted to the front wheel, operating on a dummy belt rim; this gives the necessary power, and yet permits the front wheel to be dropped out in case of tyre repair without disturbing any brake gear. The front forks have been altered slightly in detail, and the spring links are somewhat longer, but the general design remains the same.

The foregoing remarks apply to both the chain and belt-driven machines, and also to the all-chain model. This model is, of course, fitted with a B.S.A. spring shock absorber, which has proved eminently satisfactory, and absorbs all the harshness of the drive.

The B.S.A. Sidecar and Trade Carrier.

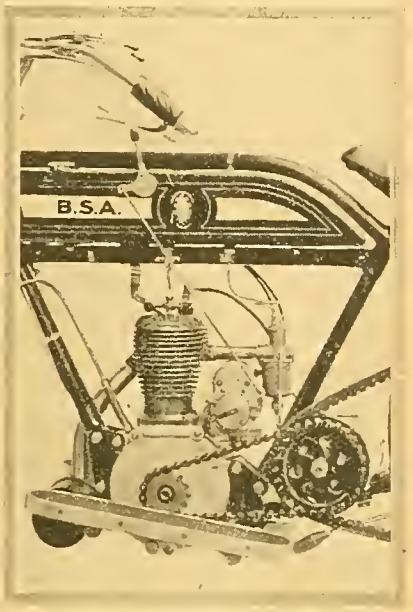
For use with these machines a neat sidecar is marketed The chassis and fixings are particularly strong, and the springing is very comfortable. It may be recalled that the rear portion of the B.S.A. sidecar is suspended on enclosed coil springs, which are connected to a rail carried high up behind the back of the sidecar. The only alterations to the sidecar chassis are a somewhat strengthened mudguard stay and the addition of a simple pivoted stand for the sidecar wheel.

A special tradesman's carrier will be put on the market for the first time. The sidecar chassis has been somewhat lengthened, and the box, which is very commodious, is carried on four short C springs. The machine we inspected was fitted with a neat electric lighting set, which can be supplied if specially ordered.



The new 4¼ h.p. chain-driven three-speed B.S.A

By far the most interesting B.S.A. innovation is the new 2¼ h.p. machine. The company are thorough believers in the future of the small machine, but favour a four-stroke engine. They have made no attempt to turn out an extremely light and cheap machine, but have rather designed and constructed a sound go-anywhere mount, which is to sell at a moderate price, and which will be fitted as completely as the larger models. It may be mentioned that at the present time there is no idea of putting the new machine on the market before the spring, and though the machine has successfully passed the experimental stage, the company are so busy on other work that there is little likelihood of the new model making a public appearance before that time.



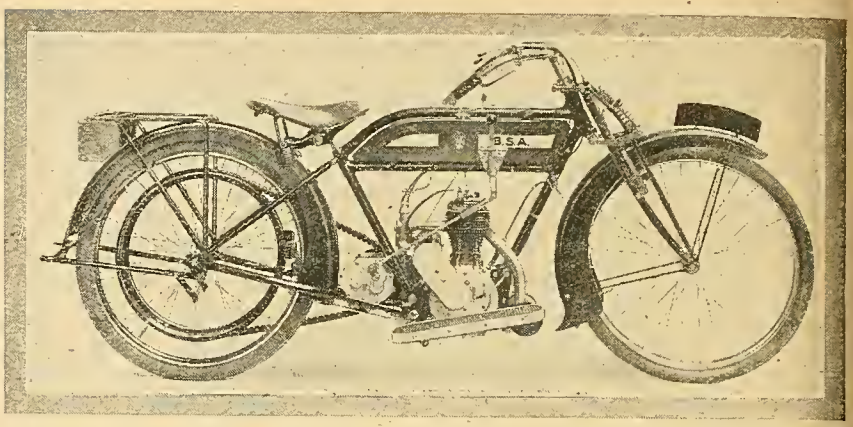
Power unit of the new B.S.A. production—a 2¼ h.p. four-stroke model with three-speed countershaft gear

The engine is a well-designed single cylinder of 68 mm. × 68 mm. which gives a cubic capacity of 247 c.c The designer has obviously had in view the important point of making an engine which shall be both cleanly in running and easy to clean, for there is an absolute minimum of external excrescences to act as mud traps.

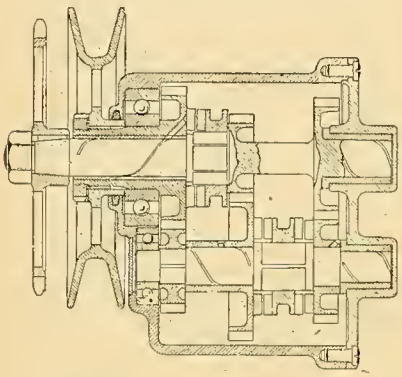
The valves are placed side by side, and besides being of good diameter the ports are well designed and allow a very easy passage for the gases. Both valves are operated by separate cams, which are mounted on a single camshaft, the rocker gear being extremely simple. The same shaft is used to drive the magneto, which is placed behind the engine in an accessible position and out of the way of mud. Both gudgeon pin and big end are extremely large; in fact, they are of the

An Entirely New B.S.A. Model.—

same dimensions as those used on the 3½ h.p. model. This is a point very often overlooked by designers of light machines, and small bearings are frequently fitted, with the result that wear soon becomes apparent, and the machine rattles and becomes noisy. The B.S.A. have guarded against this in every possible way. A ball bearing is fitted on the pulley side, and a very long, plain bearing on the timing gear side. Lubrication is by ordinary hand pump, oil being splashed in the usual way, but a special groove is formed in the timing gear side flywheel, and is so arranged that it traps any excess of oil from the timing gear bush and, by centrifugal force, throws it to the inside of the big end bearing through specially formed leads. As a proof of its efficiency, we may state that the experimental engine was running with no other oil hole to the big end, and the results have been excellent.



Valve side of the 1915 pattern 2¼ h.p. B.S.A., showing three-speed gear box and striking gear.



The three-speed gear of the 2¼ h.p. B.S.A. operated by double dog clutches.

A chain drive connects the engine to a three-speed gear box designed much on the lines of the standard and well-known B.S.A. gear. It is, of course, smaller, and has neither clutch nor kick-starter. A large diameter belt pulley is fitted, and the final drive is by means of a ⅞in. belt. The ratios supplied as standard are 5.7 to 1 on top, 8.5 to 1 middle, and 15.9 to 1 low. The driving chain is carefully enclosed.

Little Things that Matter.

Passing on to the frame and fittings, we find that every detail has been carefully thought out, and, besides, a very stout and sensible frame, which is sprung in front by a modification of the B.S.A. fork, having round instead of oval section blades, large footboards, a pan seat, and 26in. wheels, all help to increase the rider's comfort. As on all other B.S.A. models, the mudguarding is particularly well carried out. The rear brake is heel-operated and acts internally on the belt rim, so that the wheel can be removed without interfering with the brake gear. The tank fittings are excellent, including as they do a screw-down petrol tap and a priming device for the cylinder. A large armoured tool bag is fitted at the back of the carrier.

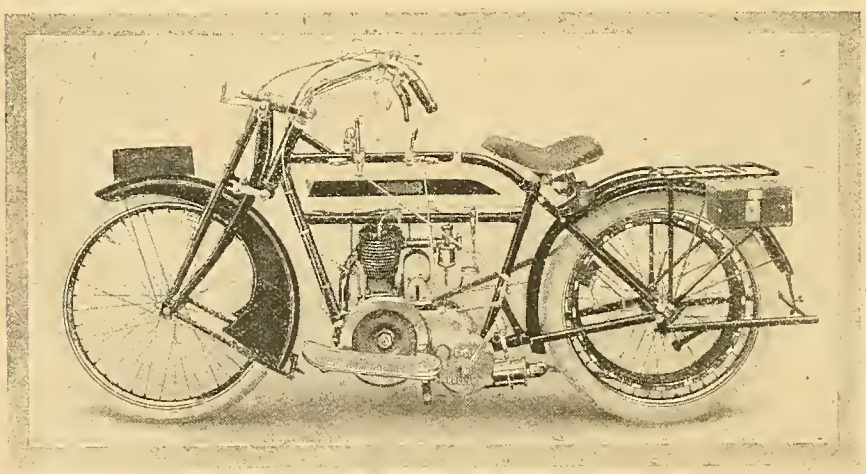
The whole machine is turned out in a most excellent manner. It does not look unduly small, and is in no way flimsy. For a high grade machine of medium power, it will be difficult to find a more inviting proposition at the price of forty guineas than the new 2¼ h.p. B.S.A.

A NEW EYSINK.

An Up-to-date Machine of Dutch Origin.

THE name of Eysink will not be altogether unknown to many readers of *The Motor Cycle*, in view of this machine's appearance in various Anglo-Dutch trials. It is a Dutch-built machine, its home being in Amersfoort, and in general design it bears a strong resemblance to the average English single-cylinder machine.

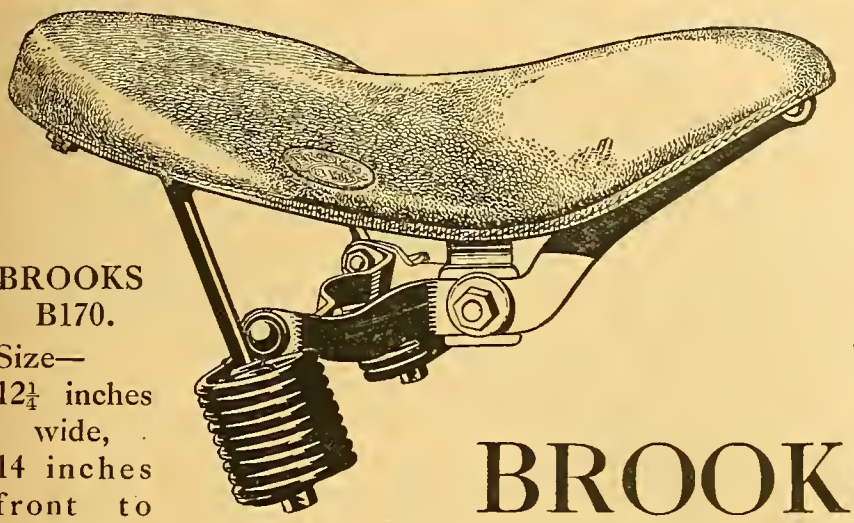
Several models are made, but the one illustrated is typical of the general design and construction of all. This is a 3 h.p. single-cylinder machine. The engine dimensions are 74 mm. × 85 mm., which give a capacity of 365 c.c. The valves are of the side by side mechanically-operated type, whilst the magneto is placed in an accessible position just behind the cylinder. It will be noticed from the illustration that an outside flywheel is employed, also that a totally enclosed kick starter is embodied with the countershaft two-speed gear. The drive is by chain to the countershaft, and thence to the back wheel by belt.



Flywheel side of the new 3 h.p. Eysink—a motor bicycle of Dutch origin.

The other Eysink models are as follow: 2½ h.p. single-cylinder 60 mm. × 85 mm. (309 c.c.), 3½ h.p single-cylinder 74 mm. × 95 mm. (409 c.c.), and 6 h.p. twin-cylinder 74 mm. × 85 mm. (732 c.c.) Prices vary from £57 10s. for the 2½ h.p. machine to £74 for the twin-cylinder.

From the foregoing it will be gathered that, broadly speaking, the Eysink machines follow standard practice, and, indeed, have British fittings incorporated in their design. It only remains to be added that the mudguarding, springing, equipment, etc., appear to be all that they should be.



BROOKS
B170.
Size—
12¼ inches
wide,
14 inches
front to
back.

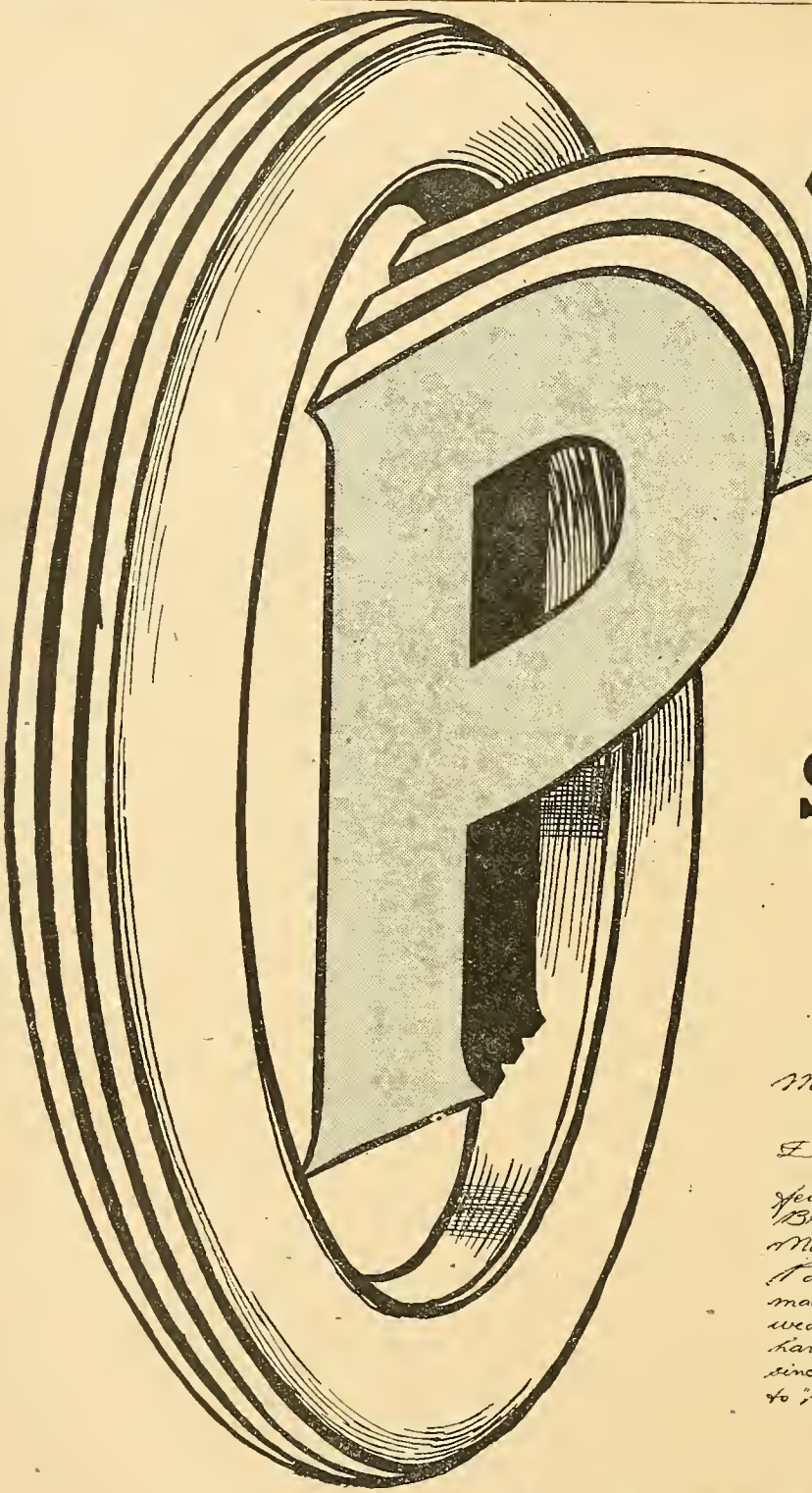
BROOKS—

the saddle that will be fitted on the great majority of motor cycles in 1915, as it has been in 1914.

Mere words cannot do justice to the perfect ease this saddle gives.
See that you have it.

Special models for Lightweights.

J. B. BROOKS & CO., LTD.,
49, CRITERION WORKS,
BIRMINGHAM.



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ABROAD.

Headquarters. Hon Artillery Co
British Expeditionary Force
October 22. 19

Messrs The Palmer Tyre Coy Ltd
London. E C.

Dear Sirs

On the 11th of August last, a few days before my departure with the British Expeditionary Force, I fitted my Machine (4 HP TRIUMPH) with a pair of "Palmer Cords" and up to date although the machine has been in use every day in all weathers over the worst possible roads - I have not had occasion to touch either tyre since I left England. This is surely a tribute to "Palmer" quality.

Corporal. G.E. Wood. H.A.

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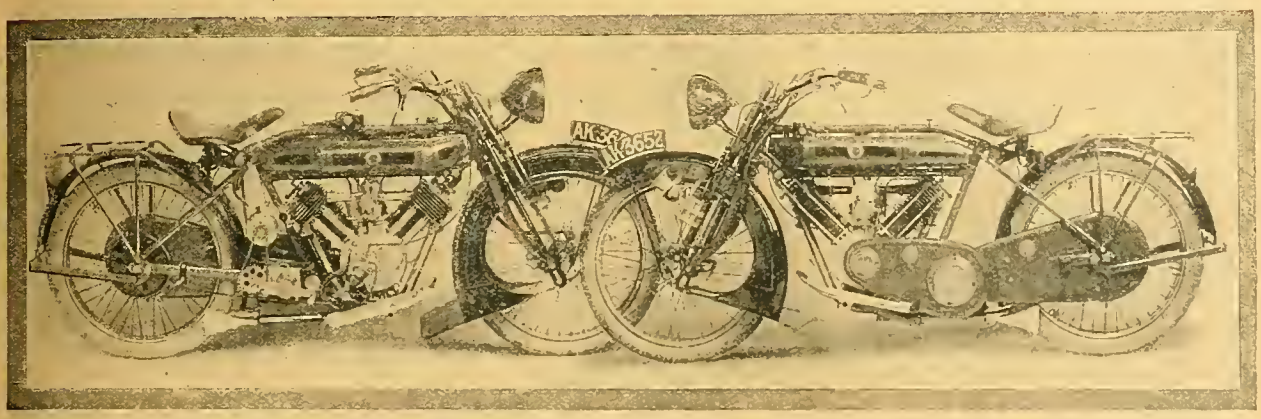
THE 6 h.p. P. & M. TWIN.

Four-speed Gear: 90° Engine of 770 c.c.; Protected Valve Springs and Tappets.



The 6 h.p. twin P & M. with Lucas dynamo set. Transmission side showing enclosed chain cases

THAT Messrs. Phelon and Moore were bringing out a twin-cylinder model has for some time been an open secret, but it was not till early this year that the news leaked out that it would be fitted with a 90° twin. A short time ago we published preliminary details of an experimental machine which was a prototype of the model we are about to describe. This early machine had the standard two-speed gear, but the new type has four speeds, and several interesting details besides. Through the courtesy of Mr. R. Moore, we are able to give the first description of the new P. and M. in its final form.

One of our illustrations gives a clear idea of the engine, and since the carburetter has been removed a good view is given of the magneto and its cleverly enclosed drive. The latter is carried out in the following manner: A bevel fixed behind one of the timing wheels meshes with a crown wheel at the bottom of the vertical shaft, while the final drive is conveyed to the magneto by means of skew gearing. The aluminium case enclosing this is in two portions, held together by wing nuts, so that the top half may easily be removed for inspection. The pinion on the magneto spindle, the end of which is tapered, is fixed by means of a combined nut and washer, which, when unscrewed, tends to withdraw the pinion, thus doing away with the necessity of prising it off. To detach the magneto, it is only necessary to loosen a screw, drop down the lower half of the cover of the gearing, undo the nuts, and remove the magneto complete with base plate.

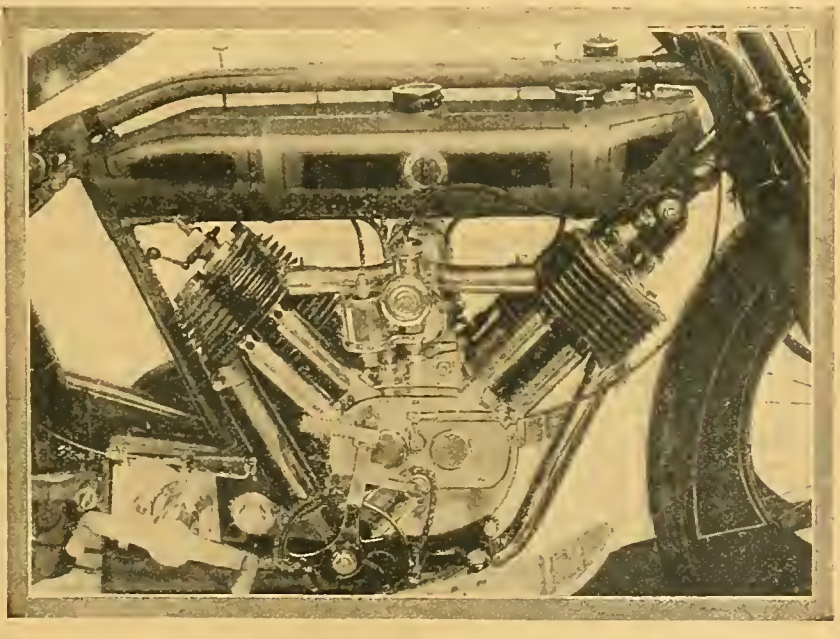
Features of the Engine.

Owing to the cylinders, the dimensions of which are, by the way, 76 × 85 mm. (770 c.c.), being arranged at an angle of 90°, the balance is excellent, and, in consequence, the smooth running is all that can be desired.

Simple and ingenious shields are provided to protect the valve springs and tappets, which may be described as half tubes of spring steel which clip into position. These serve to keep dust from the tappets and prevent the oil from running on to the crank case, which the makers take an especial pride in keeping clean. Considerable ingenuity has been displayed in the design of exhaust lifter. A pinion is keyed to the spindle attached to the arm visible in an illustration, which is connected to the Bowden wire mechanism. This pinion meshes with two wheels; one portion of the periphery of these is toothed and the other forms a cam, and these cams are forced up against the exhaust valve rockers when the Bowden lever is worked. Lubrication is effected by means of an Enots lubricator, which delivers the oil through the pipe just visible in the illustration to a point in the crank case adjacent to the front cylinder. Here the oil enters a channel which conducts a portion to the front cylinder, so that the piston picks it up at the bottom of every stroke, while the remainder is allowed to drip on the connecting rods. This method permits an ample amount of lubricant to reach the front cylinder, while the back one receives sufficient through splash

The Four-speed Gear.

Next to the engine, the most interesting portion of the machine is the four-speed gear, which is arranged in a most ingenious manner. It is a clever combination of two well-known successful systems, of which one is an improved form of P. and M. gear, and the other an ordinary dog clutch two-speed gear box. The P. and M. gear has been improved by the introduction of wider expanding rings and wedge bars, which are now split so that any wear which takes place may be taken up by inserting

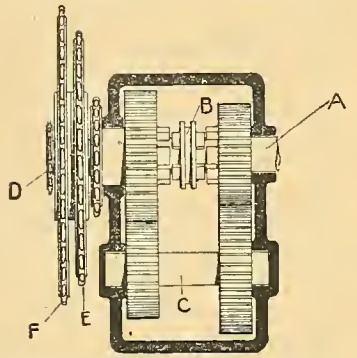


A closer view of the 6 h.p. engine, showing enclosed valves, gear box and operating pedal

C

The 6 h.p. P. & M. Twin.—

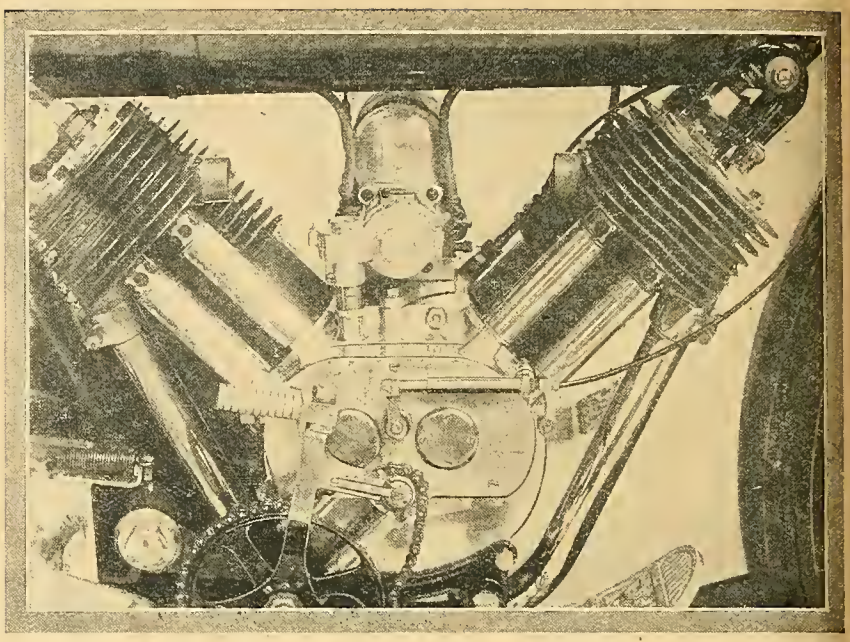
thin correctly shaped metal plates. A good idea of the arrangement may be gathered from the diagrammatic drawing. The shaft A, on which the dog clutch B slides, revolves independently of the chain wheels F E and both gear wheels, unless locked to either of the former by the expanding rings, or to either of the latter by means of one of the two sets of dog clutches. The first speed is obtained by sliding the dog clutch B to the right, which has the effect of lowering the ratios of the two P. and M. gears. If moved to the left the pinions in the gear box are idle, and the original P. and M. gear gives the higher speeds which are both direct. A pedal is used to bring the P. and M. gear into action, while a lever on the handle-bar is



DIAGRAMMATIC SKETCH OF P. & M FOUR-SPEED GEAR.

A. Gear shaft.
B. Dog clutches solid with A.
C. Lay shaft.
D. Expanding gear mechanism.
E. High speed chain wheel.
F. Low speed chain wheel.

employed to engage the dogs. It is interesting to note that no free engine position is given for the lever controlling the gear box. Such would be unnecessary, and may be explained more clearly by pointing out that the gear box merely serves the purpose of lowering the ratios of the P. and M. gear, and no matter whether the gear box is in operation or not the expanding gear serves as a friction clutch on either of its speeds for starting purposes. The gear ratios are 4½, 6, 8, and 11½ to 1 respectively. In practice it is found that the fourth and third gears



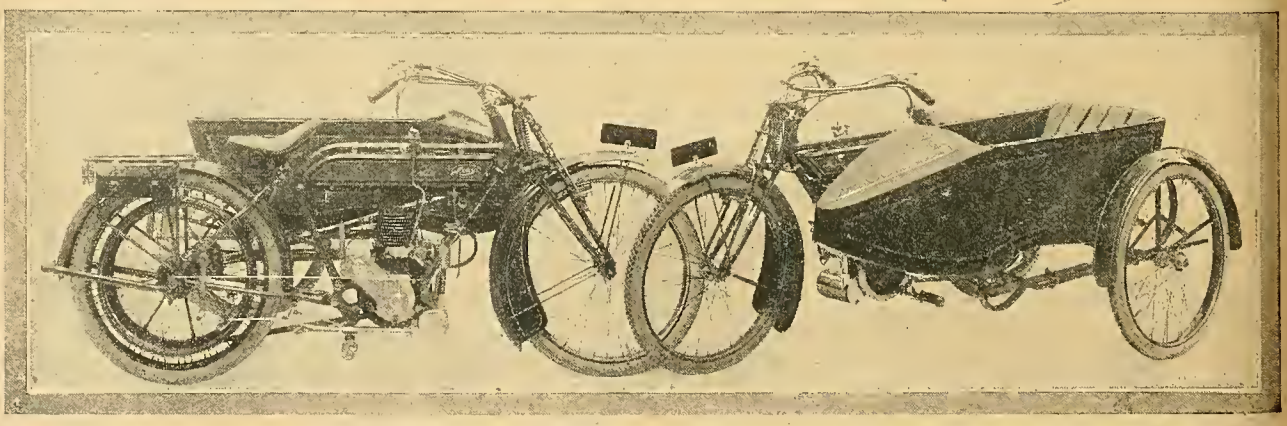
The 6 h.p. P. & M. engine with carburetter removed to show neat magneto drive.

suffice for all ordinary districts, and that the second and first are really only for emergencies.

The 6 h.p. P. and M. is essentially a sidecar machine, and since no up-to-date sidecar combination would be complete without a dynamo outfit, provision for this has, of course, been made. The excellent Lucas installation can be supplied; this has already been described in *The Motor Cycle*, but the most interesting feature is the method of transmission. A spindle runs through the bottom bracket just behind the gear box on which two chain wheels are fixed, one driving the dynamo, while the other is driven by the chain from counter-shaft to rear wheel. This latter runs inside the chain case, while the former is also adequately protected, though its cover is not shown in the illustration.

The tank, which is of particularly pleasing design, holds two gallons of petrol and two quarts of oil, while large glass topped filler caps are provided. Owing to the engine forming part of the frame, the wheelbase of the 6 h.p. model is only half an inch more than that of the 3½ h.p., and it is worthy of note that the sidecar lugs form part of the frame. Kempshall 650 mm. × 65 mm. tyres are fitted. Other portions of the machine to which we have not referred, such as transmission, forks, footrests, etc., follow P. and M. standard practice, and the finish, needless to say, is superb. Mr. Moore himself met us at Bradford Station with the original two-speed 6 h.p. model, and drove us back from the works at Cleckheaton in a most luxurious sidecar attached to the actual machine from which these photographs were taken. It started from rest on third speed, and took all gradients on top despite a very strong wind. The engine pulled remarkably well, and ran with a smoothness rarely found in petrol motors of this type.

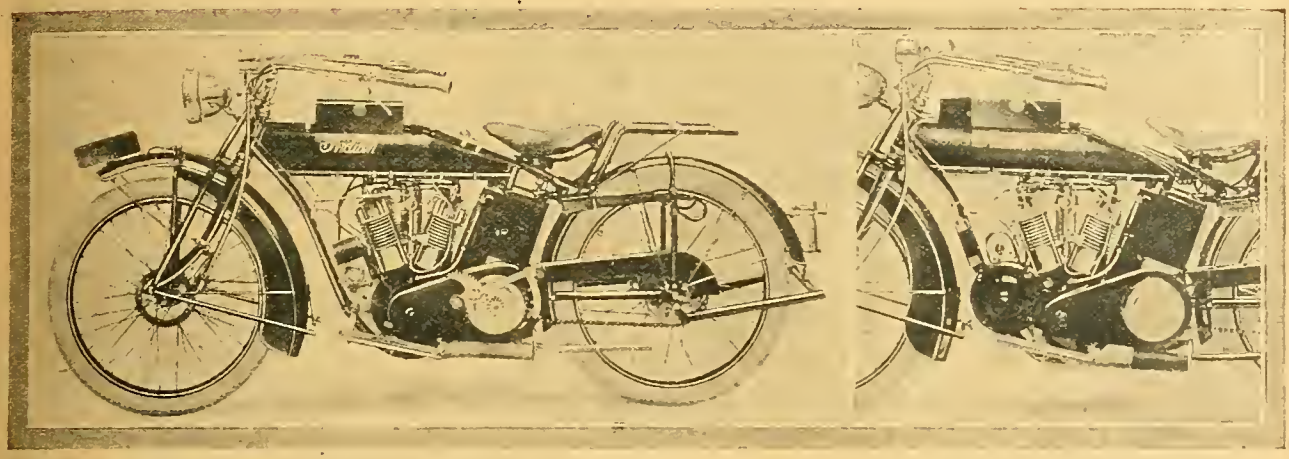
In conclusion, we may say that this model is quite the best produced at Messrs. Phelon and Moore's works, and we prophesy a particularly rosy future for it.



Both sides of the lightweight two-stroke Ixion sidecar outfit propelled by a 2¾ h.p. Peco two-stroke engine. (See page 570.)

INDIANS IN 1915.

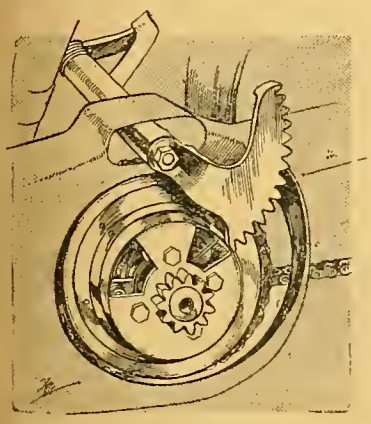
All Twin-cylinders—Three-speed Standard.



The 7 h.p standard Indian fitted with three-speed gear and electrical equipment

Power unit of the 1915 Hendee Special, which has an electric starter

THE 1915 Indian models are really excellent examples of the very best in motor cycle manufacture, not only as regards finish and general appearance, but also in ingenuity. The models to be placed on the British market for the coming season are the



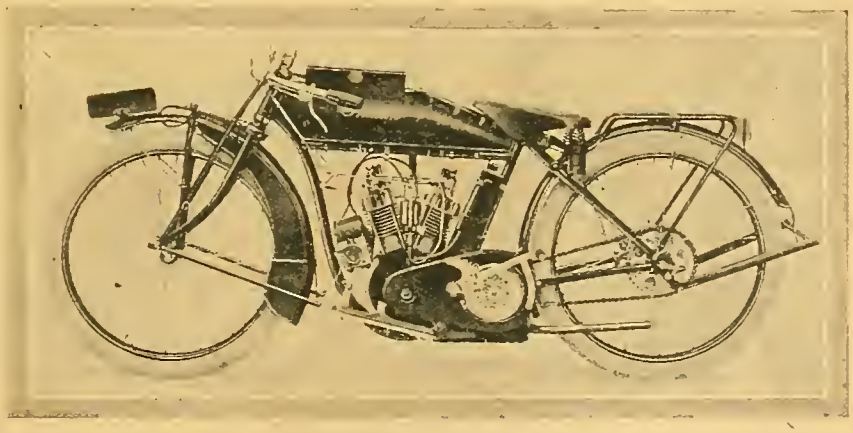
The clutch and kick starter fitted to the new twin-cylinder Indians.

following: a 3½ h.p., bore and stroke 70 mm. × 74.5 mm., 574 c.c.; a 5 h.p., 70 mm. × 89 mm., 684 c.c., which is a slightly larger replica of the former; the 7 h.p. standard model, 82.5 mm. × 93 mm., 994 c.c.; the Hendee Special, which is of the same size, and like the other, fitted with spring frame, and dynamo starting and lighting; and, lastly, the 7 h.p. racing model, fitted with the same size engine, but with single gear and clutch. It is provided with special cams and valves, and is built for speed alone, while it is interesting to note that every engine fitted to this model is guaranteed to give 20 h.p. on the brake.

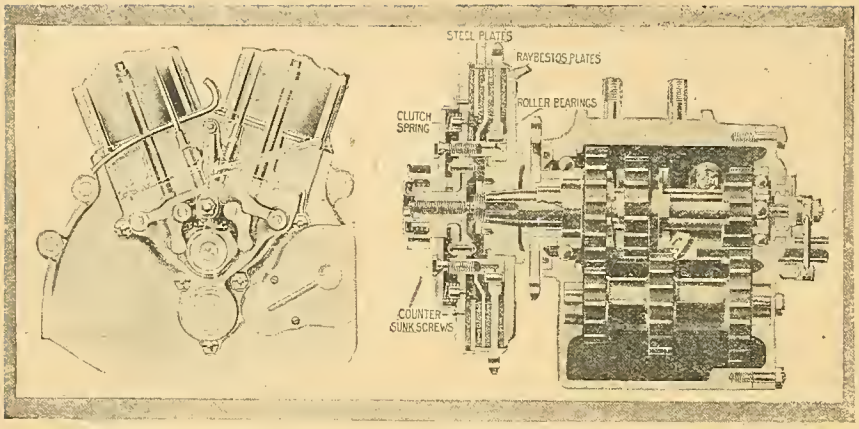
The first model to come to our notice is the 3½ h.p., which is quite one of the most fascinating little solo mounts we have yet seen. The engine is of sufficient size to give as much speed on the level and on hills as the most enthusiastic rider may desire, yet with the excellent automatic carburetter fitted it is tractable and easy to handle. The low saddle position is particularly noticeable in the accompanying illustration, being two inches below the level of the top tube. The engine, the prototype of which took part in the Tourist Trophy Races this year, does not outwardly show much difference from the firm's previous models, but it is interesting to note that the main supply of oil is introduced to the engine through the front cylinder. A useful refinement is the addition of a petrol filter or separator below the carburetter. The exhaust valve lifter arrangement is the same as has been fitted to the 7 h.p. machines.

Larger Clutch Surface.

It is, however, in the gear and transmission that the chief improvements in the 1915 Indian have been made; these improvements, by the way, are common to all the models. The clutch is a beautiful piece of work, and as in previous models consists of Raybestos and steel discs, but this year's clutch has one-third more surface than formerly, and when in the free position the large size chain wheel runs on hardened steel roller bearings. We recently saw one of these clutches taken apart by Mr. Wells in the space of about five minutes. The external plate is kept in position by means of countersunk screws, the heads of which are cone-shaped and possess several shoulders on them which engage with corresponding grooves in the countersunk holes, these grooves serving to lock them in position as the plate is pressed up against the screw-heads by means of the clutch springs, consequently there is no fear of their coming out. The clutch springs are fitted over a series of studs in the outer of the steel plates. Normally, eight are fitted, but if eight are insufficient to take up the load without slipping, twelve or even sixteen may be put into position, and all this can be done in a very short space of time. The clutch



The new 3½ h.p. three-speed Indian (Model A)



The valve gear of the twin Indians.

Section of the countershaft three-speed gear and clutch

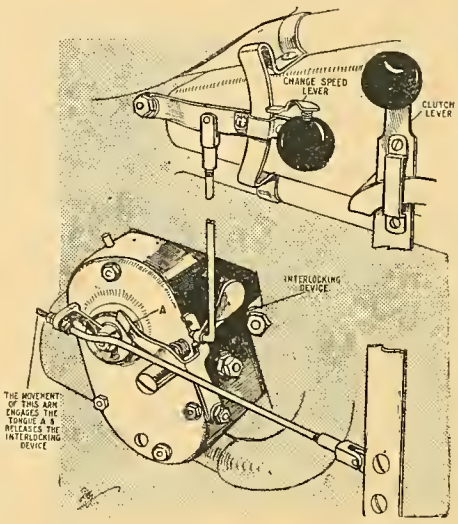
itself is operated by a quick thread on the near side of the gear box which runs through the main gear shaft. The lever working the thread is attached to a rod coupled to the main clutch lever, which in turn is connected to a pedal, so that the clutch may be operated either by hand or by foot. Connected to the clutch rod is an interlocking device, working in conjunction with the change-speed lever which prevents the gear lever being moved while the clutch is in engagement. This device is clearly shown in the accompanying sketch. Turning now to the gear box, an interesting feature is the spring bolt which locks the striking rod and holds the gears in engagement. That portion of the rod which projects through the gear box is protected from the elements by means of a dust cap. This arrangement is similar to the locking device to be found in the change-speed gate of a car. The illustration of the gear box shows the top speed about to come into engagement by means of dogs. In the change-speed lever the only notch is for the middle gear, since the spring plunger serves the purpose of notches in the quadrant. Other detail improvements are the fitting of large filler caps and an auxiliary release to the exhaust. An excellent feature is the kick-starting arrangement, which is a really substantial job.

Testing the Materials.

The 7 h.p. very closely resembles the smaller model we have just described, with the exception that the bigger machines have spring frames and that the kick starter, when fitted, is on the off-side of the machine. This is very convenient when used in conjunction with a sidecar; on these larger models a $\frac{3}{8}$in. Renold chain is standard.

The works in Springfield, U.S.A., are equipped with a magnificent laboratory in which the materials employed are most carefully tested. The result of these tests has been the adoption of Vanadium steel for the frame tubes, which is three times stronger than the reinforced carbon steel tubes previously employed. Another point of interest is that the new fork stem, which is reinforced by three separate pieces of tube brazed together inside, and locked by a loose piece of tube expanded at each end in the centre of these, is seven times stronger than the fork stems in earlier models.

To sum up, the Indian range for 1915 is easily the most attractive yet offered to the public by the Hendee Co., and therefore bound to enhance its popularity.


CHANGE SPEED LEVER
CLUTCH LEVER
INTERLOCKING DEVICE
A
THE MOVEMENT OF THIS ARM ENGAGES THE TONGUE A & RELEASES THE INTERLOCKING DEVICE

Indian interlocking device for gear and change-speed lever. The movement of the operating arm engages the tongue A and releases the interlocking device.

THE ARIEL TWO-STROKE.

SINCE illustrating and publishing the essential features of the new two-stroke Ariel in our issue of October 29th, the final design has been approved of, and we are now able to give further details of the machine and an illustration as it will be placed on the market.

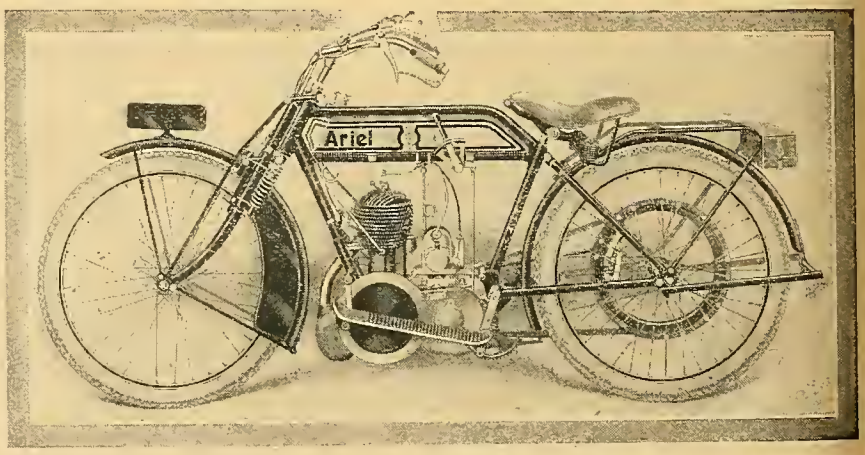
As stated in the previous article, the engine is of the three-port two-stroke type, having a bore and stroke of 75 mm. × 79 mm. The cubic capacity is 349 c.c., and it is rated at 2¾ h.p. A two-speed gear is employed, together with countershaft drive, the chain being enclosed by an aluminium case. Somewhat unusual fittings on this type of machine are the clutch of the cork insert type—and the kick starter. The former is similar to that fitted to the three-speed countershaft Ariel, and is hand applied. A Senspray carburetter has been adopted, and handle-bar control throughout is standard.

The tank has a capacity for one gallon of petrol and one quart of oil. Under normal conditions the makers claim a petrol consumption of 80 to 90 m.p.g.

It is capable of speeds up to about 35 m.p.h. The weight complete for the road is 160 lb with such features as a clutch, kick starter, and two-speed gear. The Ariel two-stroke should be capable of serious touring work, and fulfil all the requirements of the solo rider.

Other Ariel Models.

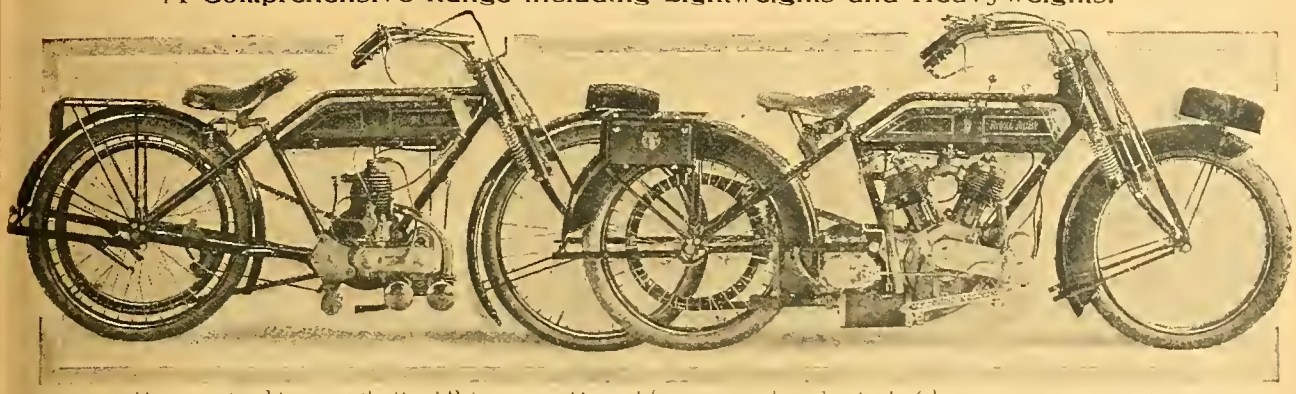
The other Ariel models for next year are the same as those listed in 1914, only modified and brought up to date in detail. These are the 3½ h.p. three-speed countershaft, the 3½ h.p. single-geared touring and T.T. models, and the 5-6 h.p. twin-cylinder three-speed countershaft models. As suggested, no material alterations have been found necessary, and those detail improvements made have been tested during the big competitions in the pre-war period.



Flywheel side of the latest 2¾ h.p. two-stroke Ariel.

ROYAL RUBYS FOR 1915.

A Comprehensive Range including Lightweights and Heavyweights.



The smallest and largest of the Royal Ruby range. On the left the two-stroke and right the 6 h.p. twin three-speed machine.

THE manufacturers of the Royal Ruby motor cycles have a comprehensive range of lightweights, both two-stroke and four-stroke, for the coming year. In addition, 3½ h.p. and 6 h.p. models will form an important part of the programme, but in view of the present interest in light, low-powered machines, and the choice of type offered by the Royal Ruby Cycle Co., we shall confine our remarks mainly to these types.

First of all, the simplest and cheapest Ruby lightweight is the 2½ h.p. two-stroke, which, with single gear and belt drive, sells at 25 guineas. The engine is a Villiers 70 mm. × 70 mm. = 269 c.c. The carburetter is an Amac Special, and lubrication is from a separate chamber in the tank, through a Best and Lloyd sight drip lubricator, and through the carburetter to the engine. Moseley 26in. × 2in. rubber studded tyres are the standard fitting.

A similar model is listed with a four-stroke J.A.P. engine of 70 mm. × 64 mm. (246 c.c.) It is fitted with an adjustable pulley, and the magneto is gear driven. Both the foregoing can be fitted with Albion two-speed countershaft gear or the Sturmey-Archer three-speed hub gear.

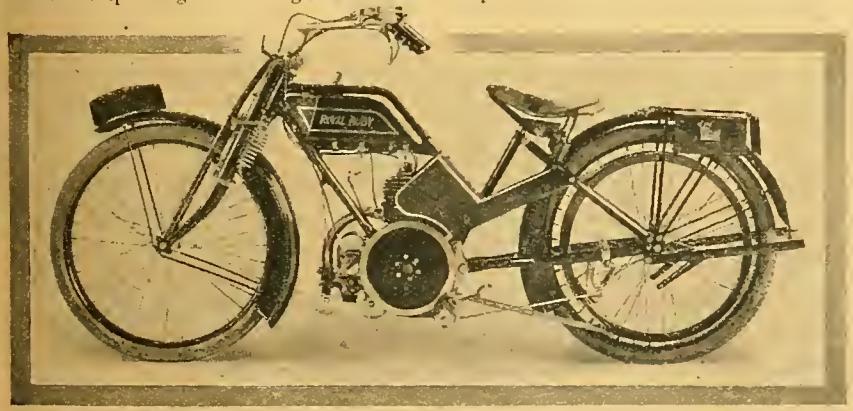
Realising the popularity of the pastime among the weaker sex, there is a lady's edition of the Royal Ruby lightweight. This is fitted with the Villiers two-stroke engine, and, with the exception of the frame and special guard arrangements the general specification is the same as for the preceding models.

Further, there are de luxe models of both the two-stroke and four-stroke lightweights. The engines are the same, *i.e.*, Villiers and J.A.P. respectively, but the regular equipment includes Sturmey-Archer three-speed hub, and the general specification is of a higher order than the standard models, Roman rims being included as a standard fitting.

A J.A.P. engine (85½ mm. × 85 mm.) is fitted to the Royal Ruby 3½ h.p. standard touring mount. The engine is one of the latest J.A.P. productions, it being fitted with a new type of timing gear, adjustable tappets, internal exhaust valve lifter, and decompressor. In addition the power unit includes the J.A.P. adjustable pulley. The specification is attractive, including, as it does, Saxon or Druid forks, B. and B. carburetter, Dunlop 2in. belt, and Brooks saddle. The price of fifty-four guineas includes Sturmey-Archer three-speed and free engine hub. This model is also supplied with a countershaft drive, in which case the gear is the maker's own three-speeder.

Two twin-cylinder machines are also listed, these being J.A.P. engined. The 6 h.p. is 76 mm. × 85 mm., and the 8 h.p. 85½ mm. × 85 mm. The drive is by combined chain and belt, the gear being the Royal Ruby three-speed with free engine and kick starter.

The 3½ h.p. and twin cylinder machines are fitted with back guards provided with easily detachable fitments. These enable a mudguard to be taken out completely with the carrier by the removal of four set pins.



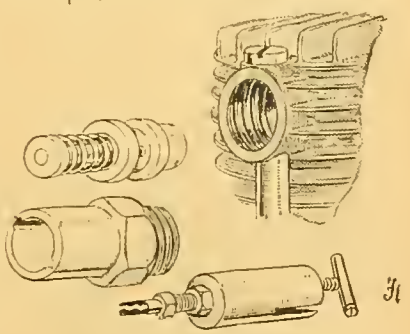
Lady's new model Royal Ruby two-stroke machine standardised for 1915

VELOCETTE IMPROVEMENTS.

IT can scarcely be said that Messrs. Veloce, Ltd., have designed a new machine for the coming year, and yet the improvements are of considerable importance, and should still further increase the comfort and sweet running of the little engine.

Crankshaft Balance Weight.

Perhaps the most important, and also the most unusual, feature is the addition of a balance weight, which is mounted on a fixed spindle on the opposite side of the crank case to the drive, and is driven merely by the crank pin, which fits loosely into a hole.

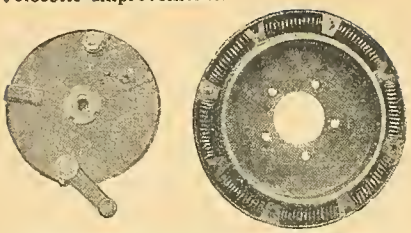


Details of enclosed release valve on the latest type of Velocette

This addition has been found to give extremely steady running, and it has all the advantages of the usual type of crankshaft without the attendant disadvantages of a second bearing to cause pressure leakage or oil throwing.

The lubrication has been modified, and the pressure pipe from the exhaust to the oil well is no longer utilised. Instead of this, the oil is fed direct to the main bearing, and thence through ducts to the big end. The slot in the big end bearing, which used to be a feature of the system, is now no longer maintained. A very simple arrangement for leading the release gases into the exhaust port has been incorporated with the cylinder, the whole mechanism

Velocette Improvements.—



Spring shock absorber and part of internal expanding brake on Velocette drive.

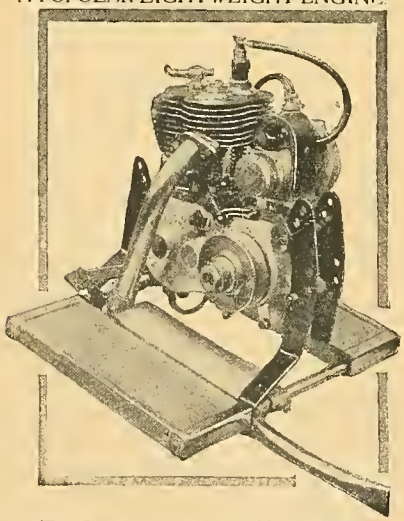
being neatly and simply enclosed; the operating plunger for the valve is worked by the outside member of the Bowden casing. The new silencer is somewhat bigger, and adds to the quietness of the machine.

Good Brake Work.

Chain drive throughout is still used on all the two-speed models, but a spring shock absorber is fitted within the big sprocket, and a very effective internal expanding brake is mounted in the rear hub. This brake is of large diameter and easy of access, while, being of the internal type, it keeps clean and free from grit. Both chains are protected by metal cases. Other frame details consist of a considerably strengthened carrier and an excellent spring-up stand.

A single-geared model may be obtained, but it will be fitted with a countershaft and chain-cum-belt transmission. The two-speed gear is a particularly neat piece of mechanism, and instead of utilising the usual sliding dogs a very large and powerful sliding keyway effects the same end, and is infinitely simpler to construct and to operate. The alternative gear ratios are 5 to 1 and 10 to 1, or 5½ to 1 and 11 to 1. Another neat fitting is the flywheel locking nut, which is so arranged that when unscrewed it removes the flywheel without any special tools.

A POPULAR LIGHTWEIGHT ENGINE.



The Precision Junior for 1915, which, as will be seen, has vertical valves. This engine, which measures 65×60 mm.=199 c.c., is fitted to a number of machines included in the Buyers' Guide.

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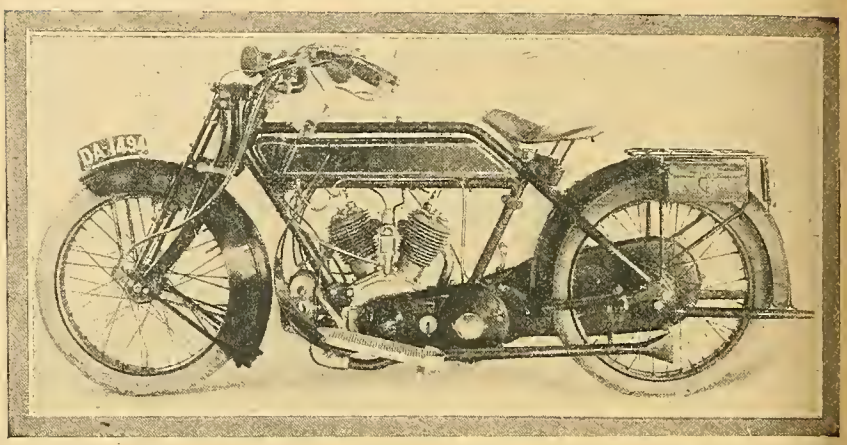
THE NEW TWIN SUNBEAM.

6-7 h.p. Engine, Re-designed Gear Box and Clutch.

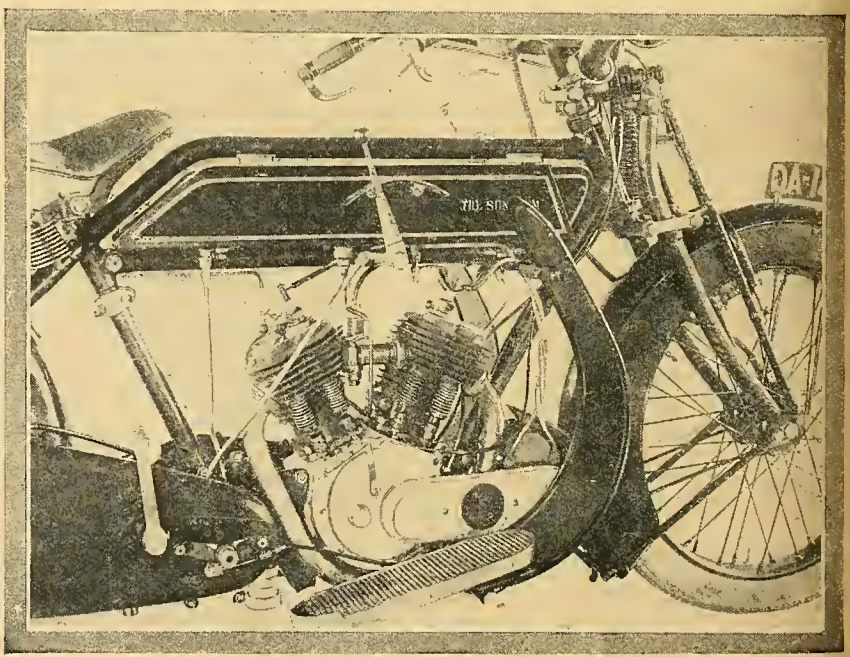


The 6-7 h.p. Sunbeam three-speed machine which has been redesigned for 1915.

THE most novel machine of the Sunbeam 1915 range is the twin-cylinder 6-7 h.p. machine. An entirely new engine is fitted to this mount of a bore and stroke of 73×95 mm., giving a capacity of 796 c.c. The valves are of the mechanically-operated side-by-side type, a new design silencer is used, but the most important change apart from the engine is the new gear box, which is much stronger than formerly, and the change of gear is effected by a pair of sliding clutches actuated by a rack and pinion and a cam action. The gear teeth are very wide and strong enough for almost any work. In addition to the gear, the clutch as well as the operating mechanism has been re-designed for next year. Last year the plates were carried on pins; they are now supported on keys, and there are seventeen plates in the new design, nearly double last year's total, thus giving increased frictional surface.

The mudguards have been greatly improved, and leg shields are also fitted in front of the footboards. The wheels are, of course, detachable and interchangeable as before.

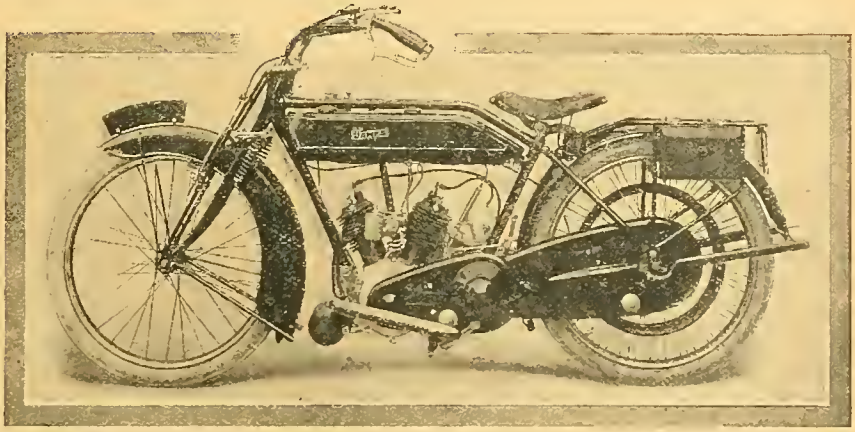
The engine of the 3½ h.p. machine has also undergone various alterations, though the bore and stroke remain as before. The magneto is now driven by a silent chain. The improvements in connection with the gear and clutch also apply to this model. The 2¾ h.p. mount remains practically unaltered for 1915, so satisfactory has it proved.



Valve side of the new 6-7 h.p. engine fitted to the twin Sunbeam.

JAMES MODIFICATIONS.

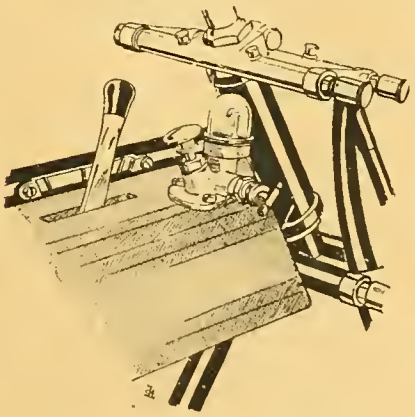
THE James Cycle Co., of Birmingham, have decided only to modify their present types, as they find no necessity to make alterations. They have entirely dropped all belt-driven models with the exception of the little two-stroke, which will remain exactly as before, except for the fact that the choice of 26in. or 24in. wheels is given. The big single will be marketed with both two and three-speed gears, and in main details remain unaltered. Some parts of the frame have been reinforced, though they retain their original appearance. One of the most striking alterations is the removal of the change-speed lever from the side to the centre of the tank; this now passes through a slot working in a gate on the side of the top tube. This allows the tank capacity to be increased by widening the tank without interfering with the rider's comfort. Two gallons of petrol are now carried without causing any unsightly projections. All riders will appreciate the fact that grease cups are fitted to all the spring fork shackle pins, which permit proper lubrication of this important part without fiddling with tiny lubricators. Both chain cases are now provided with neat inspection caps, which are instantly detachable, and permit a clear view of the lower part of the chain. The cases themselves are split horizontally instead of vertically as before, and appear absolutely flush without projections. The hubs have an all-black finish, and the front hub with its Timken roller bearings can now be adjusted readily.



1915 model 3½ h.p. twin-cylinder James, which is a combination of last year's T.T and touring types.

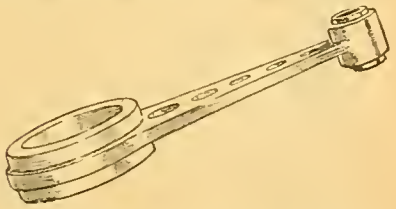
The 3½ h.p. Twin.

In the case of the 3½ h.p. twin the alterations are somewhat more noticeable, though in reality only detail refinements have been carried out. A similar frame to that used in the Isle of Man is now employed with a very strong design of steering head. The gear control has been carried rather further forward so as to be in an accessible position, and clear of the rider's knee. The rear brake will in future be heel applied, and the chain case and the spring fork grease cups are, as already described, as on the big single. Arrangements have been made for fitting the Lucas lighting set as an extra, the dynamo being carried in a specially adapted bracket in the saddle tube. The drive is, however, an extension to the gear shaft, and the whole thing is extremely well carried out. Another addition which can be obtained in the extras is a most excellent leg guard, which thoroughly protects the rider on the muddiest of days. Although this guard appears to cover most of the front of the machine, it has been found that it does not in any way affect the cooling.

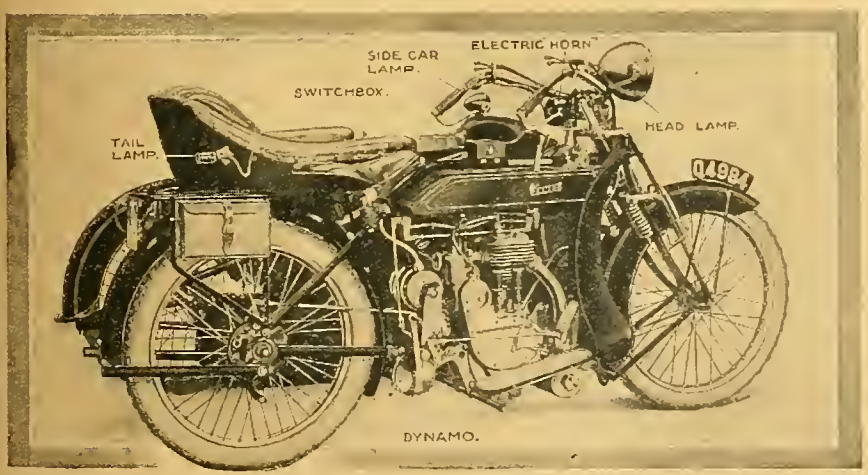


New gate change, and grease cups to front fork shackles on "Big Single" James.

The James sidecar combination with these extras is one of the most complete and comfortable outfits we have ever seen. The sidecar wheel is sprung, and the attachments to the motor cycle are excellent. The chassis remains as before.



The big end of the Omega connecting rod is hardened, and serves as the outer shell of the roller bearing. This machine was described on page 508B (Nov. 5th).

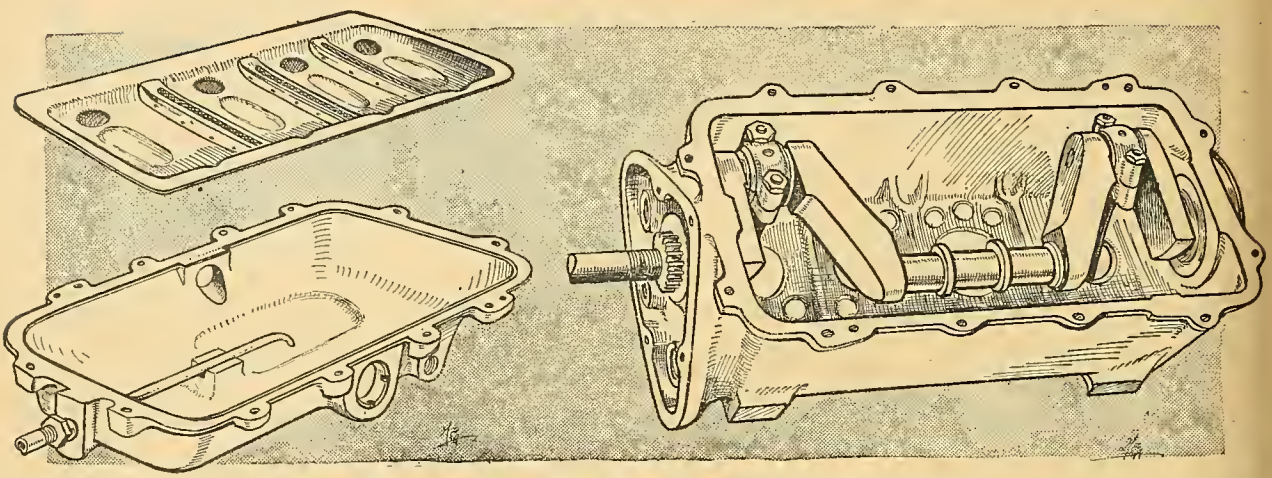


James-Canoelet sidecar combination for next year, fitted with Lucas dynamo lighting set.

THE JARDINE FOUR-SPEED GEAR.

One of the most interesting four-speed gears, which it will be noted from the Buyers' Guide is a standard fitting on certain machines, is the Jardine, which was fully described and illustrated in our issue of October 8th. We are led to refer to the Jardine again, as the makers inform us that the trial gear has now completed 3,700 miles without being touched. Mr. George Hunt, who has used it on his 8 h.p. Campion sidecar, tells us that he has done his best to break the gear through intentional ill-treatment, but without result. It may be recalled that this machine took part in the hill-climbing expedition on Grindon, Littonslack, Cowdale, etc., chronicled in our issue of October 29th.

Lubrication on the Latest F.N.



CRANK CASE OF THE 7 h.p. F.N. FOUR-CYLINDER ENGINE.

Fig. 1.—Showing oil sump and lower half of base chamber.

Fig. 2.—View from underside showing three-throw crankshaft and two of the connecting rods in position.

WE recently had an opportunity of inspecting some of the parts of the latest type four-cylinder 7 h.p. F.N. The method of engine lubrication is an interesting feature, and the illustrations deal chiefly with the excellent system which has been adopted on this interesting motor bicycle.

Fig. 1 shows the lower half of the crank case and oil sump, and the pipe through which the oil is drawn from the sump to the troughs shown in the tray which fits above this portion of the crank case. Here may be seen the four troughs in which the big ends dip and the gauzes through which the oil returns to the sump after being utilised. It is also interesting to note the two windows in the bottom half, by means of which the level of the oil may be seen at a glance. The upper half of the crank case to which the sump is attached is shown upside down for clearness, and demonstrates the three-throw crankshaft provided, the two outer connecting rod big ends being visible in position on their journals.

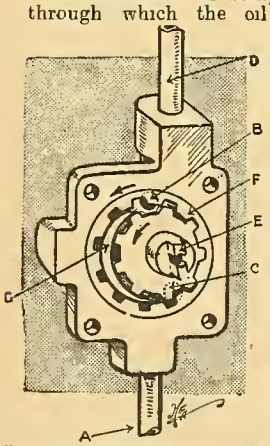
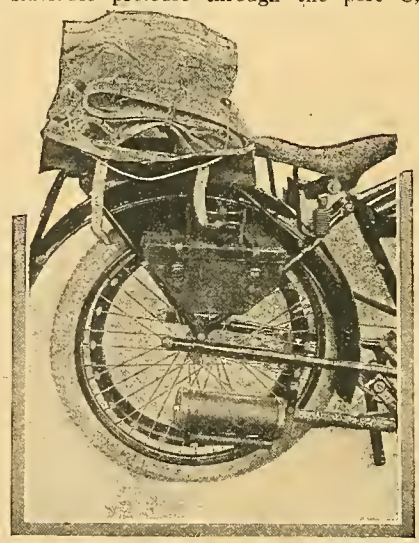


FIG. 3.—ROTARY PUMP ON THE LATEST FOUR-CYLINDER F.N

A. Inlet pipe from sump connecting to B.
B. Inlet port to pump chamber.
C. Delivering port from pump chamber.
D. Delivery pipe to bearings.
E. Gear wheel.
F. Internally toothed ring.
G. Crescent-shaped baffle.

Fig. 3 shows the ingeniously designed rotary oil pump. It will be noticed that it consists of a small gear wheel E meshing with an internally toothed ring F, which revolves inside the main casting of the pump, while on the left of the gear wheel E is to be seen a crescent shaped baffle G. This also forms an integral part of the main casting and acts as a seal for the oil. The direction of rotation is anti-clockwise, as indicated by the arrows, and as the teeth of the small wheel begin to separate from those of the gear ring in the neighbourhood of the oil inlet port B a vacuum is caused, as the oil cannot reach this part owing to the crescent G and the proximity of the teeth on the right-hand side of the pump. To fill this vacuum oil is drawn up through the pipe A to the port B from the sump, and is then carried round in the notches between the gear teeth until the gradual closing in of the gear teeth towards the port C forces the entangled oil at considerable pressure through the port C, finally issuing from the delivery pipe D to the bearings and troughs.

It is really an education to examine one of these beautiful machines in pieces, and the sketches reproduced on this page give the reader a clear idea of the ingenuity displayed in the design.



The hold-all and complete equipment carried on the Zenith motor bicycles supplied to the War Office. The new design silencer is discernible.

THE ZENITHS FOR THE FRONT.

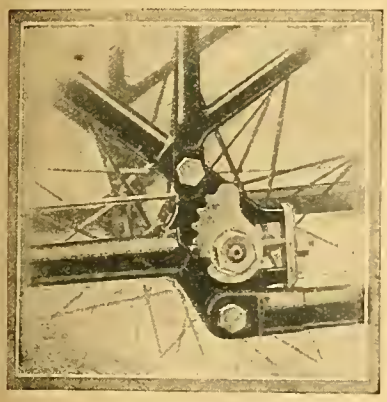
ON the occasion of a recent visit to the works of Zenith Motors, Ltd., Hampton Court, we saw about thirty military motor cycles, forming part of an order of 100 which the company had executed in three weeks for the War Office. These were practically standard 3½ h.p. single-cylinder models, which, by the way, the company have almost given up manufacturing, owing to the popularity of the twin. These machines were finished in all black, except the handle-bars and a square of slate grey on the tank. They were equipped with Amac carburetters, J.A.P. engines, and all black Powell and Hanmer lamps, horns, and generators. A square belt was neatly strapped to the side of the carrier, and on the carrier itself was placed a most convenient hold-all, designed by Mr. F. W. Barnes, the works manager. This device is constructed to carry the spare cover and two tubes required by the military authorities, but as it is capable of being extended, even more may be carried therein. It is made of Willesden canvas, and secured by good quality straps.

An interesting innovation on this machine is the new Zenith silencer, which consists of an expansion chamber and an exit pipe directly beneath it. This expansion chamber is at the extremity of the main exhaust pipe; it is an efficient silencer, and allows a perfectly free exit for the gases.

We hope shortly to deal with the other new model Zeniths, which are all fitted with twin engines

Countershaft Geared Rovers in 1915.

ALTHOUGH at first sight there does not appear to be any great change in the latest Rover models, yet, on examination, it will be found that the new machine has been redesigned from end to end. Starting with the engine, we find that the valve ports have been enlarged and improved, and the new valves have an extremely large port area. The timing gear also has been slightly altered, although it is on the same lines as before. Even the piston and connecting rod have been altered to a slight degree with results beneficial to the running of the engine. The driving side of the crankshaft is mounted on two separate ball bearings, so as to give ample surface to take the pull of the driving chain. A silent chain conveys the drive from the crankshaft to a three-speed countershaft gear; this chain is entirely enclosed in the die cast aluminium case. The three-speed gear box is of very neat construction, and has only sliding members, consisting of two rods and one gear wheel. The clutch is the cork insert type, and the kick-starter is neatly enclosed in an extension of the gear box. One of the most unusual features of the box is that the lid is formed by the bottom bracket framework, which gives a very neat appearance to the device and saves a certain amount of space. The final drive is through an 8in. pulley and a 1in. belt, the gear ratios being approximately 5 to 1, 7½ to 1, and 15 to 1, the lower gear being, of course, purely an emergency one. The gearshafts are mounted on ball bearings throughout.

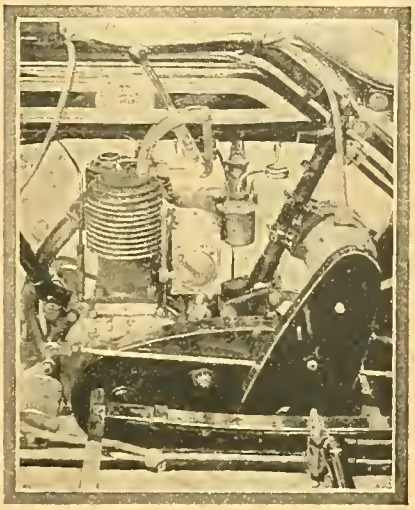


A flat plate with a series of notches is fixed on each side of the rear spindle on the new 3½ h.p. Rover, so as to ensure that the rear wheel is fixed in correct alignment.

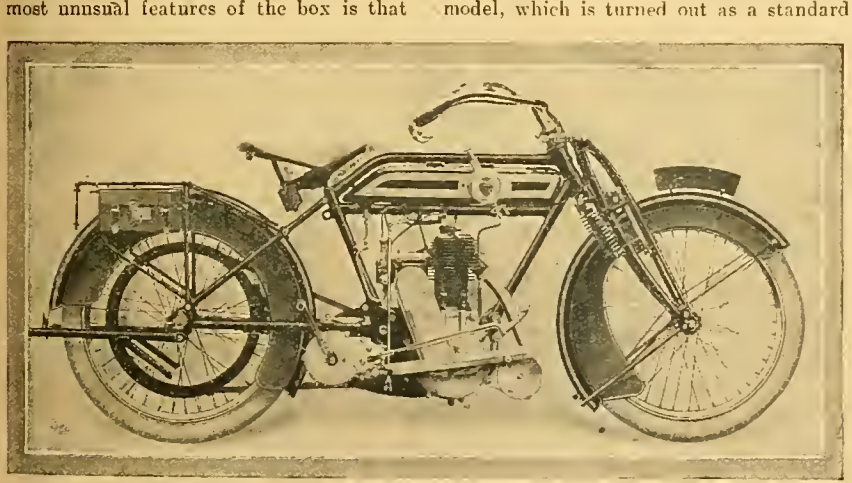
Frame and Fittings.

The frame alterations are not very noticeable, but besides the new bottom bracket lug, the steering head has been given an increased rake. 650 × 65 tyres will in future be fitted on all models, and excellent mudguards, which are fully valanced on both sides, protect the rider in bad weather. A belt guard is also standard, and the front portion of the rear guard is extended below the level of the lower part of the belt, so that mud cannot pour over it and cause slip.

The handle-bars are somewhat wider than in previous years, and are bent into a very comfortable position. The standard lubrication will be by plain pump fitted with a tap at the bottom, or Best and Lloyd's automatic drip feed can be obtained to order. The hinged carrier and guards and the powerful double lever in front of the brake will remain as in the 1914 model. A Lucas dynamo lighting set can be fitted as an extra, and, if supplied, it is fitted behind the saddle tube and driven by an enclosed chain from an extension of the countershaft. Sidecar chassis and body are modified in detail only, and the neat spring luggage carrier is still retained on the back of the chassis. The feature of this outfit is the compensated sidecar brake, actuated by the usual foot pedal on the motor cycle. A very neat fitting has been devised for ensuring that the back wheel shall be in line. This consists of a form of notched quadrant, carried on the spindle, the notches engaging with a projecting boss. It is only necessary to engage the same notch on each side of the wheel with the boss to make sure that the wheel is in proper alignment. A similar engine to that already described, but with slightly higher compression, is fitted to the T.T. model, which is turned out as a standard with a single belt drive, though a Philipson governor pulley may be obtained as an extra. If fitted, this pulley is, of course, handle-bar controlled. The handle-bars are almost straight and give a comfortable racing position. The wheel base of the new T.T. model will be longer than before, and is, in fact, the same as in the standard model; 650×65 tyres are fitted. Both models are fed by 1915 B. and B. carburetters with a top feed to the float chamber. A very neat refinement is in connection with the petrol tank; the gauze filter carries with it a bright metal float, which is usually visible through the glass top, and gives the rider an approximate idea of the amount of petrol remaining in the tank at a glance. Also at night the top of the float can be felt by the finger.



Showing new gear change on left hand side of Rover tank, also dynamo driven by enclosed chain from the countershaft.



The chain-cum-belt driven Rover for next year, which has a new three-speed countershaft gear.

CLUB NEWS.

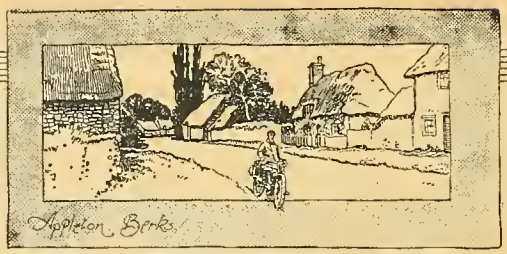
Motor Union of Ireland (Ulster Centre).

No fewer than fifty members are abroad on active duty; most of them were formerly despatch riders in connection with the Ulster Volunteer Force, and the training they then had is of great use to them now. Amongst the number is G. Boyton, the hon. sec., who was the first private owner to finish in this year's senior T.T. race. The Union is so proud of these riders that the committee has passed a special resolution expressing admiration and commending their patriotism.

Bristol M.C.C. Open Trial.

It has been decided to abandon the proposed exhibition of motor cycles in connection with the eighteen hour trial on the 27th and 28th inst., one reason being that many of the manufacturers would not consent, another, that all the suitable halls in the city have been taken over by the military authorities. A large number of entries have already been received from all parts of the country, and the trial promises to be a success.

CURRENT CHAT



TIMES TO LIGHT LAMPS.

(GREENWICH.)

Nov.	19	...	5.5	p.m.
,,	21	...	5.2	,,
,,	23	..	5.0	,,
,,	25	...	4.58	,,

277 Standard Pattern Motor Cycles.

The Motor Cycle Buyers' Guide, published in this issue, contains the complete specifications of 277 standard pattern motor cycles on the British market.

Our issue of Thursday, December 10th, will be mainly devoted to equipment.

Petrol Imported during October.

During last month 4,483,162 gallons of motor spirit (value £183,614) were imported into this country. The Board of Trade return has a note, however, to the effect that duty has been paid on 7,210,548 gallons for the same period. In October, 1913, the number of gallons imported were 9,583,070, to a value of £347,742

The Intelligence Corps

On a recent occasion we met Lieut. H. B. C. Pollard, who is about to leave this country on active service, together with six other motor cyclists. These are all good linguists, who will serve with the Intelligence Corps. Lieut. Pollard, besides being well known as a journalist and author, has had considerable military experience, and was in the Balkan Wars.

A Coventry Motor Machine Gun Battery

One of the new motor machine gun batteries which are being formed for attachment to each division of the Army will be composed of motor cyclists recruited from Coventry and district. This battery will be commanded by Major J. E. Alkin, and the Coventry and Warwickshire M.C. has assisted in obtaining the *personnel*.

An Opening for Despatch Riders

More motor cyclists are required by the secretary of the West Lancashire Motor Cyclists' Reserve Committee (Mr. S. W. Phillpott, the North-Western Centre secretary of the Auto Cycle Union) for immediate enlistment. They should apply personally to him at 60, Lime Street, Liverpool, and should present themselves on some motor cycle for examination by the members of the committee. If the machine is a 1913 or 1914 Triumph, Douglas, Rudge-multi, B.S.A., or P. and M., in good order and equipped with a suitable form of variable gear, it may be taken over at a reasonable valuation. Ages 19 to 30. Three years' service with the Royal Engineers' Signal Company, foreign service. Fifty motor cyclists for service with the Royal Naval Motor Squadron are also needed.

Reliability Trial in Australia.

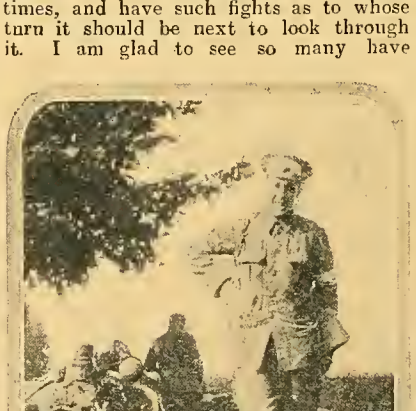
Recent issues of the Australian papers contain accounts of a one-day reliability trial held at the end of September by the Victorian M.C.C. There were sixty-five entries, and these were divided into the following classes: Sidecar combinations, solo machines under 600 c.c., and solo machines over 600 c.c. The distance was 126 miles, starting and finishing from the outskirts of Melbourne.

The Star Performers

The best performance of the day was accomplished by T. K. Hastings, driving a 7 h.p. Indian sc. He was the only competitor to get through without loss of a single mark Other good showings were made by L. Ray (3½ h.p. B.S.A.), winner of the under 600 c.c. class, and R. Jones (6 h.p. Rudge), winner of the over 600 c.c. class.

Experiences at the Front

Corporal G. A. Heath, a motor cyclist despatch rider who has served with the forces since the beginning of the war, writes to say that he has had three motor bicycles. He started with a Rudge-multi (which he had to leave for the Germans), then a B.S.A., and then a Douglas T.T. three-speed, which he found the best for the bad state of the roads. He writes: "I only wish your paper was more easily to be got out here. As a rule there is one between thirteen of us, and many used to read it through two or three times, and have such fights as to whose turn it should be next to look through it. I am glad to see so many have volunteered for such a dangerous game, and think that the Editor of *The Motor Cycle* deserves a good deal of credit for it."



A DESPATCH RIDER AT THE FRONT
Second Lieut. R. G. Larking (a Cambridge boxing Blue)

Certified Trials.

The A.C.U. is attempting to revive certificated trials. At the present time the competition movement is practically dead and manufacturers are, therefore, without that form of advertisement and unable to convince the public of the worth of their new models. The A.C.U., therefore, thinks it desirable to revive this kind of trial by means of which a manufacturer is enabled to have a trial of his own machine carried out under official observation. The scale of charges is being revised, and will be published shortly by the A.C.U.

Comforts for Despatch Riders.

In our Correspondence columns last week there may have been noticed a letter from Mrs. Selwyn, asking for comforts for despatch riders in the 2nd Army Corps. We have also received a letter from a motor cyclist attached to the 1st Army Corps, now at home on leave, who enumerates other comforts which are urgently required—a good electric pocket lamp with a spare bulb and two batteries, a good cigarette lighter in which petrol is used, and a good pair of overalls. Gauntlet gloves are also essential. Generously minded readers might address these parcels direct to "The Moto. Cyclists serving with the 1st Army Corps Headquarters, British Expeditionary Force." Comforts for motor cyclists for the 2nd Army Corps should be addressed to Mrs. Selwyn, 14 Scarsdale Villas, London, W.

Totals of War Funds

The totals of the different war funds enumerated stood as under on Tuesday morning last:

H.R.H. Prince of Wales's National Relief Fund ...	£3,820,000
Indian Soldiers' Fund ...	£86,828
H.R.H. Princess Mary's Fund to provide Christmas Gifts	£75,200
Times Fund for Sick and Wounded	£617,865
The Queen's Work for Women Fund	£89,311
Daily Telegraph Belgian Fund	£64,920

Many New Models in this Issue

Descriptions of a number of entirely new models are included in this issue An outline of the 1915 Triumph, a machine which has been redesigned after ten years' honourable service, the twin cylinder Sunbeam, the novel twin-cylinder two-stroke Premier, four-speed twin P. and M., three-speed Douglas, and 2¼ h.p. B.S.A are among the many 1915 models dealt with.

SPECIAL FEATURES.

BUYERS' GUIDE OF 1915 MODELS.

AUTUMN 'MIDST SCOTTISH CRAGS.

DESIGN IN 1915.

La Croix Militaire.

We learn that another motor cyclist has been honoured by the French Government by being awarded the French military medal, namely, Corporal B B. Winter, R.E., who has ridden in several trials this year on a 3½ h.p. Blackburne.

Four Speeds.

Quite a feature of the 1915 models is the fitting of four-speed gear boxes. Now, four speeds are a distinct luxury on powerful machines, but they are much more of a necessity in the case of lightweights. We must not lose sight of the fact that the lower the horse-power the more speeds are required.

Despatch Riders.

The number of military riders to be seen in the S.E. and Kent is surprising, and it points to a good reserve of motor cyclists. At Woolwich, where is the head army stores, there are said to be more new motor cycles than the whole of the London depots can boast of, and enough pedal cycles for an army corps.

A Use for Empty Petrol Cans.

It is of interest to know that a large number of the crew of H.M.S. *Hermes* were saved by the use of empty Shell motor spirit cans, of which there was a large quantity on board. The first torpedo to strike the *Hermes* was aft, where a large quantity of cans were struck and scattered in all directions. The *Hermes* remained afloat after being struck some two hours, but it is quite certain that if it had not been for the empty petrol cans the loss of life would have been far greater, only twenty-three being lost (this included killed and wounded).

Motor Cycles in the German Army.

Most of the machines used by the German Army are, as may be expected, N.S.U.'s, while not a few are Indians. The Deutschers are, also, not above "souveniring" the stocks of British machines held in Berlin.

"On the Never."

Slang in print is generally an abomination, but is sometimes permissible for the sake of clearness. To take a thing from anyone without his permission was called "commandeering" during the South African War. At the present time in England we call it "requisitioning," but those who have come back from the Front call it "souveniring." The French inhabitants are desperately keen on this form of amusement, and everywhere the British troops are met with cries of "Souvenir! Souvenir!" Hence the loss of many regimental buttons, etc., and the adoption of the term.

The Public Schools M.C.C.

Two members of this club who are serving with the Colours are B. C. Barton, in the Artists, and P. C. Douglass, who rides a machine of the same name, and is to drive a car belonging to a major in the Sappers. Douglass has, happily, recovered from a bad accident in which he injured his kneecap, caused by running into a cart last July.

A Motor Cycle in West Africa.

We have received from Mr. H. A. Caulcrick, of Lagos, West Africa, a photograph, which we reproduce, of himself and his 3 h.p. Enfield, and some account of its satisfactory running. One trip, which he mentions as being carried out "none stopped," was from Iddo to Victoria Beach *viâ* Agage Station, Iju Valley, Ikeja, Isheri, Ebutemetta, and Apapa. Between Ikeja and Isheri there are some very steep hills with sharp corners. The ride also necessitates crossing the Mole, and the time occupied

was ninety-five minutes, the average speed being about 31½ m.p.h. Only part of the road was metalled.

A Rover Exponent at the Front.

Dudley H. Noble, who left the Rover Co. at the time of the outbreak of war, and is now in 69th Company, A.S.C., attached to the Indian troops, writes as follows

Sir,—We read *The Motor Cycle* with great interest every week. I have met practically all the members of the "competition riders' clique" out here, and am beginning to wonder if there are any motor cyclists left at home. Practically all makes of machines are represented. I am at present riding a T.T. Rudge. The roads generally are in a very bad state, frightfully cut up in the country, and the greasy *pavé* of the towns is unspeakable. By the way, mem. for accessory manufacturers: does the International Military Trial come under the bonus scheme? Having a pretty good time, but the weather is getting bad now.

D. H. Noble.

The Design of 1915 Model Motor Cycles.

The following analysis of features of the 277 standard pattern motor cycles included in *The Motor Cycle* Buyers' Guide, published in another part of this issue, forms interesting reading:

ENGINES.		
Single	... ...	117 = 42.2%
Twin	... ...	95 = 34.3%
Two-stroke	... ...	65 = 23.5%
TRANSMISSION		
Belt	... ...	135 = 48.7%
Combination	... ...	72 = 26%
Chain	... ...	64 = 23.1%
Shaft	... ...	6 = 2.2%
LUBRICATION.		
Hand or drip	... ...	229 = 83.3%
Mechanical	... ...	26 = 9.7%
Petroil	... ...	22 = 8%
OTHER DETAILS.		
Countershaft gears	...	151 (+ 20 in footnotes)
Automatic carburetters		16
Three-speed gears	...	121 (counting footnotes)

Sheffield motor cyclist special constables, who are guarding the local waterworks and railway tunnels. The photograph was taken last Sunday on Owler Bar Moors after the first fall of snow this autumn. The machines are a Lea-Francis and a Matchless.

More Despatch Riders' Experiences.

BY the courtesy of Dr. Rice, of Allesley, near Coventry, we are able to give extracts from another interesting letter received from one of his two sons who are serving as despatch riders with the British Expeditionary Force. He writes :

"On our way here we stopped at a large village called L———, where we found everything going on as in times of peace, excepting the fact that all able-bodied men had left for the war. We were awfully interested, because every other village we had stopped in hitherto had either been wrecked by the Germans or deserted by the inhabitants.

"This particular village was most enthusiastic on our arrival. Our colonel arrived there and made arrangements for parking the column and billeting the officers early in the afternoon. Eddy and I were the next to arrive. We were supposed to be motor cycle orderlies in attendance on the colonel, but owing to a breakdown of one of our machines, which by its nature necessitated both of us staying behind to effect the repair, we lost sight of the chief's car, and taking a wrong turning found ourselves some ten miles out of our way, with the result that we did not arrive until after dark. We stopped in a little square, and enquired from Monsieur le Colonel Anglais. In a few minutes thirty or forty very talkative people of both sexes (both sexes, mark you, and very nice, too) had collected round us, so that by the time the worthy mayor arrived we had quite a crowd. This worthy produced a tiny *mouchoir*, and blew the biggest nose I have ever seen, after which ceremony he led us up the village street to a jolly little house where the colonel had taken up his quarters. The whole crowd followed, and we felt most important.

Stomach Before Mass.

"We then returned to the entrance of the village to guide the column to its moorings on its arrival. While waiting we made friends with some good people who owned a little grocery stores. They were most kind to us, and offered to put us up during our stay. And so, after completing our duties, we returned to our friendly grocer and spent the first night in a civvy bed since our enlistment early in August. I awoke the next morning to the clang of a church bell summoning the people to Mass. The whole place turned out, and so did I, only I felt the needs of the flesh the more pressing, so departed for breakfast at the lorry camp.

"While in this village we learned a good deal of the inward side of French village life, which was very interesting. We were the first soldiers the people had seen in these parts. Indeed, on our journey to L——, Eddie and I, on arriving in a tiny out-of-the-way village, were just in time to see the people scurry away and lock themselves in their houses.

"They took us for Germans, or motor cycling Uhlans perhaps! Anyhow we pulled up in the street and roared with laughter to such an extent that many came out to learn the joke, and were much relieved to hear we were out for King George and not Guillaume. After drinking many toasts to Merry England and La Belle France, and promising to *couper la gorge à Guillaume*, we proceeded on our way with required directions as to our route.

A German Aeroplane Drops Bombs.

"It was while the column was stationed at L——— that I was lucky enough to have an experience I wouldn't have missed for anything, and that was bomb dropping from an aeroplane. I was at General Headquarters with a message, talking outside in the street with the other motor cyclists when we heard that curious swishing sound made by an approaching shell, which instantly increases in volume and seems to fill the whole air. A moment later there was a violent explosion, accompanied by the high pitched scream of shrapnel, a shower of broken glass and brick dust. Two more bombs followed in quick succession, all three falling some forty or fifty yards away from the headquarters building, which happened to be a nunnery in a town. A slight droning sound was audible overhead, and we recognised an aeroplane of the Taube type of German machine. Two of our machines rose inside three minutes from the aerodrome beside the town, and set off in pursuit, pouring a hail of lead into the intruder, but seemingly without effect. The report was circulated the next day that the French brought the German down some ten miles away, but it was never confirmed officially. The total damage amounted to two women killed, a tiny girl wounded, and an old man's hand blown off. Two days ago they had a shot at our column but missed it by 400 yards. They were flying amongst the clouds.

"I was out with a brigade ammunition column the other day, and a machine came overhead directing gun fire. I had a few shots at it but missed, so a few minutes later we had some big shells over from Jack Johnson and his brother, the two German big guns. I had an idea the colonel wanted me, so cleared out! Shortly after the ammunition column found the district over exciting and moved round a bit, too!

Military Value of the Aeroplane.

"This war is essentially an aeroplane triumph. During a battle machines patrol the front, keeping hawk-like eyes on the enemy, watching their movements, and directing our gunfire by signals. Without them the artillery people would be sadly hampered. The general idea seems to be that we shall shortly force the enemy back into his own country, and that our armies will then sit outside and batten at his doors until the Spring, when another determined and general advance may be expected.

"Since the village of L——— we have moved on a good way, and arrived at another village which the enemy have evacuated. The people on all sides curse the Germans for barbarians, and say their behaviour was intolerable. They ill-treated everyone, especially the women, treating them in a manner too revolting for words. The shops in the neighbouring market town they pillaged wantonly, scattering the goods all over the place, ripping open packages and throwing them down. Rapine, pillage, and murder everywhere. They even buried an R.C. priest alive who endeavoured to intercede on behalf of some of the young girls! This is the civilised enemy with whom we have to deal. They have respect for nothing. Treaties, women, children, Red Cross, white flag, nothing. The people here are right; they are utter barbarians. I only hope we shall not make peace until the cursed name of Germany is wiped out. Never will the French here forget them, their hatred is such that we cannot understand. I saw a body of 400 prisoners marched through the town near by only the other day, and really for the moment it looked as though the people would try and lynch them. Had it not been for the strong escort of our men, doubtless they would have had a go at them.

"We have seen a good many Indian troops about lately; they are truly magnificent looking fellows. They sit their horses with an easy grace that I envy muchly. To cling on for dear life is all that can be managed on a motor bicycle with these roads! The Indians' uniform makes us look shabby in comparison. Somehow they have an extra neat appearance which is enhanced by the turban and their Oriental bearing. The people are awfully pleased with them.

"Tell people who ask that we can always get rid of warm extra clothing among the men, like gloves, mufflers, woollen caps, etc. Cigarettes, chocolates (preferably in small pieces), soup squares, are amongst our most immediate wants.

"If I write any more I shall not have the face to ask the captain to censor it all."

BERNARD.

AN UNFORTUNATE COLLISION.

Eddie Rice, brother of the writer of the above, has, we regret to state, met with an accident, as his latest letter shows. The collision occurred at 7 p.m. in a narrow and greasy lane. It was moonlight, and neither car nor cycle had lights.

"I am temporarily out of action," he writes, "due to a collision at a somewhat reckless speed with a motor car; both of us were trying to get back before dark. I rode full pelt into the front wheel of the car and then did a little aeroplaning, after which I found myself in a ditch with my leg broken and the motor cycle engine lying in pieces all over the road. The front tyre of the car was burst and the front axle shifted back about a foot. We sought an ambulance, which I was glad to find, because both bones are broken. The doctor thinks I may be able to ride again in about eight weeks, so I may be home for Christmas.

"I shall not be leaving here (Boulogne) for another week owing to bruises, etc., making travelling painful. When I do leave I hope to be drafted off to the Coventry Hospital if possible. Bernard was very happy when I last saw him; he has fixed up a billet in a grocer's shop, where he will sleep until they advance again, which will not be for some time. I wonder where they will be when I rejoin him! Pretty near Germany I hope."

EDDIE.

ADDENDA TO BUYERS' GUIDE. Specifications of 1915 Models which were received too late for Classification.

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight. Unladen.	Price.
		mm.	c.c.						in.	in.	in.	in.			lbs.	£ s. d.
*Connaught	2½ Connaught ..	73 × 70	293	2-stroke	Petroil		Amac	Sturmey-A., H.	Belt	30	5½	50	26 × 2 H.	Rigid	148	44 0 0
Elswick	2-str. Precision	64 × 70	225	2-stroke	—		Senspray	Roe 2-sp., C.	Chain	30			26 × 2 P.	Rigid	125	35 0 0
Elswick	2½ Precision ...	70 × 90	346	S.S. ...	Mech.		Senspray	Roe 2-sp., C.	Chain	30			26 × 2 P.	Rigid	120	42 0 0
*Elswick	4½ Precision ...	89 × 96	597	S.S. ...	Hand ..		Senspray	To order	Belt	30			26 × 2½ P.	Rigid	—	75 0 0
*L.M.C.	3½ L.M.C.	85 × 88	499	S.S. ...	Hand ..		B. & B.	Sturmey-A., H.	Belt 1	30		52	26 × 2½ ...	Rigid	225	58 0 0
*Overseas	3½ Overseas ...	85 × 88	499	S.S. ...	Hand ..		B. & B.	Sturmey-A., H.	Belt 1	31	5½	52	26 × 2½ ...	Rigid	220	49 0 0
Torpedo	2 Precision ...	65 × 60	199	S.S. ...	Hand ..		Amac	Precision 2-sp.	Belt	30			26 × 2 P.	Rigid	120	27 10 0
Torpedo	3½ Precision ...	85 × 88	499	S.S. ...	Hand ..		B. & B.	To order	Belt	30			26 × 2¼ D.	Rigid	165	46 0 0
Tyler	2½ Precision ...	65 × 60	199	S.S. ...	Hand ..	U.H.	B. & B.	Precision 2-sp.	Belt	28			26 × 2 C.	Rigid	110	29 0 0

* Connaught: With Albion 2-speed (counter-shaft), £3 less; and single-speed, £10 10s. less. * Elswick: Price includes sidecar * L.M.C.: With 4½ h.p. engine, £2 extra; L.M.C. 2-speed (counter-shaft), £2 extra; Sturmey-Archer 3-speed (counter-shaft), £6 extra. * Overseas: Sturmey-Archer 3-speed (counter-shaft), £6 extra; single-speed, £10 less.

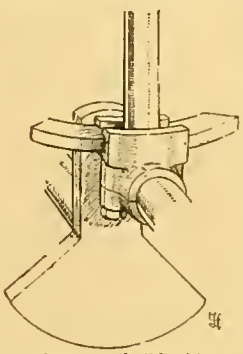
A PREMIER INNOVATION.

Novel Design of Twin-cylinder Two-stroke.

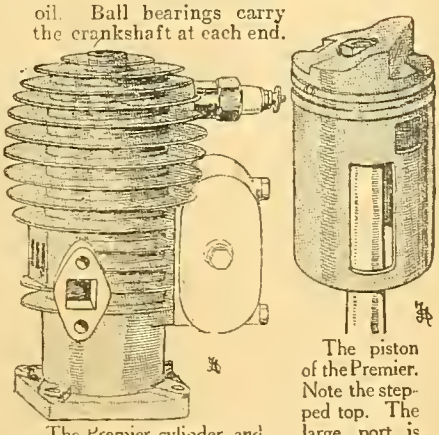
FOR some time past there have been rumours of a twin two-stroke to be produced by the Premier Cycle Co., of Coventry, but, though we were permitted to have a private view of the experimental model some months ago, it was not until this week that we have been able to give preliminary details of what is likely to prove the most startling novelty of the year. The new Premier is unorthodox in almost every feature, but this must not lead readers to think that it is untried, for it has undergone prolonged tests with the most satisfactory results, and the design, though unusual, is clever, and may lead to striking results in the near future.

A Very Novel Engine.

The engine is a twin vertical two-stroke, with the crankshaft set longitudinally in the frame. It has a capacity of 322 c.c. (bore and stroke 64×50 mm.) There are no connecting rods in the usual sense of the term, but vertical piston rods working in long guides are fixed solidly to the piston head. At the base of these rods a flat foot is formed, and set on a radius. The foot is carried in a white metal T-section guide formed solid with the top half of the split big end bearing. Thus, when the crank is rotated, the piston rod moves vertically, while the curve of the plate or foot imparts a slight rotary action to both rod and piston. This action is utilised to open and close the ports for the various processes of suction, transfer, and exhaust. The space between the piston walls and piston rod guide is filled by an aluminium casting, and the inlet port draws gas from an automatic carburetter during almost the whole of the upstroke of the piston, instead of for the short period when the piston nears the top, as in most two-strokes. On the piston descending, the induced gas is compressed in a cast aluminium receiver bolted to the cylinder, and thence is transferred to the combustion space *viâ* the cylinder head and baffle plate. The piston head is stepped on both sides of the baffle, the steps being arranged so as to make full use of the rotary movement of the piston. At the back of the balanced crankshaft lies a plunger pump, which forces oil from a sump in the crank case through the crankshaft to the big ends and piston rod slides, the oil passing through the centre of the pump plunger into the crankshaft. The guides and pistons are amply lubricated by splash, as the suction below the piston helps to raise the oil. Ball bearings carry the crankshaft at each end.



Piston rod slide, big end, and part of balanced crankshaft.



The Premier cylinder and receiver. The square port is the inlet from the carburetter. The exhaust ports can just be seen at the left.

The piston of the Premier. Note the stepped top. The large port is from the carburetter; the smaller to the receiver.

The Gear Box and Transmission.

Directly behind the crank case lies a pair of skew gears which drive the main gearshaft at right angles to the crankshaft. The three-speed gear has all its pinions constantly in mesh, and each gear is locked to the shaft as required by a central wedge bar, which expands balls against the inner face of the gear wheels in a similar manner to the well tried lathe gear. The final drive is by belt.

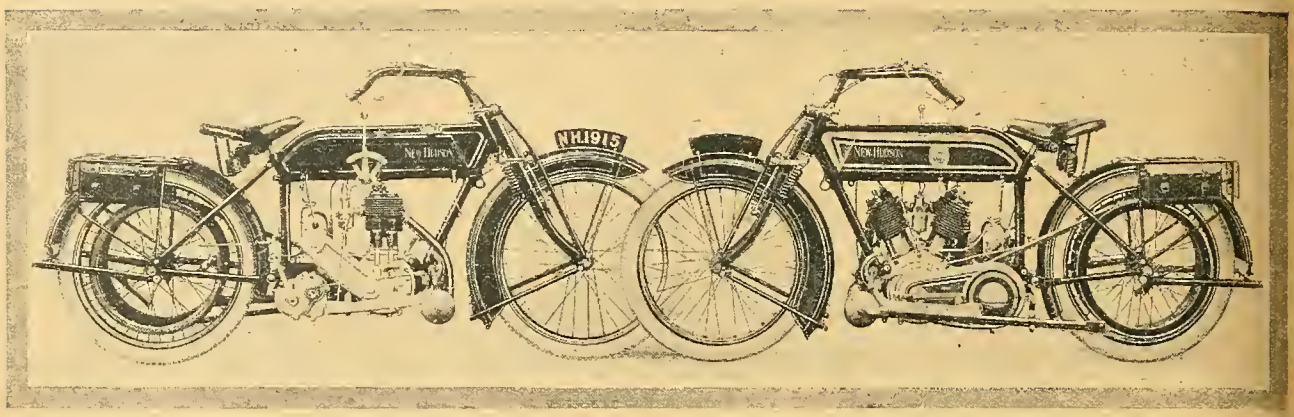
Even the frame is unusual, for all the head and saddle tube lugs for the duplex frame are cast with two circular bodies, which form the front and back ends of the combined tank and top frame tubes the two ends being brazed to a large diameter steel tube.

Both brakes are of the internal expanding type and lie side by side in the rear hub, the hubs themselves being mounted on journal ball bearings. The equipment is full and on standard lines, and it is likely that one model will be turned out in a biscuit colour with no plated parts, which gives an extremely smart finish. Incidentally, one of the latest 3½ machines finished as above was shown to us.

PREMIER TWO-STROKE.
Combined tank and frame tube, showing how lugs are cast with the tank ends.

The standard models have undergone but little alteration. Both 3½ and 7 h.p. will be fitted with twin internal expanding brakes, and the 7 h.p. has steel flywheels stamped from the solid with the crankshaft. Special attention has been given to the prevention of oil leakage.

NEW HUDSON 1915 PROGRAMME.



The 3½ h.p. New Hudson, with countershaft gear and kick starter.

Belt side of the 6 h.p. New Hudson three-speed countershaft geared model.

CONTRARY to the more usual practice of presenting next year's models early in November, the makers of the New Hudson machines have been working on their new models for some months past, the result being that they are now delivering them in quantities, though, with characteristic enterprise, the managers have made sundry alterations and improvements as experience dictated.

In view of the present popularity of two-stroke lightweights, we will first of all turn our attention to the New Hudson of this type. It is a single-cylinder machine of 2¼ h.p., the cylinder dimensions being 62 mm. × 70 mm., giving a cubic capacity of 211 c.c. It may be obtained either with a single gear or else a two-speed countershaft gear. A cheaper pattern has footrests only, but the standard has aluminium footboards, curved upwards at the front to protect the toes. There are several variations of the New Hudson two-stroke; in all the engine and main features are the same. The prices range from £27 5s. to £37 10s., including usual equipment. 24in. × 2in. tyres are fitted to all models.

The next machine on the 1915 New Hudson programme is the "military service" model, as it is called by the makers. It is specially designed for hard work under trying conditions; the frame, engine—in fact, every part is of unusual strength. Accessibility has been very carefully studied, also the question of standardisation, and the quick and easy replacement of spare parts—two important points on a machine intended for military work.

The engine is a single-cylinder 85 mm. × 88 mm. (499 c.c.), rated at 3½-4 h.p. The drive is by Renold chain to a three-speed countershaft gear, and thence by belt. The magneto is chain-driven, and is placed behind the cylinder in an accessible position

Two gallons of petrol is the capacity of the tank. This is a very desirable feature, because it would be an easy matter to run out of fuel when effecting a reconnaissance or carrying despatches. On such jaunts one never knows when the next opportunity will occur for taking in supplies for machine and man.

It is enamelled service grey and black, and with full equipment and three-speed gear, the price is £57 10s.

The third New Hudson model has a name with a distinctly American flavour, it being known as the "Master Model Big Six." The New Hudson twin-cylinder is designed as a passenger machine, and the engine is of 770 c.c., the cylinder dimensions being 76 mm. × 85 mm., set at an angle of 50°. Of course, the New Hudson three-speed gear is fitted, the ratios being 4⅜, 7½, and 15 to 1 respectively. In this connection it is interesting to recall the fact that the New Hudson Cycle Co. were one of the first firms to fit, as standard, three-speed gears to motor cycles. The gear is of the sliding type, and placed on the bottom bracket, the drive being by chain from the engine and by belt from the countershaft. The kick starter is neatly embodied with the gear box.

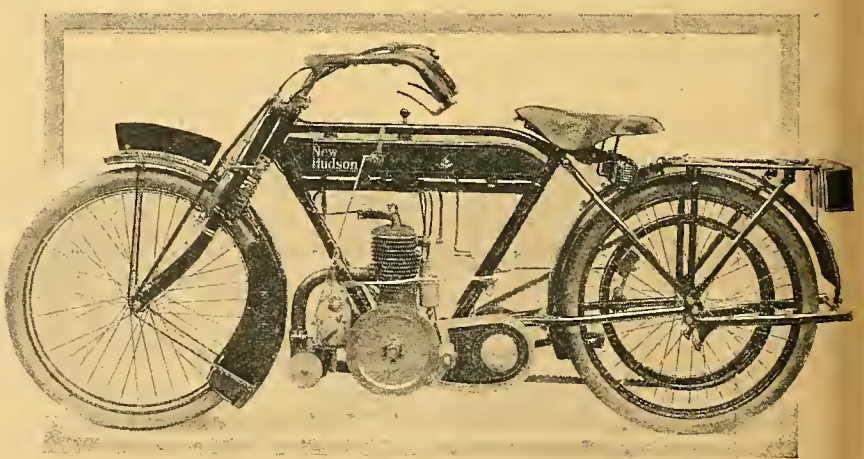
650 × 65 voiturette tyres are fitted, the mudguarding, footboards, toolbags, and general equipment are what one would expect with a machine emerging from a factory with the experience of the New Hudson.

AN IXION TWO-STROKE SIDECAR OUTFIT.

ONE of the most striking proofs of the efficiency of the modern medium weight machine is instanced by the fact that the Ixion Motor Co. has decided to market a complete sidecar outfit propelled by a 2¾ h.p. Peco engine of 349 c.c.

The whole machine is beautifully proportioned to the engine, and, though light, is fully strong enough for the work required. The engine has a direct belt drive to a Sturmey-Archer three-speed hub. A kick or handle starter is provided. The sidecar chassis is very neat and strong, and no adjustments are used, as the passenger carrying portion has wisely been designed expressly for the light motor cycle. Consequently, it is possible to arrange fixings in standard positions, which, besides being neat and light, greatly facilitates attachment. We have seen the sidecar attached in a few moments, and the fixings are quite positive.

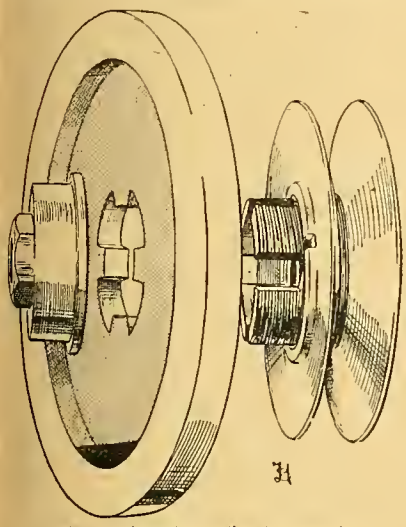
All the fittings and the finish are well carried out, and the outfit has a most pleasing appearance.



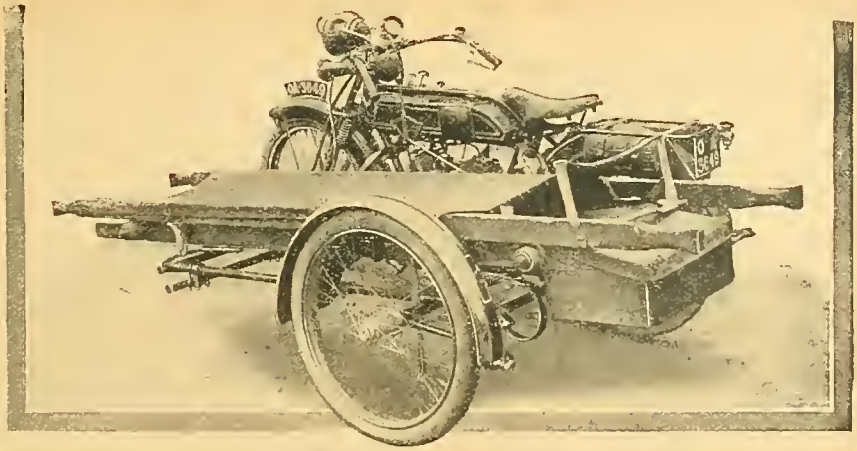
Latest specimen of the 2¼ h.p. two-stroke two-speed New Hudson.

AN ADJUSTABLE PULLEY FOR OUTSIDE FLYWHEELS.

With a few notable exceptions motor cycles which employ outside flywheels are without any form of adjustable pulley, and it is with the object of improving on this state of affairs that Mr. B. F. Plant, of 138, Wolverhampton Road, Walsall, has provisionally protected the device which we illustrate. The main body of the pulley is keyed to the crankshaft in the usual manner. This main part consists of a pulley flange with a long extension. One portion of the extension is screwed left-handed, and carries the second or adjusting flange, while the end is accurately slotted to fit dogs formed in the centre of the flywheel. A lock-nut with a spring catch holds the parts in position and finishes off the device neatly. The face of the adjusting flange is fitted with a slot corresponding to a stop on the inner face of the flywheel, to prevent the unscrewing action when starting up. An alternative design has the flywheel and one pulley flange cast in one, the adjusting flange being that nearest the crank case. In this case a spring between the flanges holds the loose flange up to a locking device. It may be added that a pulley which will provide ratios variable from the saddle is being constructed on these lines.



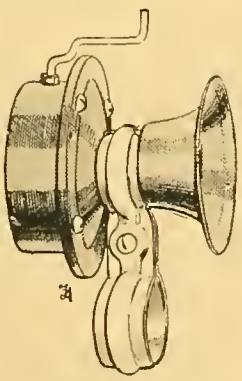
Plant's adjustable pulley for outside flywheel engines.



A sidecar ambulance by Messrs. Mead and Deakin, makers of the Canoelet sidecar. A broad Red Cross is painted on the sidecar mudguard. The machine is attached to a 6 h.p. New-Hudson.

A TINY MECHANICAL HORN.

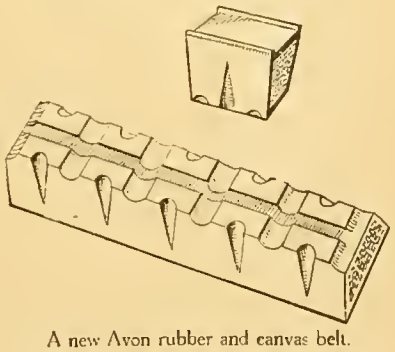
We illustrate herewith an exceedingly neat little mechanical horn which is highly suitable for light weight machines. It is sold by Messrs. Brown Bros., Ltd., is known as the Byk-electric Buzza, and emits a sound somewhat similar to the Klaxon, though, of course, not so loud. It is operated by the small handle shown on top. The price is 3s 6d.



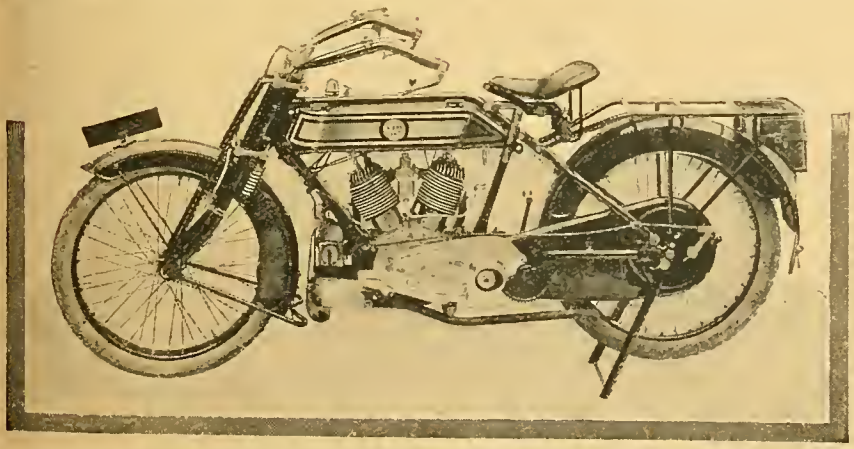
A suitable warning device for a lightweight sold by Brown Bros., Ltd. Its screeching note can be guaranteed to attract attention.

THE AVON BELT.

The new Avon belt, which we illustrate, has some novel features. In the first place it is provided with a watershed top, the object of which is to throw off rain in front instead of allowing it to run down the sides of the belt and cause slipping. Then, in addition to the transverse grooves which are found on most rubber belts, there is a longitudinal channel running along the centre and vertical grooves narrowing to a point near the outside of the belt, the object of this arrangement being to cause the belt to retain its proper angle of 28° when it is bent round a pulley. We are informed that this belt has been put to searching tests with most satisfactory results, belt slip being reduced considerably.



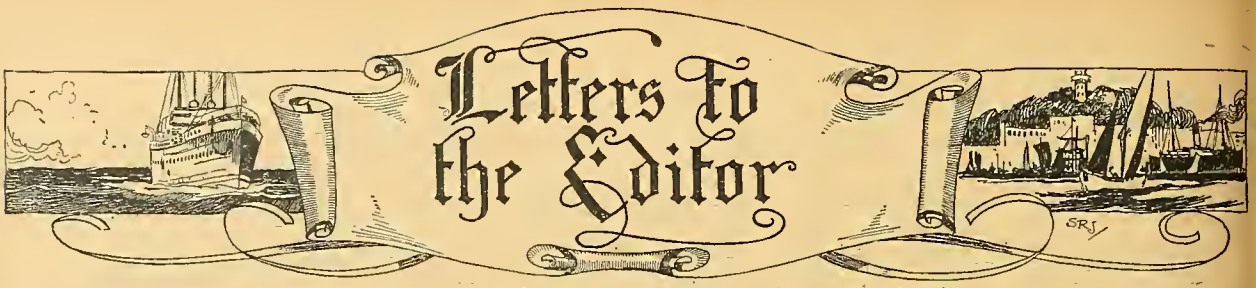
A new Avon rubber and canvas belt.



An 8 h.p. Rex-Jap special Colonial model, the features of which are 28 x 3in wheels, and 5½in crank case clearance.

REX-J.A.P. COLONIAL MODEL.

The Premier Motor Co., Aston Road, Birmingham, has constructed a most substantial Colonial model. The crank case clearance is no less than 5½in. and 28in. wheels shod with 3in. tyres are fitted. The spokes, hubs, and other parts are finished black, the object being to reduce the number of plated parts to a minimum. Quick detachable chain cases with each segment made interchangeable are supplied. The kick starter is contained in an extension of the gear box, which is of the countershaft type, and the gear lever is provided with a gate change having a positive stop for each position. Altogether this seems to be a most suitable machine for Overseas requirements.



The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Petroil Lubrication.

Sir,—As a rider of a two-stroke since last April, I admire the simplicity of petroil, but do not consider it ideal or likely to last any length of time. No doubt it lubricates well, but it seems to lubricate the piston much better than the big end, and it leaves the carburetter and adjoining parts in a messy condition, which collects all the dust of the road. My experience has been the same as Mr. Hampton. Recently finding a considerable loss of power and speed on hills, I had my Connaught examined. The top piston ring was completely carbonised in its groove, the others slightly affected, but there was no carbon deposit to speak of anywhere else. H.L.L.

Why an Engine Konks.

Sir,—I was extremely interested in the article by Mr. Watchorn entitled "Why an Engine Konks." The theory advanced, however, "that the piston is blown across the cylinder," is distinctly novel; and according to Mr. Watchorn's diagram, etc., a pressure of about 300 lb. is travelling from the direction of the sparking plug towards the piston, which results in it being pushed sideways. That the combustion "commences" there is right enough, but the *resultant* "*pressure*" is uniform throughout the cylinder head, otherwise, according to Mr. Watchorn's theory, we should need the valve chamber which carries the sparking plug to be several times stronger than the other parts of the head, which is, of course, quite contrary to modern practice. If there is a pressure of 300 lb in the cylinder, then the pressure is obviously equally distributed over the whole of the exposed area of the piston, and if Mr. Watchorn's theory is correct, he has only to place the plug in the cylinder head instead of the valve cap to avoid the "konking" referred to. There are many factors which determine the musical abilities of an engine far more than the position of the valves, a few of which are 1, compression ratio; 2, length of connecting rod; 3, length of piston; 4, position of small end pin; 5, design of cylinder head; 6, carburation; 7, lubrication; 8, piston clearance, etc.; and also the fuel employed. It is therefore extremely difficult to lay down any hard and fast rule for the novice as to why an engine konks. I might add regarding overhead valve engines that I have usually found them more prone to konk than the T or F type, and they usually also show a somewhat higher efficiency.

ERNEST P. EVEREST.

Sir,—I agree with Dr. Low that my article on konking was too brief and the sins of omission were numerous, but, as the editor only allowed me space for an article of 250 words, I did the best I could.

My article might have been better headed, "Why are certain types of engines subject to konking while other types are practically immune," and the theory given is, as far as I know, the only one which gives a reasonable explanation agreeable with practice.

Now, it is an admitted fact that an engine without side pockets and with an hemispherical head will run much longer without konking than an engine with side pockets.

Several instances have been given; for instance, in *The Autocar* one case of such an engine in a London 'bus running 29,000 miles without lifting. The racing Peugeot engine, which set the fashion to the motor racing world, is said to be free from konking. This engine, as is well known, has no pockets and a hemispherical head. It is also a fact that any engine with side pockets, whether such pockets are in a line with the crankshaft or at right angles or on opposite sides of the cylinder, will start konking after running less than half the distance that a pocketless hemispherical headed cylinder will run.

Now, why is this? The reason is fully explained by the theory of a pocket blast across the piston top.

In the Editorial of November 5th, the point is raised that the theory given does not cover an engine with pockets at right angles to the crankshaft.

May I say that the theory given covers any type of pocket engine. In the case of the engine mentioned it simply means that, instead of the piston being blown from one side of the cylinder to the other, it is only blown from one corner to another corner, or, in other words, blown half the distance, as in the case mentioned in my article: this is one of my sins of omission.

I cannot understand Dr. Low in his statement that it is impossible to classify the different types of knocking heard from a faulty running engine, for, in the first place, the internal combustion engine was invented over a hundred years ago. For the last fifty years it has been made commercially, or, in other words, more than one generation of engineers have assisted and simplified the design; consequently, there is no beautiful mystery about it and very little research work left

Furthermore, any competent gas engine fitter can tell at once on a faulty engine of a design he knows, what is wrong by the class of sound given out. The noise may cover a dozen different causes, ranging from, say, a broken ring to a loose key in the flywheel.

I should like to know whether Dr. Low has experimented with an engine with pockets reversed as mentioned, as it is not definitely stated. I should be very interested in the results. In regard to evidence that a piston can be blown across a cylinder, notwithstanding there is no exit on the opposite side, I can give an example of the old pattern horizontal gas engine which fired below the centre. On examining this engine for repairs it will always be noticed that the cylinders have worn the most at the top, which certainly could not happen except by the piston being blown up to the top of the cylinder by the first rush of the charge. This fact is common knowledge to any gas engineer.

Messrs. Lodge Bros. think that the theory given is upset in the case of a T-headed cylinder firing simultaneously in both pockets. They have forgotten that different mixtures of gas fire at different velocities. We all know that a plug will fire better over an inlet than over an exhaust valve, for the simple reason that the gas is purer and not diluted so much by the exhaust gases.

It is, therefore, evident that, although the firing takes place simultaneously owing to the fact that the gas over the inlet valve is fresher, it will fire first and have the piston across before the exhaust side has fully ignited.

E. WATCHORN.

Sir,—I have read with great interest your leaderette and Mr. E. Watchorn's contribution on the subject of "Why an Engine Konks," but I fear I disagree with some of your contributor's theories, and beg to submit a few of my own. I do not think the design of the combustion head or the situation of the sparking plug has anything to do with the matter. The noise is undoubtedly due to the piston changing sides, that is, leaving the front and making sudden contact with the back of the cylinder, not "blown" across as Mr.

Watchorn suggests, but violently *thrust* across by the angularity of the connecting rod, acting through the excess of pressure upon the piston, *in proportion to the speed and position it has acquired in commencing its descent.*

Let us remember that angularity of thrust commences immediately the crank pin passes the dead centre, angularity being quite considerable by the time a downward movement of the piston is noticeable. It should be noted that the lighter bottom portion of the piston will be the first influenced by the thrust, and so make the lighter and more silent contact with the cylinder wall, the heavy top being then "speeded up" by semi-rotation about the centre formed by the bottom of the piston against the cylinder. It will also be granted that a certain amount of time is occupied in the transit of the piston from one side of the cylinder to the other, and, short, indeed, though the time must be, the angularity of the connecting rod is constantly increasing during that time, simultaneously building up the "cross momentum" of the piston, all this taking place while the piston is in one of the slowest sections of its downward journey, if I may be excused for using the term, "almost stationary" so far as its power-developing motion is concerned; with the result that the heavy top of the piston strikes the cylinder wall a hard, unsmeared blow.

Retard the ignition and the maximum pressure of the explosion is reached only after the piston is further on its journey and travelling at greater speed, with the result that the blow is "smeared" and deadened. Konking occurs only at comparatively low engine speeds. Speed up the engine by taking off the load, or by changing to a lower gear, and the konking ceases, the increased piston speed having the same effect as retarding the ignition, namely, that of correcting the moment of maximum pressure upon the piston. A clean engine will konk if it can be persuaded to get hot enough, the heat raising the compression pressure by expansion and more perfectly vaporising the fuel, thereby rendering the charge more rapidly permeable by combustion.

E. GASSTON, JUN.

Sir,—The sudden impact of the exploded compressed charge of gas gives rise to a certain amount of noise in any engine firing normally, more or less proportionate to the suddenness of the impact which is due to the resistance to the expansion of the gas, which resistance is itself relative to the piston speed.

This noise is no more to be confused with exhaust noise than the kick of a rifle is to be confused with the sound of the shot. And the noise is set up chiefly by the piston head, but is also helped by vibrations from the valve heads and engine head generally.

If then the impact of the sudden expansion should meet a rising instead of a falling piston, the impact will be tremendously greater, and, consequently, the vibrations set up will be much more audible, and the quality and intensity of the sound will vary also according to the freedom which these parts have and vibrate (*e.g.*, loose bearings), and to the quality of the metal—a tuning fork vibrates much better than a bar of cast iron.

If an engine be running normally this noise is scarcely, if at all, audible; but if the engine be overworked, and, as a natural consequence, become too hot, another factor comes into play, which tends to turn a normal firing point to one which is so far advanced as to cause premature firing. That factor is the rapidity of the combustion and consequent expansion of the gas.

Every servant girl knows that hot sticks will kindle up much quicker than cold, and so with the compressed explosive mixture. The hotter the mixture the quicker it burns, and, therefore, unless the ignition be retarded, the piston receives the force of the explosion before it has passed dead centre, and the impact gives rise to the "konk." Of course, a mixture of perfect proportions burns faster than one which is too rich in petrol.

Further, when the interior of the combustion chamber becomes covered with "carbon," as has been stated, pre-ignition by a glowing carbon point sometimes occurs, this, of course, being helped enormously by the already too hot charge. But what is a much more important matter is that this coating of ashes, being a poor conductor of heat, renders the interior of the combustion chamber a much hotter place than it should be, so that the compressed charge may even ignite by "spontaneous combustion" due to the heating which it receives from the inner layer of the carbon deposit.

That some engines should be more liable to konk than others must be due, in addition to what has been stated *re* quality of the metal, etc., to their powers of radiating the heat generated, and their powers of heating up the compressed charge. Thus, other things being equal, a T or Γ shaped combustion chamber would be more prone to this fault than a spherical shaped chamber, because in the former the compressed charge has a greater area of contact with the walls of the chamber, and, consequently, is heated more quickly. And, certainly, as Mr. Watchorn states, a glancing blow on the piston head would be likely to set up more vibration in that piston than a perpendicular blow.

J. D. M.

A Timid Tip.

Sir,—"Ixion" makes a suggestion that, in the case of the Norton at any rate, comes years late. Our petrol pipe is fitted vertically underneath the petrol filler hole, and a lock-nut is screwed on to an internal extension of the petrol tap stud precisely as suggested.

NORTON MOTORS, LTD.

Gear Slip on an Old Machine.

Sir,—Can you kindly spare me an inch of space in which to thank correspondents who took so much trouble to try and help me out of my difficulty of high gear slip on P. and M.? I am specially grateful to Benjamin Newbery, who hit the nail right on the head.

As he advised, I removed operating chains and replaced them in a different position, when any excessive slip disappeared at once. It is a bit of a puzzle why this is so, but I hope it will continue. If so, I no longer need sign myself

B 10.

Removing Douglas Cylinder.

Sir,—With reference to Mr. Hughes's remarks on removing the front cylinder of a Douglas by the use of the slot in the frame lug, I came to the conclusion some time ago that it was not worth doing, unless pressed for time, as the complete removal of the engine from the frame entails very little more work, namely, removal of driving chain and left handle-bar controls.

The disadvantages of leaving the crank case on the frame are: (*a.*) The lower cylinder nuts are almost inaccessible. (*b.*) There is more chance of damaging the pistons.

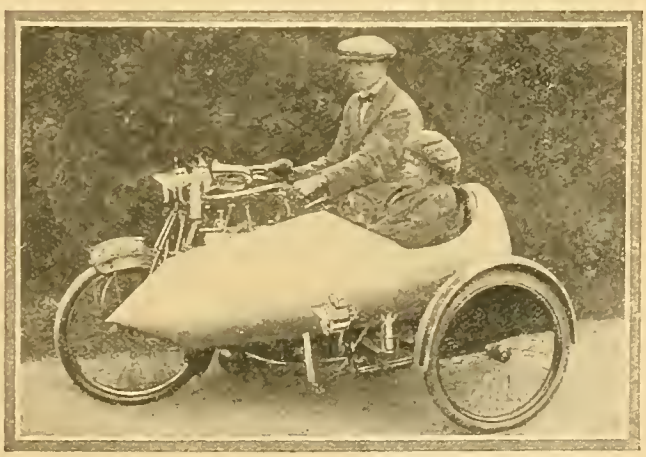
The complete removal appeals to me as sounder engineering practice, and offers better opportunity of cleaning the underside of the crank case, and of cleaning and inspecting the bottom frame tube.

R. E. BARTON.

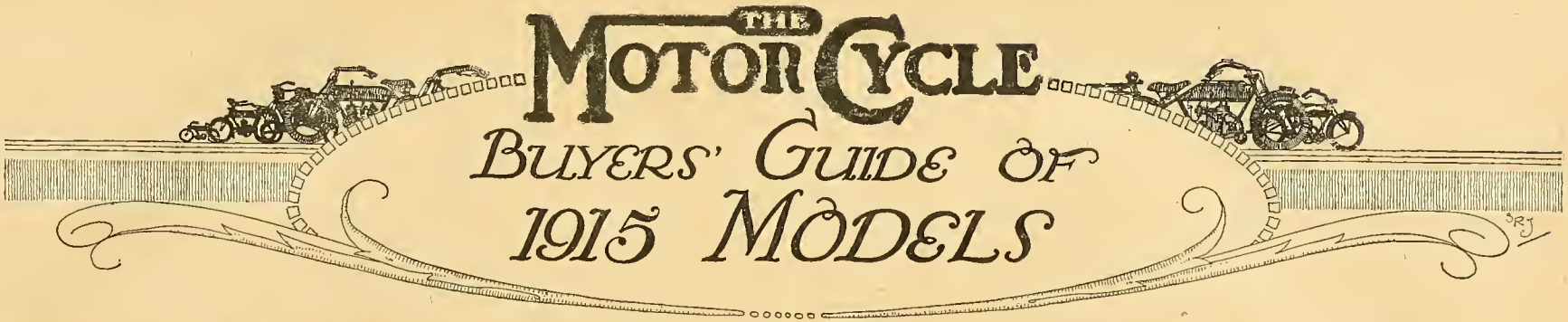
A Sheet-iron Sidecar

Sir,—I thought this photograph of my novel sidecar might interest you. It is made of sheet-iron, upholstered in leather, and is extremely light, weighing under 36 lb. It was made for me by a person who has never made a sidecar body before.

B. P. FOWLEY



B. P. Fowley who writes respecting the sheet iron sidecar shown in the photograph.



COMPLETE SPECIFICATIONS OF MOTOR CYCLES OF ALL TYPES ON THE BRITISH MARKET.

This year in particular the Annual Buyers' Guide of "THE MOTOR CYCLE" fills an important breach, for, in the absence of the Show due to the regrettable European conflict, such a work of reference becomes of treble value to actual and prospective motor cyclists, agents, and manufacturers alike. The Guide was first published in 1906, and ever since has proved its usefulness, and is regularly filed for future reference by all connected with the industry. In order to follow the details more conveniently, the reader should lay a straight edge or sheet of folded paper on the page. For ease of reference the Guide this year is divided under three headings—

(1.) TWO-STROKE BICYCLES. (2.) SINGLE-CYLINDER FOUR-STROKE BICYCLES. (3.) MULTI-CYLINDER FOUR-STROKE BICYCLES.

In certain instances details are missing, due to the new models not being actually ready for the market. The whole of the mass of information has been provided by the manufacturers, and whilst every effort has been made to avoid inaccuracies, we cannot be held responsible for any errors which may have crept into the Guide.

KEY TO ABBREVIATIONS.

VALVES.—S.S.=Side by side. O.=Overhead.
LUBRICATION.—Auto=Automatic. Hand=Hand pump or hand adjustment. Mech.=Mechanical pump. Com.=Combination of systems. Petroil=Mixture of petrol and oil.

TRANSMISSION.—Com.=Combination of two systems.
CARBURETTERS.—A.=Automatic.
VARIABLE GEARS.—C.=Countershaft. Com.=Combination. H.=Hub.

TYRES.—A.=Avon. B.=Bates. C.=Clincher. D.=Dunlop. E.=Englebert. G.=Goodyear. H.=Hutchinson. J.B.=John Bull. K.=Kempshall. Mi.=Michelin. Mo.=Moseley. P.=Palmer.

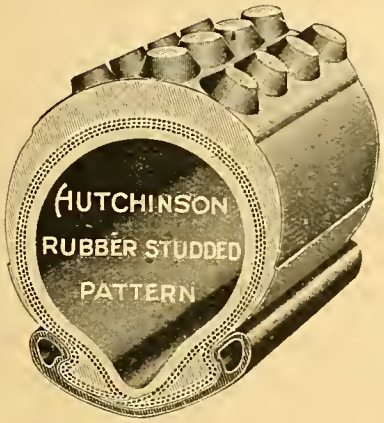
TWO-STROKE BICYCLES.

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity	Lubrication.	Ignition.	Name of Carburetter	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.	in.	in.	in.			lbs.	
Æolus	2½ Æolus	70 × 70	269	Petroil	U.H.	Amac	Æolus 2-sp., C.	Com.	30	5	53	26×2 A.	Rigid	146	£31 10
*Allon	2¾ Allday	70 × 76	292	Hand	—	Senspray	2-speed, C.	Com.	28	5	49	26×2 D.	Rigid	—	£36 10
Ariel	2¾ Ariel	75 × 79	349	Hand	—	Senspray	Ariel 2-sp., C.	Com.	28	5¼	50½	26×2 D.	Rigid	160	£44 2
*Armstrong	2½ Villiers	70 × 70	269	Petroil	Bosch	Amac	2-speed, C.	Belt ⅞	—	—	—	26×2¼ H.	Rigid	—	£32 11
Brown-Villiers	2½ Villiers	70 × 70	269	Petroil	Senspray	B. & B.	—	Belt ⅞	30	—	—	26×2 D.	Rigid	120	£27 10
*Calthorpe	2¼ Calthorpe	63 × 69	211	Hand	Senspray	—	Calthorpe 2-sp.	Com.	29½	6	53	26×2 Mo.	Rigid	130	£28 10
Campion	2½ Villiers	70 × 70	269	Petroil	U.H.	B. & B.	To order	Belt ¾	28	4½	47	26×2 D.	Rigid	—	—
Chater-Lea	2½ Chater-Lea	70 × 70	269	Petroil	—	Amac	Chater-Lea, C.	Com.	—	4¾	52	—	Rigid	135	£36 10
*Clyno	2½ Clyno	70 × 70	269	Petroil	—	Senspray	Clyno 2-sp.	Belt ¾	29½	8	52	26×2 H.	Rigid	130	£37 10
Clyno	2¾ Clyno	76 × 70	319	Petroil	—	Senspray	Clyno 2-sp	Belt ¾	29½	8	52	26×2 H.	Rigid	135	£40 0
*Coventry Eagle	2½ Villiers	70 × 70	269	Hand	—	Senspray	Jardine 2-sp., C	Belt ¾	27	5	49	24×2 D.	Rigid	140	£37 16
Dene	2 Precision	64 × 70	222	Hand	U.H.	B. & B.	Precision 2-sp.	Belt ¾	29	4½	49	26×2¼ D.	Rigid	140	£27 0
*Dunkley	3 Dunkley	75 × 79	349	Hand	Ruthardt	Senspray	3-speed, C.	Com.	—	—	—	26×2¼ D.	Rigid	—	£44 0

* Allon Single-speed, £8 10s. less. * Armstrong: Single-speed, £6 6s. less. * Calthorpe: Single-speed, £3 6s. less. * Clyno: Ladies' model, £2 10s. extra; single-speed either model, £7 10s. less. * Coventry Eagle: Single-speed, £8 8s. less. * Dunkley: Single-speed, £9 less; 2½ h.p. engine, single-speed, £17 15s. less.

HUTCHINSON

MOTOR CYCLE TYRES.



THE Hutchinson Rubber Studded and the Hutchinson Three Ribbed will be our two leading patterns for 1915.

THE Governments of the Allied Armies require a great portion of our supplies, but in spite of this, and the fact that 2,012 of our staff are fighting in the Allied Armies, we are able to announce

REDUCED PRICES FOR 1915

and can promise

SUPPLIES AS USUAL.

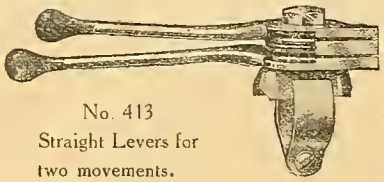
Quality has, of course, been maintained.

HUTCHINSON TYRE CO., 70, Basinghall Street, LONDON, E.C.

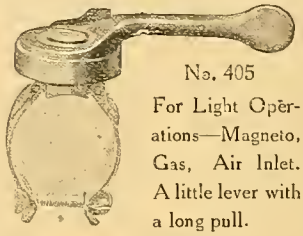
In answering this advertisement it is desirable to mention "The Motor Cycle." B21

Control Levers for Bowden Wire

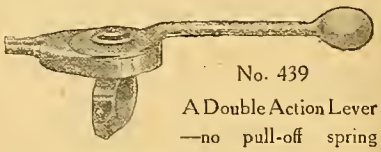
YOU have absolutely complete control of all vital movements at your finger tips if you adopt the Bowden Wire Control System. Bowden Control Levers are made in great variety—as you will see from a few of the types here illustrated. Our catalogue contains particulars of many others. Write for a copy to-day. Prices quoted are for levers only.



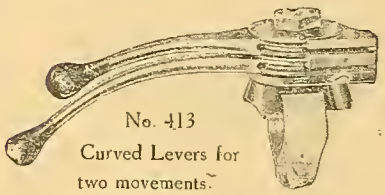
No. 413
Straight Levers for two movements.
7/6



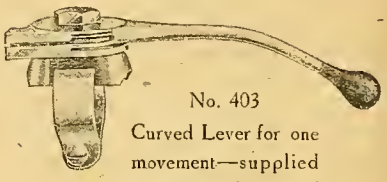
No. 405
For Light Operations—Magneto, Gas, Air Inlet. A little lever with a long pull.
5/-



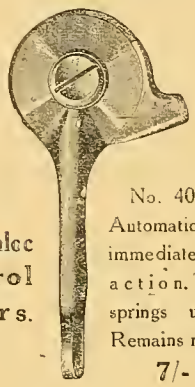
No. 439
A Double Action Lever —no pull-off spring required—suitable for Spark Advance, Throttle, etc.
6/-



No. 413
Curved Levers for two movements.
7/6

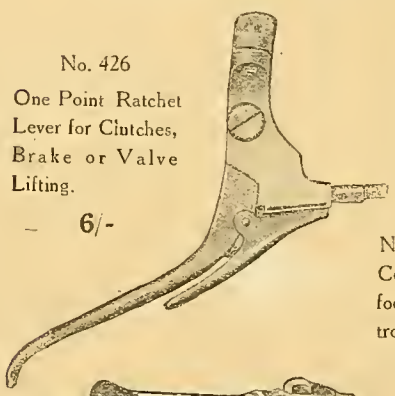


No. 403
Curved Lever for one movement—supplied with pin fitting if required.
5/-

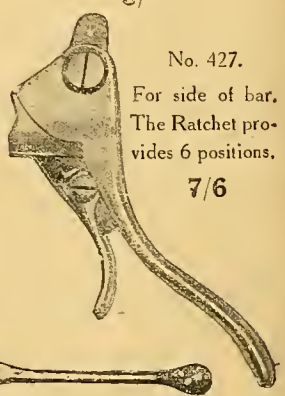


Bowdenlee Control Levers.

No. 406.
Automatic and immediate in action. No springs used. Remains rigid.
7/-



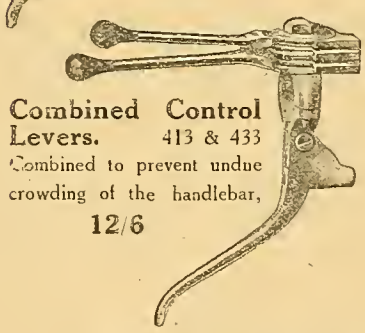
No. 426
One Point Ratchet Lever for Clutches, Brake or Valve Lifting.
6/-



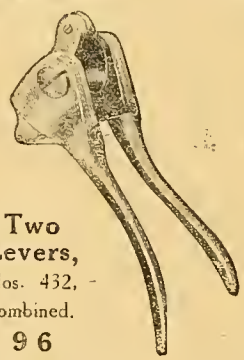
No. 427.
For side of bar. The Ratchet provides 6 positions.
7/6

No. 11. Bowden te Control Wire, **5d.** per foot, for valve; etc., control, nipples included.

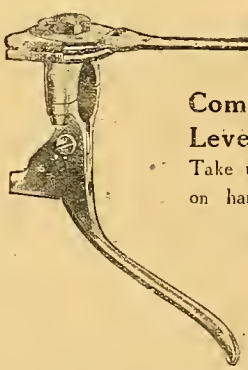
No. 12. Bowdenite Brake Control Wire. **9d.** per foot, nipples included.



Combined Control Levers. 413 & 433
Combined to prevent undue crowding of the handlebar,
12/6



Two Levers,
Nos. 432, combined.
9 6



Combination of Levers. 403 & 433
Take up no more space on handlebar than one control.
9/6

When complete controls are ordered, inner wires are nippled and outer wires are capped free of charge.

Send remittance to cover cost and postage—any balance will be refunded.

BOWDEN WIRE LTD. LONDON
Pratt St. N.W.

Godbold.

In answering this advertisement it is desirable to mention "The Motor Cycle."

TWO-STROKE BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.	in.	in.	in.			lbs.	
*Endrick	2¾ Peco	75 × 79	349	Hand	—	Amac	Endrick 2-sp. C	Chain	30	4¾	52	To order	Spring	180	£35 0
Endurance	2½ Villiers	70 × 70	269	Petroil	E.I.C., U.H	To order	Endurance, C.	Belt	29	5	48	26×2½ Mi.	Rigid	90	£26 5
Enfield	2¼ Enfield	64 × 70	225	Petroil	—	Amac	Enfield 2-sp., C	Chain	28⅓	4¾	48	24×2 P.	Rigid	130	£39 18
Excelsior	2¾ Excelsior	75 × 79	349	Hand	—	Senspray	2-speed, C.	Belt ¾	30	—	—	26×2 P.	Rigid	—	—
Fairfield	2½ Fairfield	70 × 70	269	Com.	Bosch	Amac	—	Belt ¾	27	5½	—	26×2 D.	Rigid	110	£25 0
*Gaby	2½ Metro	70 × 70	269	Petroil	C.A.V.	Senspray	Roe 2-sp., C.	Belt ¾	29½	6	50	26×2 Mo.	Rigid	120	£28 7
*Gerrard	2½ Villiers	70 × 70	269	Hand	U.H.	Senspray	C., 2-speed	Com.	31	6¾	52½	26×2 H.	Rigid	135	£33 0
Grandex-Precision	2½ Precision	64 × 70	225	Hand	—	B. & B.	Precision 2-sp.	Com.	27	5½	—	26×2 H.	Rigid	110	£27 15
*Hobart	2½ Villiers	70 × 70	269	Petroil	—	B. & B., H.C.	2-speed	Com.	28½	5¾	50	26×2	Rigid	140	£33 12
*Imperial Metro	2½ Metro	70 × 70	269	Com.	Ruthardt	Senspray	—	Belt ¾	30	6	54	26×2 P.	Rigid	—	£25 0
*Ivy	2¼ Ivy	64 × 70	225	Hand	—	Senspray	2-sp., C.	Com.	28½	4½	51	26×2 D.	Rigid	130	£33 10
Ixion	2½ Villiers	70 × 70	269	Hand	U.H.	Amac	Albion 2-sp., C.	Belt ⅞	28½	5½	50	26×2	Rigid	126	£33 0
Ixion	2¾ Peco	75 × 79	349	Hand	U.H.	Senspray	Sturmey-A., H.	Belt ⅞	28½	5	50	26×2¼	Rigid	145	£52 10
James	2¼ James	64 × 70	225	Com.	—	Senspray	James 2-sp., C.	Com.	28	4½	50	26×2 D.	Rigid	130	£36 15
*Juno	2½ Villiers	70 × 70	269	Mech.	U.H.	—	—	Belt ¾	29	4½	50	Clincher	Rigid	110	£26 5
Kumfurt	2½ Villiers	70 × 70	269	Petroil	U.H.	Amac	Roe 2-sp., C.	Com.	29	5	52	26×2 D.	Rigid	—	£40 10
Levis	2¼ Levis	62 × 70	211	Semi-au.	Splitdorf	Amac	—	Belt ¾	28	4	50	24×2	Rigid	95	£25 0
Levis	2½ Levis	73 × 70	293	Semi-au.	Bosch	Senspray	To order, C.	Belt ⅞	29½	4	52	26×2	Rigid	110	£33 10
Levis	2¾ Levis	75 × 79	349	Semi-au.	Bosch	Senspray	To order, C.	Belt ⅞	29½	4	52	26×2	Rigid	120	£38 10
Lily	2½ Villiers	70 × 70	269	Petroil	U.H.	Amac	Albion 2-sp., C.	Belt ¾	27	4	48	24×2 H.	Rigid	130	£35 0
*Little Giant	2 Precision	64 × 70	225	Petroil	U.H.	Amac	Precision 2-sp.	Belt	28	6	51	26×2 A.	Rigid	110	£27 10
*New Comet	2¼	62 × 70	211	Petroil	Splitdorf	—	To order	Belt ⅞	29½	5	51	26×2	Rigid	108	£25 0
New Comet	2¾	75 × 79	349	Hand	Splitdorf	—	To order	Belt ⅞	30½	4½	53	26×2¼	Rigid	156	£33 0
*New Hudson	2¼ New Hudson	62 × 70	211	Hand	—	B. & B.	—	Belt ⅞	28	5¾	49	24×2 D.	Rigid	125	£27 5
*New Ryder	2½ Villiers	70 × 70	269	Petroil	—	Senspray	—	Belt ¾	29	7	48	26×2 H.	Rigid	105	£27 6
O.K.	2¼ O.K.	70 × 70	269	Hand	—	Amac	—	Belt ¾	30	7¾	51	26×2	Rigid	112	—
Omega	Omega	75 × 76	340	Hand	—	B. & B.	To order	Belt ⅞	29	6¼	—	Dunlop	Rigid	130	£29 8
Paragon	2¼ Paragon	64 × 70	235	Petroil	U.H.	Amac	Paragon 2-sp, C	Com.	29	6	48	26×2 Mi.	Rigid	110	£28 0
Paragon	3 Paragon	73 × 83	347	Hand	U.H.	Amac	Paragon 2-sp, C	Com.	30	6	48	26×2 D.	Rigid	120	£36 0
Paragon	4 Paragon	86 × 88	496	Hand	U.H.	Amac	Paragon 2-sp, C	Com.	30	5	51	26×2½ D.	Rigid	180	£48 0
*Pilot	3 Pilot	73 × 76	318	Petroil	—	Senspray	—	Belt ⅞	30	5	—	26×2 D.	Rigid	—	£24 3
Quadrant	2½ Quadrant	69 × 100	374	Mech	—	Senspray	2-speed	Com.	—	5	—	26×2 D.	Rigid	—	£31 10
Regal-Peco	2¾ Peco	75 × 79	349	Hand	—	Senspray	2-speed, C.	Com.	28	5½	53	26×2¼ H.	Rigid	140	£42 0
Regal-Precision	2¼ Precision	64 × 70	225	Hand	—	Amac	Precision 2-sp C	Com.	28	5¾	50	26×2 H.	Rigid	115	£34 0

* Endrick: 2 h.p. engine, £6 less. * Gaby: Single-speed, £5 5s. less; Lady's machine, £1 1s. extra. * Gerrard: Single-speed, £6 15s. less. * Hobart: Single-speed, £5 5s. less. * Imperial Metro: Lady's machine, £1 extra; Roe 2-speed (counter-shaft), £5 extra. *Ivy: Lady's machine, £2 extra: De Luxe model, £5 extra; single-speed, £6 10s. less. * Juno: 2-speed gear, £6 extra. * Little Giant: Lady's model, £1 extra. * New Comet: Lady's machine, £1 extra. * New Hudson 2-speed (counter-shaft), £4 5s. extra. De Luxe model, with 2-speed, £37 10s. * New Ryder: Lady's model, £29 8s.; Albion 2-speed gear (counter-shaft), £6 extra: Sturmey-Archer 3-speed (hub), £10 extra. * Pilot: 2-speed (counter-shaft), £5 5s. extra. Lady's machine, with 2-speed (counter-shaft), £31 10s.

TWO-STROKE BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.					in.	in.	in.	in.			lbs.	
*Regina	2¾ Regina	70 × 76	292	Petroil	U.H.	Amac	2-speed, C.	Com.	27	6	54	Hutchinson	Rigid	132	£33 5
Rex	2¾ Rex	75 × 79	349	Hand	—	Amac	Rex, C.	Com.	27	5	48	Moseley	Rigid	115	—
*Royal Ruby	2½ Villiers	70 × 70	269	Hand	—	Amac	To order	Belt ¾	28	9	52	26×2 Mo.	Rigid	—	£26 5
Scott (2-cyl.)	3¾ Scott	73 × 63½	532	Com.	Splitdorf	To order	Scott 2 or 3, C.	Chain	29	5½	53½	650×65 P.	Open	196	£65 0
Singer	2¾ Singer	75 × 79	349	Hand	U.H.	Amac	Singer 2-sp., C.	Com.	30	5	50½	26×2 D.	Spring	175	£40 0
*Sparkbrook	2½ Villiers	70 × 70	269	Hand	Bosch	Senspray	Own 2-sp., C.	Com.	28	4½	51¼	26×2 D.	Rigid	130	£36 0
*Sun-Villiers	2½ Villiers	70 × 70	269	Hand	T.B.	—	2-speed, C.	Belt ¾	29	4½	53	26×2 D.	R., O.	133	£32 10
*Sun-Vitesse	2½ Vitesse	70 × 70	269	Hand	T.B.	—	2-speed, C.	Belt ¾	29	4½	53	26×2 D.	R., O.	135	£34 10
Triumph	2¼ Triumph	64 × 70	225	Petroil	—	Triumph	Triumph 2-sp C	Com.	28½	4½	48	D. or C.	Rigid	125	£42 0
*Trump-Peco	2¼ Peco	62 × 69	210	Hand	Splitdorf	Amac	To order	Belt ¾	28	6½	53	Hutchinson	Rigid	115	£29 0
*Trump-Peco	2¾ Peco	75 × 79	349	Hand	Splitdorf	Senspray	To order	Belt ¾	29	6	53	Hutchinson	Rigid	130	£37 10
*Velocette	2 Veloce	60½ × 73	206	Mech.	Splitdorf	Senspray	Veloce 2-sp., C.	Chain	28	6	—	24×2 D.	Rigid	122	£32 11
*Victoria	2½ Villiers	70 × 70	269	Petroil	—	Amac	2-speed, C.	—	28	5	53	26×2 D.	Rigid	126	£33 0
Vindec	2½ Vindec	64 × 70	225	Hand	C.A.V.	Senspray	2-speed, C.	Com.	30	4½	51	26×2 D.	Rigid	150	£35 0
Wooler	2¾ Wooler	76 × 76	344	Mech.	—	—	Wooler, C.	Belt ¾	26	7½	59	26×2 D.	Spring	165	£47 5

* Regina: Single-speed, £6 15s. less. * Royal Ruby: Sturmey-Archer hub and Dunlop tyres, £11 11s. extra. * Sparkbrook: Single-speed, £6 less. * Sun Villiers and Sun Vitesse: Slipping clutch extra. * Trump-Peco: Albion 2-speed counter-shaft gear, £6 extra; Sturmey-Archer 3-speed hub gear, £10 extra. * Velocette: Lady's machine £2 2s. extra; single-speed, £26 5s. * Victoria: Single-speed, £6 15s. less.

SINGLE-CYLINDER FOUR-STROKE BICYCLES.

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen	Price.
		mm.	c.c.						in.	in.	in.	in.			lbs.	
*Abingdon	3½ King Dick	85 × 88	499	S.S.	Hand	—	—	Sturmey-A., H.	Belt 1	30	4½	56½	26×2¼ D.	Rigid	—	£58 16
*A.J.S.	2¾ A.J.S.	74 × 81	348	S.S.	Hand	T.B.	Amac	A.J.S. 3-sp., C.	Chain	30	6	52	26×2½	Rigid	160	£52 10
Alldays' Matchl's	3½ Alldays	85 × 88	499	S.S.	Hand	—	Senspray	Sturmey-A., H.	Belt	30	5½	50	26×2⅜ D.	Rigid	—	£52 10
*Alldays' Matchl's	4 Alldays	85 × 95	539	S.S.	Hand	—	Senspray	3-speed, C.	Com.	30	5½	54	26×2⅜ D.	Rigid	—	£56 0
*Ariel	3½ Ariel	86⅔ × 85	498	S.S.	Hand	—	B. & B.	Ariel 3-sp., C.	Com.	30	4¾	56	26×2⅜ D.	Rigid	250	£60 15
*Blackburne	3½ Blackburne	85 × 88	499	S.S.	Hand	U.H.	B. & B.	Sturmey-A., H.	Belt 1	28½	5	57	26×2¼ P.	Rigid	212	£59 10
*Bradbury	4 Bradbury	89 × 89	554	S.S.	Hand	—	B. & B.	—	Belt 1	31	5	53	26×2¼ C.	Rigid	172	£47 0
Brown	2¾ Precision	70 × 76	292	S.S.	Hand	Bosch	B. & B.	3-speed, H.	Belt ¾	31	4½	51½	26×2 D.	Rigid	130	£46 0
Brown	3½ Brown	86 × 86	499	S.S.	Hand	Bosch	B. & B.	3-speed, H.	Belt ⅞	29	5½	52½	26×2¼ D.	Rigid	190	£57 0
B.S.A.	3½ B.S.A.	85 × 88	499	S.S.	Hand	—	B.S.A.	—	Belt	29	—	—	26×2¼ D.	Rigid	—	£48 10
*B.S.A.	4¼ B.S.A.	85 × 98	557	S.S.	Hand	—	B.S.A.	B.S.A. 3-sp., C.	Chain	29	—	54¾	26×2½ P.	Rigid	—	£63 0
Calcott	2½ Calcott	70 × 76	292	S.S.	Hand	Bosch	B & B.	Sturmey-A., H.	Belt ¾	32	6½	48	26×2 D.	Rigid	140	—
Calthorpe Junior	2 Precision	65 × 60	199	S.S.	Mech.	U.H.	B. & B.	Precision 2-sp.	Belt	29½	4½	53	26×2 Mo.	Rigid	120	£26 5
*Calthorpe	2¾ Jap	70 × 76	290	S.S.	Hand	Bosch	B. & B.	Enfield 2-sp.	Com.	29½	5	53	26×2 Mo.	Rigid	135	£31 10

* Abingdon: The Abingdon 3-speed (counter-shaft) gear is also fitted. * A.J.S.: With 2-speed gear, £3 3s. less. * Alldays-Matchless: With all-chain drive, £2 extra. * Ariel: Single-speed, £13 5s. less. * Blackburne: Single-speed, £10 less; C. and B. 2-speed, £2 less; C. and B. 4-speed, £10 10s. extra. * B.S.A.: With chain and belt drive, £3 5s. less. * Calthorpe: Single-speed, £5 5s. less.

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THIS chassis is exceptionally strong, and is constructed on the cantilever principle, with front attachments brazed to the bottom member. There are no nuts or bolts to work loose, or joints to slip. The mudguard is clipped direct on to the chassis, which prevents stays breaking through vibration The A.20 Chassis can be supplied to fit "Indian" machines, and with either three or four point attachment.

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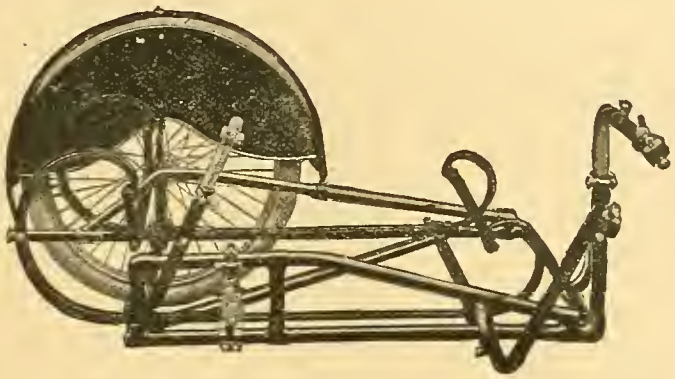

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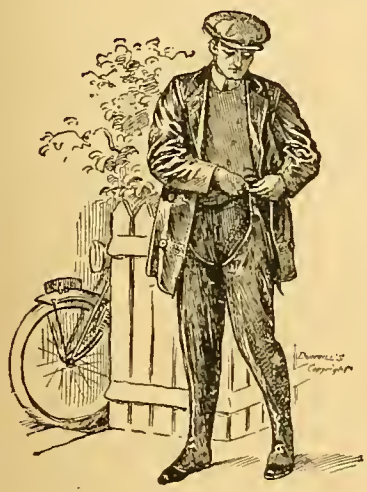

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SINGLE-CYLINDER FOUR-STROKE BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.						in.	in.	in.	in.			lbs.	
Campion	2½ Jap	70 × 76	292	S.S.	Hand	U.H.	B. & B.	To order	Belt ⅜	28	4½	47	26×2 D.	Rigid	—	—
Campion	4 Jap	85½ × 85	488	S.S.	Hand	B.T.H.	B. & B.	Sturmey-A., H.	Belt 1	29	4½	53	26×2¼ D.	Rigid	—	£56 0
Campion	4¼ Precision	89 × 96	597	S.S.	Hand	B.T.H.	B. & B.	Jardine 2-sp., C.	Chain	29	4½	54	26×2½ D.	Rigid	—	£61 0
Clyde	4 Jap	85½ × 85	482	S.S.	Hand	B.T.H.	B. & B.	Jardine 2 or 3 C.	Chain	29¾	4¾	53	26×2¼ H.	Rigid	204	£56 0
*Coventry Eagle	3½ Abingdon	85 × 88	499	S.S.	Hand	—	Senspray	Sturmey-A., H.	Belt 1	29	5	54	26×2¼ D.	Rigid	155	£58 16
Dene	2 Precision	65 × 60	199	S.S.	Hand	U.H.	B. & B.	Precision 2-sp.	Belt ¾	29	4½	49	26×2¼ D.	Rigid	140	£26 0
Dene	3½ Precision	85 × 88	499	S.S.	Hand	Bosch	B. & B.	Sturmey-A., H.	Belt 1	30½	5	52	26×2⅜ D.	Rigid	210	£52 10
*Dene	4¼ Precision	89 × 96	597	S.S.	Hand	Bosch	B. & B.	Sturmey-A., C.	Chain	30½	5	52¾	650×70 D.	Rigid	240	£66 0
Diamond	2¾ Diamond	75 × 79	349	O., inlet	Hand	—	To order	Diamond 2-sp.	Com.	29½	5¾	49½	—	Rigid	160	£52 10
Dot	2½ Jap	70 × 76	292	S.S.	Hand	Dixie	Amac	Albion 2-sp., C.	Com.	29	4	53	26×2 H.	Rigid	130	£34 13
Dot	3½ Jap	85½ × 85	488	S.S.	Mech.	Dixie	Amac	Jardine 2-sp., C	Com.	31	4	53	26×2¼ H.	Rigid	160	£58 16
Dunkley	2 Precision	65 × 60	199	S.S.	Mech.	U.H.	B. & B.	Precision 2-sp.	Belt ¾	—	—	—	26×2 D.	Rigid	—	£28 7
*Endrick	3½ Precision	85 × 88	499	S.S.	Hand	—	Amac	Endrick 2-sp., C	Chain	30	4¾	52	To order	Spring	200	£48 0
Excelsior	3½ Excelsior	85 × 88	499	S.S.	Hand	—	Senspray	Sturmey-A., H.	Belt 1	31	5	—	26×2¼ P.	Rigid	220	—
Excelsior	4½ Excelsior	86 × 112	650	S.S.	Hand	—	Senspray	Jardine 3-sp., C	Chain	31	5	—	650×65 P.	Rigid	276	—
Excelsior	5-6 Excelsior	96 × 112	800	S.S.	Hand	—	Senspray	Jardine 3-sp., C	Chain	31	5	—	650×65 P.	Rigid	310	—
Eysink	2½ Eysink	68 × 85	309	S.S.	Hand	—	Amac	Eysink 2-sp., C.	Com.	30¾	5¼	55½	26×2¼ B.	Rigid	188	£57 18
Eysink	3 Eysink	74 × 85	366	S.S.	Hand	—	Amac	Eysink 2-sp., C.	Com.	30¾	5¼	55½	26×2¼ B.	Rigid	193	£60 8
Eysink	3½ Eysink	74 × 95	409	S.S.	Hand	—	Amac	Sturmey-A., H.	Belt 1	31½	4	55½	26×2¼ B.	Rigid	189	£61 0
F.N.	2½ F.N.	65 × 86	286	S.S.	Hand	—	F.N.	F.N. 2-sp., C.	Shaft	31	5	51½	Clincher	Rigid	150	£49 0
Gamage	2¾ Gamage	70 × 76	292	S.S.	Hand	Bosch	B. & B.	Sturmey-A., H.	Belt ⅜	30	8	50	26×2 H.	Rigid	140	£38 10
Grandex-Precis'n	2 Precision	65 × 60	199	S.S.	Hand	—	B. & B.	Precision 2-sp.	Belt ⅜	27	5½	—	26×2 H.	Rigid	110	£26 5
Grandex-Precis'n	2¾ Precision	70 × 90	350	S.S.	Hand	—	Amac	Sturmey-A., H.	Belt ⅜	27	5½	—	26×2¼ H.	Rigid	130	£36 0
Grandex-Precis'n	3⅜ Precision	85 × 88	499	S.S.	Hand	—	Amac	Sturmey-A., H.	Belt ⅞	28	5½	—	26×2¼ H.	Rigid	160	£45 0
Grandex-Precis'n	4¼ Precision	89 × 96	597	S.S.	Hand	—	Amac	Enfield 2-sp., C.	Chain	28½	5½	—	26×2½ H.	Rigid	185	£53 0
Hazlewood	2¾ Jap	70 × 76	299	S.S.	Mech.	—	B. & B.	Sturmey-A., H.	Belt ⅞	29	6	54	26×2 H.	Rigid	—	£47 5
Hazlewood	4 Jap	90 × 93	592	S.S.	Hand	—	B. & B.	Own 3-sp., C.	Belt 1	29	6	56½	26×2¼ H.	Rigid	—	£60 0
Humber	3½ Humber	84 × 90	499	S.S.	Hand	—	B. & B.	Sturmey-A., H.	Belt 1	30	4½	53¾	26×2⅜ D.	Rigid	220	£57 10
Ixion	2¾ Villiers	74½ × 80	349	O., inlet	Hand	Bosch	B. & B.	Com.	Belt ⅞	28½	5	52	26×2¼ own	Rigid	165	£46 0
*Ixion	3½ Precision	85 × 88	499	S.S.	Hand	Bosch	Amac	Sturmey-A., H.	Belt 1	29½	4½	52	26×2¼ own	Rigid	205	£52 10
James	4¼ James	86 × 103	600	S.S.	Hand	—	—	James 2-sp., C.	Chain	31	4½	54½	26×2⅜ P.	Rigid	240	£59 10
J.E.S.	1 J.E.S.	51 × 57	116	O., inlet	Hand	Fischer	J.E.S., A.	—	Belt ½	to order	12	43	26×1¾ D.	Rigid	75	£21 0
J.E.S.	1¾ J.E.S.	60 × 67	189	O., inlet	Auto.	Splitdorf	J.E.S., A.	To order	Belt ¾	to order	10	48	26×1¾ D.	Rigid	90	£22 0
Juno	4¼ Precision	89 × 96	597	S.S.	Hand	Bosch	To order	—	Belt 1	30	4½	52	26×2½ D.	Rigid	230	£58 10
Kerry-Abingdon	3½ King Dick	85 × 88	499	S.S.	Auto.	—	B. & B.	Sturmey-A., H.	Belt 1	30	4½	56½	26×2¼ D.	Rigid	—	£58 16
*Kumfurt	3½ Precision	85 × 88	499	S.S.	Hand	B.T.H.	Amac	Sturmey-A., H.	Belt ⅞	29	4½	52	26×2¼ D.	Rigid	—	£59 0
Ladies' Pacer	1 J.E.S.	51 × 57	116	O., inlet	Mech.	Fischer	Amac	—	Belt	to order	5	—	To order	Open	60	£24 3
Lea-Francis	3½ Jap	85½ × 85	488	S.S.	Hand	—	Amac	L.-F. 3-sp., C.	Chain	30	—	55	26×2⅜ P.	Rigid	—	£68 5
Lily	2¾ T.D.C.	70 × 76	293	S.S.	Hand	U.H.	B. & B.	Albion 2-sp., C.	Belt ¾	27	4	48	24×2 H.	Rigid	136	£35 0
Lily	3½ T.D.C.	85 × 88	499	S.S.	Hand	U.H.	B. & B.	—	Belt 1	31	4½	51	26×2¼ B.	Rigid	165	£38 0

*Coventry Eagle: Sturmey-Archer (counter-shaft) 3-speed, £4 4s. extra. *Dene: Detachable wheels. * Endrick: 4½ h.p. engine, £7 extra. * Ixion: 4¼ h.p. engine, £5 10s. extra. * James: 3-speed gear, £3 10s. extra. * Kumfurt: 4¼ h.p. engine, £3 10s. extra.

SINGLE-CYLINDER FOUR-STROKE BICYCLES *(Continued).*

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity	Valves.	Lubrication.	Ignition	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase	Standard Size and Make of Tyres.	Standard Frame.	Weight Unladen.	Price.
		mm.	c.c.						in.	in.	in.	in			lbs.	
Lincoln-Elk	2¾ Lincoln-Elk	76 × 77	349	S.S.	Mech.	—	B. & B.	—	Belt	30	5	50	26×2 P.	Rigid	130	£28 0
Lincoln-Elk	3 Lincoln-Elk	79 × 82	402	S.S.	Mech.	—	B. & B.	To order	Belt	30	5	53	26×2 P.	Rigid	150	£31 10
Lincoln-Elk	3½ Lincoln-Elk	85 × 88	499	S.S.	Mech.	—	B. & B.	To order	Belt	30	5	53	26×2¼ P.	Rigid	160	£35 0
Lincoln-Elk	4 Lincoln-Elk	89 × 96	597	S.S.	Hand ..	—	B. & B.	L.-E. 2-sp., C.	Com.	30	5	56	26×2½ P.	Rigid	230	£46 0
*Little Giant	2 Precision ...	65 × 60	199	S.S.	Mech.	U.H.	B. & B.	Precision 2-sp.	Belt	28	6	51	26×2 A.	Rigid	110	£27 10
*L.M.C.	3½ L.M.C.	85 × 88	499	S.S.	Hand ..	—	—	L.M.C., C.	Com.	31	5	51	26×2½ ...	Rigid	212	£60 0
L.M.C.	4 L.M.C.	89 × 96	597	—	—	—	—	L.M.C., C.	Com.	31	5	51	26×2½ ...	Rigid	225	£63 0
Martin Junior ..	2 Precision ...	65 × 60	200	S.S.	Hand ..	H.T.	Amac	2-speed, C. ...	Com.	31	4	51	26×2	Rigid	110	£26 5
Martin-Jap	2½ Jap	70 × 76	292	S.S.	Hand ..	H.T.	Amac	Enfield 2-sp. C.	Com.	30	4½	50	26×2	Rigid	100	£31 10
Mead	2 Precision ...	65 × 60	199	S.S.	Hand ..	U.H.	Amac	Precision 2-sp.	Belt	29½	4½	50	26×2 Mo.	Rigid	110	—
Mead	2½ Jap	70 × 76	292	S.S.	Hand ..	Splitdorf .	B & B.	Enfield 2-sp., C.	Com.	30	5	52	—	Rigid	150	—
Mead	3¾ Precision ...	85 × 88	499	S.S.	Hand ..	Bosch ...	Amac	Mead 2-sp., C.	Com.	31	4½	55	26×2¼ Mi.	Rigid	195	—
Mead	4½ Precision ...	89 × 96	597	S.S.	Hand ..	Bosch ...	B. & B.	Mead 2-sp., C.	Com.	31	4½	55	26×2¼ Mi.	Rigid	200	—
Motosacoche ...	2½ M.A.G.	64 × 90	289	S.S.	Mech	Bosch ...	M.A.G.	Motosacoche, E	Belt	30	8½	49	26×1¾ A.	Rigid	98	£31 10
*New Comet	2 Precision ...	65 × 60	199	S.S.	Hand ..	Splitdorf .	To order	2-speed, C. ...	Belt	29½	4½	51	26×2	Rigid	110	£29 0
New Comet	3½ Precision ...	85 × 88	499	S.S.	Hand ..	To order .	To order	To order	Belt	30½	5	53	26×2¼ ...	Rigid	195	£42 0
New Hudson ...	3½ New Hudson	85 × 88	499	S.S.	Hand ..	—	B. & B.	N.H. 3-sp., C.	Com.	29	6	57	26×2⅜ D.	Rigid	220	£57 10
New Imperial ..	2½ New Imperial	70 × 76	292	S.S.	Hand ..	—	B. & B.	2 or 3-sp., C. ..	Com.	30	6	53	26×2 D.	Rigid	132	£31 10
New Imperial ..	3½ New Imperial	85 × 85	482	S.S.	Hand ..	—	Amac	3 or 4-sp., C. ..	Chain	30	5	56	26×2¼ D.	Rigid	215	£52 0
New Imperial ..	4½ New Imperial	90 × 93	592	S.S.	Hand ..	—	Amac	3 or 4-sp., C. ..	Chain	30	5	56	26×2½ D.	Rigid	235	£60 0
Norton	3½ Norton	79 × 100	490	S.S.	Hand ..	C.A.V. ...	Amac	Sturmey 3-sp. C	Chain	29½	4	55	26×2¼ D.	Rigid	—	£62 0
*Norton	Big 4 Norton ..	82 × 120	633.7	S.S.	Hand ..	C.A.V. ...	Amac	Sturmey 3-sp. C	Chain	29½	4	55	26×2½ D.	Rigid	—	£65 0
*O.K. Junior ...	2 O.K. Mk. III.	58 × 72	190	O., inlet	Hand ..	—	Amac	2-speed, C. ...	Com.	30	7¾	51	26×2	Rigid	120	£31 10
*O.K. Junior ...	2½ O.K. Mk. IV.	70 × 76	292	S.S.	Hand ..	—	Amac	2-speed, C. ...	Com.	30	6½	51	26×2	Rigid	136	£32 11
Pilot	2 Precision ...	65 × 60	199	S.S.	Hand ..	—	Senspray	Precision 2-sp.	Belt	30	5	—	26×2 D.	Rigid	—	£26 5
Pilot	4½ Precision ...	89 × 96	597	S.S.	Hand ..	—	Senspray	3-speed	Belt	30	4	—	26×2½ D.	Rigid	—	£52 10
P. & M.	3½ P. & M.	85 × 88	499	S.S.	Hand ..	Splitdorf	B. & B.	P. & M. 2-sp., C	Chain	28¼	10	53	26×2¼ K.	Rigid	220	£65 0
Premier	3½ Premier	85 × 88	499	S.S.	Hand ..	—	—	Premier 3-sp., C	Com.	31	5½	52	26×2½ D.	Rigid	228	£60 0
Quadrant	4½ Quadrant ...	87 × 88	554	S.S.	Hand ..	—	Senspray	B.S.A. 3-sp., C.	Com.	—	5	—	26×2⅜ D.	—	—	£57 15
*Red Arno	3½ Arno	84 × 89	493	S.S.	Hand ..	Eisemann	Senspray	—	Belt	28	4⅞	—	26×2¼ ...	Rigid	166	£36 0
*Red Arno	4½ Arno	89 × 94	585	S.S.	Hand ..	Eisemann	Senspray	Sturmey-A., H.	Belt	28	4⅞	—	26×2¼ ...	Rigid	210	£52 10
Rover	3½ Rover	85 × 88	499	S.S.	Hand ..	—	B. & B.	Rover 3-sp., C.	Com.	29	4½	54½	650×65 D.	Rigid	270	—
*Royal Ruby ...	2½ Jap	70 × 76	292	S.S.	Hand ..	—	Amac	To order	Belt	28	6⅓	52	26×2 Mo.	Rigid	—	£30 9
Royal Ruby ...	3½ Jap	85½ × 85	488	S.S.	Hand ..	—	B. & B.	Sturmey-A., H.	Belt	28	6	54	26×2⅜ D.	Rigid	—	£55 13
*Rudge	3½ Rudge	85 × 88	409	O., inlet	Foot ..	Ruthardt	Senspray	Rudge Multi ..	Belt	31	4⅜	55	650×65 D.	Rigid	214	£58 15
Rudge	5-6 Rudge	85 × 132	750	O., inlet	Foot ..	Ruthardt	Senspray	Rudge Multi ..	Belt	31	4	55	650×65 D.	Rigid	242	£63 15
*Singer	2 Singer	69 × 80	299	S.S.	Hand ..	Bosch ...	B. & B.	Sturmey-A., H.	Belt	31	5	50	26×2 D.	Spring	175	£48 0
*Singer	3½ Singer	85 × 88	499	S.S.	Hand ..	Bosch ...	B. & B.	Sturmey-A., H.	Belt	31	5	51½	26×2⅜ D.	Spring	226	£58 0
Singer	4½ Singer	88 × 88	535	S.S.	Hand ..	Bosch ...	B. & B.	Singer 2-sp. C.	Chain	31	5	51½	26×2½ D.	Spring	240	£65 0

* Little Giant: Lady's model, £1 extra. * L.M.C.: Sturmey-Archer hub gear to either model to order, same price: Sturmey-Archer counter-shaft gear to either model to order, £3 extra. *New Comet: Lady's model, £1 extra. * Norton: Sturmey-Archer hub, £5 less; Colonial models, 5½in. ground clearance, 3½ h.p. T.T., £50; Brooklands Special, £60. * O.K. Both models supplied with open frame for ladies' use. * Red Arno: T.T. model, with Sturmey-Archer hub, £12 6s. extra. * Royal Ruby: Sturmey-Archer hub and Dunlop tyres, £11 11s. extra. * Rudge: T.T. machine, 188 lbs. * Singer: Single-speeds, £9 and £10 less.

SINGLE-CYLINDER FOUR-STROKE BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.						in.	in.	in.	in.			lbs.	
Sun	4¼ Precision	89 × 96	597	S.S.	Hand	Bosch	—	Sturmey 3-sp. C	Com.	30	3½	55	26×2⅛ D.	Rigid	220	£58 10
Sunbeam	3½ Sunbeam	85 × 88	499	S.S.	Hand			Own 3-sp., C.	Chain	30	5	54	26×2½	Rigid	240	£69 6
*Swift	3½ Swift	86⅝ × 85	498	S.S.	Hand	—	B. & B.	Swift 3-sp., C.	Com.	30	4½	55	26×2⅜ D.	Rigid	248	£60 15
Triumph	4 Triumph	85 × 97	550	S.S.	Hand	—	Triumph	Sturmey 3-sp. C	Com.	30	4	53½	26×2⅜	Rigid	—	—
Trump	3½ Jap	85½ × 85	488	S.S.	Hand	Splitdorf	—	Sturmey-A., H.	Belt ⅞	31	5½	53	26×2¼ H.	Rigid	170	£58 10
Veloce	2½ Veloce	70 × 76	292	O., inlet	Mech.	Splitdorf	Senspray	2-Speed unit	Belt ¾	31	5	52	26×2¼ D.	Rigid	185	£47 5
*Veloce	3½ Veloce	85 × 88	499	S.S.	Hand	Splitdorf	B. & B.	Sturmey-A., H.	Belt 1	31	5	52	26×2¼ D.	Rigid	216	£47 5
*Victoria	3¾ Precision	85 × 88	499	S.S	Hand	—	B. & B.	To order	Belt 1	30	6	55	26×2⅜ D.	Rigid	186	£38 0
*Westovian	2-3 T.D.C.	70 × 76	292	S.S.	Hand	U.H.	B. & B.	To order	Belt ¾	30	4½	53	26×2 D.	Rigid	160	£27 10
Westovian	3¾ Precision	85 × 88	499	S.S.	Hand	Bosch	B. & B.	To order	Belt ⅞	30	5½	55	26×2¼ D.	Rigid	213	£36 15
Zenith	3½ Jap	85½ × 85	488	S.S	Hand	—	—	Gradua varia.	Belt 1	30½	4¼	54	26×2⅛ H.	Rigid	198	£55 13

* Swift: Single-speed, £13 5s. less. * Veloce: Sturmey-Archer 3-speed (counter-shaft), with chain and belt drive, £5 5s. extra. * Victoria: 3-speed gear, £10 extra.
* Westovian: 4½ h.p. engine, £2 15s. extra

MULTI-CYLINDER FOUR-STROKE BICYCLES.

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Ignition	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price
		mm.	c.c.						in.	in.	in.	in.			lbs.	
A.B.C.	3½ A.B.C. 180°	70 × 64	492	O.	Hand	—	Claudel, A.	A.B.C. 4-sp., C.	Chain	29½	7	56	26×2⅛ C.	Spring	190	£63 0
Abingdon	6-7 King Dick 50°	73 × 95	796	S.S.	Auto.		To order	Sturmey-A., H.	Belt 1	30	4½	56½	26×2⅛ D.	Rigid	—	£70 17
A.J.S.	4 A.J.S. 50°	65 × 83	550	S.S.	Hand	Splitdorf	Amac, A.	A.J.S. 3-sp., C.	Chain	30	5	54	650×65	Rigid	236	£67 4
A.J.S.	6 A.J.S. 50°	74 × 87	748	S.S.	Hand	Splitdorf	Amac, A.	A.J.S. 3-sp., C.	Chain	30	4	57	650×65	Rigid	276	£75 12
*Alldays-Matchl'ss	5-6 Alldays	76 × 88	798	S.S.	Hand	—	Senspray	Alldays-M., C.	Chain	30	5½	54	650×65 D.	—	—	£74 0
Ariel	5-6 Ariel	67 × 95	670	S.S.	Hand	—	Amac	Ariel 3-sp., C.	Com.	30	4	56	26×2½ D.	Rigid	260	£70 15
Bat	5 Jap 50°	70 × 85	654	S.S.	Hand	Bosch	Amac	Bat 3-sp., C.	Com.	29	5¾	55	26×2⅛ K.	Rigid	195	£67 10
Bat	6 Jap 50°	76 × 85	770	S.S.	Hand	Bosch	Amac	Bat 3-sp., C.	Com.	29	4¼	55	650×65 K.	Spring	240	£73 0
Bat	8 Jap 50°	85 × 85	964	S.S.	Hand	Bosch	Amac	Bat 3-sp., C.	Chain	29	4¼	55	650×65 K.	Spring	245	£75 0
Bradbury	3½ Brad'by 180°	68 × 68⅜	499	S.S.	Hand	—	B. & B.	3-speed, C.	Chain	30	4½	54	26×2⅜	Rigid	266	£64 0
Bradbury	6 Bradbury	74½ × 86	749⅜	S.S.	Hand	—	B. & B.	3-speed, C.	Chain	30	6	56¼	650×65	Rigid	324	£70 0
*Brough	3½ Brough 180°	70 × 64½	497	O.	Hand	—	Amac	Brough 2-sp., C	Com.	28½	4¾	54	26×2¼ J.B.	Rigid	170	£56 10
*Campion	6 Jap 50°	76 × 85	770	S.S.	Hand	B.T.H.	B. & B.	Jardine 3-sp., C	Chain	30	4½	59	26×2½ D.	Rigid	—	£72 0
Chater-Lea	8 Chater-Lea	85 × 85	964	S.S.	Hand	—	B. & B.	Chater-Lea, C.	Chain	—	4¾	—	650×65	Rigid	285	£84 0
Clyde	6 Jap 50°	76 × 85	770	S.S.	Hand	B.T.H.	B. & B.	Jardine 3-sp., C	Chain	30½	5	55	650×65 H.	Rigid	223	£65 0
Clyno	5-6 Clyno 55	76 × 82	746	S.S.	Hand	—	Senspray	Clyno 3-sp., C.	Chain	30	6	59	650×65 H.	Rigid	270	£75 0
Coventry Eagle	5-6 Abingdon 50°	67 × 95	670	S.S.	Hand	—	Senspray	Counter-shaft	Belt 1	29	5	56	26×2¼ D.	Rigid	170	—
*Dene	6 Precision 50°	75 × 85	750	S.S.	Hand	Bosch	Amac	Sturmey 3-sp. C	Chain	30½	5	53½	700×80 D.	Rigid	235	£75 0
Dot	3½ Jap 50°	70 × 64½	496	S.S.	Mech.	Dixie	Amac	Jardine 2-sp., C.	Com.	30	4	51	26×2¼ H.	Rigid	175	£60 18
Dot	6 Jap 50°	76 × 85	770	S.S.	Mech.	Dixie	Amac	Jardine 4-sp., C.	Com.	31	4	52	26×3 H.	Rigid	210	£73 10
*Dot	8 Jap 50°	85½ × 85	988	S.S.	Mech.	Dixie	Amac	Jardine 3-sp., C.	Chain	31	4	52	26×3 H.	Rigid	215	£91 7

* Alldays-Matchless: Belt and chain drive, £2 less; 8 h.p. engine, £2 extra. * Brough: Sturmey-Archer hub, £3 10s. extra; special racing model, £60. * Campion: With 8 h.p. J.A.P. engine and 650×65 mm. tyres, £2 extra. * Dene: Sturmey-Archer hub and belt drive, £7 10s. less. * Dot: Price includes sidecar.

MULTI-CYLINDER FOUR-STROKE BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.							in.	in.	in.			lbs.	
*Douglas	2¾ Douglas 180°	60¾ × 60	349	S.S.	Hand	—	Douglas	Douglas 2-sp. C	Belt ⅜	30	9½	52½	26×2¼ H.	Rigid	—	£48 0
Douglas	4 Douglas 180°	74½ × 68	594	S.S.	Hand	—	Douglas	Douglas 3-sp. C	Belt ⅜	31½	8⅛	57	26×2⅜ H.	Rigid	—	£58 0
*Dunkley	4 Precision 50°	60 × 88	499	S.S.	Hand	—	Amac	Dunkley 4-sp. C	Com.	—	—	—	26×2½ D.	Rigid	—	£63 0
Elswick	4 Precision 50°	60 × 88	498	S.S.	Hand	—	B. & B.	Sturmey-A., H.	Belt	30	—	—	26×2¼ P.	Rigid	—	£62 10
Enfield	3 Enfield 60°	60 × 75	425	O., inlet	Mech.	—	Amac	Enfield 2-sp., C.	Chain	30	4¾	55	26×2¼ P.	Rigid	182	£52 10
Enfield	6 Jap 50°	76 × 85	770	S.S.	Hand	—	Amac	Enfield 2-sp., C.	Chain	30	3¾	55½	650×65 P.	Rigid	260	£84 0
Excelsior	8 Jap 50°	85½ × 85	988	S.S.	Hand	—	Senspray	Jardine, C.	Chain	31	4¾	—	Lt. car, P.	Rigid	—	—
Excelsior (U.S.A)	7 Excelsior 45°	84 × 89	986	O., inlet	Mech.	Bosch	Schebler, A.	Own 3-sp., C.	Chain	31	4½	58	28×3 G.	Rigid	245	£59 0
*Eysink	6 Eysink	74 × 85	732	S.S.	Hand	—	Amac	Eysink 2-sp., C.	Com.	30¾	5⅛	55½	26×3 B.	Rigid	227	£74 0
F.N. (4-cyl.)	5 F.N.	52½ × 57	496	O.	Semi-Au	—	F.N.	F.N. 2-sp., C.	Shaft	30	6	54	Englebert	Rigid	220	£65 0
F.N. (4-cyl.)	7 F.N.	52 × 88	748	S.S.	Mech.	—	Zenith, A.	F.N. 3-sp., C.	Shaft	30	5	61	Englebert	Rigid	300	£78 0
Forward	2¾ Forward 50°	56 × 70	345	S.S.	Hand	To order	Amac	—	Belt	29	7½	50	26×2 H.	Rigid	127	£40 19
Forward	3½ Forward 50°	64½ × 76	496	S.S.	Hand	To order	Amac	—	Belt	29	7½	50	26×2⅜ H.	Rigid	150	£45 3
Grandex-Precis'n	4 Precision 50°	60 × 88	499	S.S.	Hand	—	Amac	Enfield 2-sp., C.	Chain	28½	5½	—	26×2⅛ H.	Rigid	—	£53 0
*Grandex-Precis'n	6 Precision 50°	75 × 85	750	S.S.	Hand	—	Amac	Enfield 2-sp., C.	Chain	28½	5½	—	650×65 H.	Rigid	200	£64 0
*Harley-Davidson	7-9 H.-D. 45°	84 × 89	989	O.	Mech.	Bosch	Schebler, A.	H.-D. 3-sp., C.	Chain	30½	4¾	59½	28×3 G.	—	305	£68 15
Hazlewood	3½ Jap 50°	70 × 64½	496	S.S.	Hand	Bosch	B. & B.	Sturmey-A., H.	Belt ⅜	29	6	54	26×2¼ H.	Rigid	—	£55 13
Hazlewood	5-6 Jap 50°	70 × 90	692	S.S.	Hand	Bosch	B. & B.	Own 3-sp., C.	Com.	29	6	56½	26×2½	Rigid	—	£72 0
Hobart	6 Jap 50°	76 × 85	770	S.S.	Hand	—	B. & B.	Sturmey 3-sp. C	Com.	31½	5¼	56	650×65 D.	Rigid	280	£71 8
Humber	6 Humber 180°	78 × 78	745	S.S.	Hand	—	Claudel-Hob.	Humber 3 sp. C	Chain	30	4½	57	26×2½ D.	Rigid	320	—
Indian	3½ Indian 42°	70 × 74½	574	O., inlet	Mech.	Dixie	Indian, A.	Indian 3-sp., C.	Chain	29½	4½	55	28×2½ D.	Rigid	—	£57 0
Indian	5 Indian 42°	70 × 89	684	O., inlet	Mech.	Dixie	Indian, A.	Indian 3-sp., C.	Chain	29½	4½	55	28×2½ D.	Rigid	—	£60 0
*Indian	7 Indian 42°	82½ × 93	994	O., inlet	Mech.	Dixie	Indian, A.	Indian 3-sp., C.	Chain	31	5½	59	28×2½ D.	Spring	—	£70 0
Indian	7 Indian 42°	82½ × 93	994	O., inlet	Mech.	Dixie	Indian, A.	Single-speed	Chain	29½	5	55	28×3 D.	Rigid	—	£56 0
*Ivy	3½ Jap 50°	70 × 64½	496	S.S.	Hand	—	Amac	3-speed, H.	Belt	30	4	49	26×2¼ D.	Rigid	—	£56 10
Ivy	6 Jap 50°	76 × 85	770	S.S.	Hand	—	Amac	3-speed, H.	Belt	30	4	51	26×2⅜ D.	Rigid	—	£62 10
Ixion	6 King Dick 50°	67 × 95	670	S.S.	Hand	Bosch	Amac	Sturmey-A., H.	Belt I	30	4½	54	26×2½	Rigid	255	£68 0
James	3½ James	64 × 77	496	S.S.	Hand	—	Amac	James 3-sp., C.	Chain	29½	4½	52	26×2⅜	Rigid	195	£63 0
Juno	6 Jap 50°	76 × 85	770	S.S.	Hand	Bosch		Sturmey 3-sp. C	Com.	30	4½	61	26×2½ D.	Rigid	260	£68 10
Kerry-Abingdon	6 King Dick 50°	67 × 95	670	S.S.	Anto.	—	Amac	Sturmey-A., H.	Belt 1	30	4½	56½	26×2½ D.	Rigid	—	£70 17
Kumfurt	5 Jap 50°	70 × 85	655	S.S.	Hand	B.T.H.	Amac	Sturmey-A., H.	Belt 1	29	4½	52	26×2½ D.	Rigid	—	£67 10
Lea-Francis	3½ Jap 50°	70 × 64½	496	S.S.	Hand	—	Amac	L.-F. 3-sp., C.	Chain	30	5½	55	26×2⅜ P.	Rigid	—	£69 10
Lincoln-Elk	6 L.-E. 50°	76 × 85	770	S.S.	Hand	—	B. & B.	Lincoln-E., C.	Com.	30	5	55	26×2½ P.	Rigid	265	£55 0
*L.M.C.	6 L.M.C.	79 × 86	842	S.S.	Hand	—	Amac	Sturmey-A., H.	Belt 1	31	5	52	26×2½	Rigid	270	£68 0
*Matchless	7 Matchless 45°	82 × 94	996	O., inlet	Hand	U.H.	Amac	own 3-sp., C.	Chain	30	4½	58	26×3	Rigid	300	£75 0
*Mead	6 Premier 50°	75 × 85	750	S.S.	Hand	Bosch	B. & B.	Mead 2-sp., C.	Com.	32	4	58	26×2½ Mi.	Rigid	230	—
Montgomery	5 Montg'y 180°	76 × 78	708	S.S.	Hand	C.A.V.	Senspray	Sturmey-A., H.	Belt	30½	5½	55	26×2½ D.	Rigid	300	£68 0
Motosacoche	3½ M.A.G. 60°	64 × 75	496	S.S.	Mech.	Bosch	Amac	Enfield 2-sp., C.	Chain	30	5½	53	26×2¼ H.	Rigid	—	£60 0
Motosacoche	6 M.A.G. 45°	72 × 91	742	O., inlet	Hand	Bosch	Amac	Enfield 2-sp., C.	Chain	28	5½	53	26×3 H.	Rigid	—	£74 0

* Douglas: 3-speed counter-shaft, £2 extra; lady's model, 3-speed, £54. * Dunkley: 6 h.p. engine, £8 8s. extra; 8 h.p. engine, £10 10s. extra. * Enfield: Price includes sidecar. * Eysink: Spring frame to order. * Grandex-Precision: Sturmey-Archer 3-speed counter-shaft or 8 h.p. engine, same price. * Harley-Davidson: Single-speed, £8 18s. less; electric equipment, £7 18s. extra; single-speed racing model, £61 19s. * Indian: Fitted with Splitdorf magneto dynamo, £80. * Ivy: With 6 h.p. engine, £3 10s. extra; both models can be fitted with counter-shaft gears. * L.M.C.: Sturmey-Archer 3-speed counter-shaft, £6 extra. * Matchless: With sidecar, £92 17s.; with sidecar and detachable interchangeable wheels, £97 13s. * Mead: 8 h.p. engine can be fitted.

MULTI-CYLINDER FOUR-STROKE BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P. and Name of Engine.	Bore and Stroke.	Cubic Capacity.	Valves.	Lubrication.	Ignition.	Name of Carburetter.	Change Speed Gear.	Transmission.	Saddle Height from Ground.	Crank Case Clearance.	Length of Wheelbase.	Standard Size and Make of Tyres.	Standard Frame.	Weight, Unladen.	Price.
		mm.	c.c.							in.	in.	in.			lbs.	
New Comet	6 Jap 50°	76 × 85	770	S.S.	Hand ..	To order .	To order	Sturmey 3-sp. C	Com.	30½	4½	54	26×2½ ...	Rigid	225	£67 10
*New Hudson ...	6 New Hudson	76 × 85	770	S.S.	Hand ..	—	B. & B.	N.H. 3-sp., C.	Com.	29	5½	57	650×65 D.	Rigid	250	£75 12
New Imperial ..	6 New Imperial	76 × 85	770	S.S.	Hand ..	—	Amac	3 or 4-speed, C.	Chain	31	5	60	26×2½ D.	Rigid	270	£65 0
*N.U.T.	2¾ Jap 50°	60 × 61	344	O., inlet	Hand ..	—	Amac	3-speed, C. ...	Chain	30	4¼	—	26×2	Rigid	—	—
*N.U.T.	3½ Jap 50°	70 × 64½	496	S.S.	Hand ..	—	Amac	3-speed, C. ...	Chain	30	3¾	—	26×2¼ ...	Rigid	—	—
*Overseas	6 Overseas ...	79 × 86	842	S.S.	Hand ..	—	Amac	Sturmey-A., H.	Belt 1	31	5	52	26×2½ ...	Rigid	260	£64 0
P. & M.	P. & M. 90° ...	76 × 85	770	S.S.	Hand ..	Bosch ...	B. & B.	P.-M. 4-sp., C.	Chain	29	8½	54	650×65 K.	Rigid	300	£78 0
Pilot	4 Precision 50°	60 × 88	499	S.S.	Hand ..	—	Senspray	3-sp. to order	Belt 1	30	5	—	26×2½ D.	Rigid	—	£54 0
*Premier	7-9 Premier ...	85 × 88	998	S.S.	Hand ..	—	—	Premier 3-sp., C	Com.	31	4½	56	650×65 D.	Rigid	334	£74 0
Quadrant	8-9 Quadrant ..	87 × 95	1130	O., inlet	Pump .	—	Senspray	2-speed	Chain	—	5	—	650×65 D.	Rigid	—	£70 0
*Regal-Precision .	4¼ Precision 50°	66 × 88	602	S.S.	Hand ..	—	Amac	3-speed, C. ...	Com.	28	5½	53	26×2¼ H.	Rigid	180	£58 10
*Rex	6 Rex	80 × 95	940	S.S.	Hand ..	—	B. & B.	Rex 3-sp., C.	Chain	31	3½	58	To order ..	Rigid	280	£72 10
Rex	6 Rex	80 × 95	940	S.S.	—	—	B. & B.	Rex 3-sp., shaft	Shaft	31	4½	54	—	Rigid	280	£77 10
*Rex-Jap	6 Jap 50°	76 × 85	770	S.S.	Hand ..	—	Amac	Rex-Jap 3-sp. C	Chain	32	4	58	650×65 K.	Spring	280	£75 12
*Rex-Jap	8 Jap 50°	85½ × 85	988	—	—	—	B. & B.	Rex-Jap 3-sp. C	Chain	32	4	58	650×65 K.	Spring	295	£77 14
Royal Ruby ...	4 Jap 50°	70 × 64½	496	S.S.	Hand ..	—	B. & B.	Sturmey-A., H.	Belt ⅞	28	6	54	26×2⅜ D.	—	—	£64 1
*Royal Ruby ...	6 Jap 50°	76 × 85	770	S.S.	Hand ..	—	—	R.R. 3-sp., C.	Com.	28	6	57	650×65 D.	—	—	£76 13
Rudge	7 Rudge 50° ..	85 × 88	998	O., inlet	Foot ..	Ruthardt	Senspray	Rudge multi ..	Belt 1	31	4⅜	55	650×65 D.	Rigid	245	£75 0
*Sparkbrook	6 Jap 50°	76 × 85	770	S.S.	Hand ..	Bosch ...	B. & B.	own 2-sp., C...	Com.	30	3¾	58	26×2½ D.	Rigid	—	£87 10
Sunbeam	6-7 Sunbeam...	73 × 95	796	S.S.	Hand ..	—	B. & B.	own 3-sp., C...	Chain	30	5	62	650×62 D.	Rigid	280	£84 0
Sun-Jap	6 Jap 50°	76 × 85	770	S.S.	Hand ..	Bosch ...	Amac	Sturmey 3-sp. C	Com.	30	6	61	26×2½ D.	Rigid	260	£68 10
Swift	5-6 Swift	67 × 95	670	S.S.	Hand ..	—	Amac	Swift 3-sp., C.	Com.	30	4	56	26×2½ D.	Rigid	262	£70 15
T.M.C. (4-cyl.) .	8 T.M.C.	60 × 75	848	S.S.	Hand ..	—	Stewart, A. .	T.M.C. 3-sp., C.	Bevel	27	6	72	26×2½ Mi.	Spring	440	£89 0
T.M.C. (4-cyl.) .	8-10 T.M.C. ...	62 × 90	1087	S.S.	Mech. .	—	Stewart, A. .	T.M.C. 3-sp., C.	Worm	28	6	70	26×3 D.	Spring	500	£100 0
Torpedo	4 Precision 50°	60 × 88	498	S.S.	Hand ..	To order .	B. & B.	Sturmey-A., H.	Belt	30	—	—	26×2¼ ...	Rigid	—	£62 10
*Trump-Jap	3 Jap 50°	60 × 76	430	S.S.	Hand ..	Splitdorf .	Amac	Sturmey-A., H.	Belt ⅞	31	5	82	26×2¼ H.	Rigid	160	£60 10
*Trump-Jap	5 Jap 50°	70 × 85	654	S.S.	Hand ..	Splitdorf .	Senspray	Sturmey-A., H.	Belt ⅜	31	5	82	26×2½ H.	Rigid	180	£65 10
Victoria	4 Precision 50°	60 × 88	498	S.S.	Hand ..	—	B. & B.	To order	Belt 1	30	6½	55	26×2⅜ D.	Rigid	210	£45 0
Vindec	4 Vindec	63 × 80	498	O., inlet	Hand ..	Bosch ...	B. & B.	To order	Belt ⅞	31	6¼	81	26×2¼ D.	Rigid	200	£58 0
Westovian	4 Precision 50°	60 × 88	498	S.S.	Hand ..	Bosch ...	B. & B.	To order	Belt 1	30	5½	55	26×2¼ D.	Rigid	218	£38 15
*Williamson	8 Douglas 180°	85 × 85	864	S.S.	Hand ..	—	—	Douglas 2 or 3C	Chain	29½	7	60½	700×80 ..	Rigid	280	£98 10
*Zenith	3½ Jap 50°	70 × 64½	496	S.S.	Hand ..	—	Amac	Gradua vari. ..	Belt 1	30	5	54½	26×2¼ H.	Rigid	210	£56 14
*Zenith	4-5 Jap 50° ...	70 × 85	654	S.S.	Hand ..	—	Amac	Gradua vari. ..	Belt 1	30	5	54½	26×2¼ H.	Rigid	216	£58 16
*Zenith	6 Jap 50°	76 × 85	770	S.S.	Hand ..	—	Amac	Gradua vari. ..	Belt 1	30	4	54½	26×2½ H.	Rigid	225	£69 6
*Zenith	8 Jap 50°	85½ × 85	988	S.S.	Hand ..	—	Amac	Gradua vari. ..	Belt 1	30	4	54½	26×2½ H.	Rigid	235	£70 7

* New Hudson: Complete with sidecar, £12 12s. extra. * N.U.T.: 6 h.p. and 8 h.p. engines also supplied. * Overseas: Sturmey-Archer 3-speed (counter-shaft), £6 extr] * Premier: Complete with sidecar, £80. * Regal-Precision: Outside flywheel. * Rex: With 2-speed (hub) and belt drive, £7 10s. less. * Rex-Jap: Colonial models, with 5½in. ground clearance, £2 2s. extra. * Royal Ruby: With Jardine 3-speed (counter-shaft) and chain drive, £7 7s. extra. * Sparkbrook: The price includes sidecar; 8 h.p. engine, £2 10s. extra; Colonial model and 8 h.p. engine, £5 extra. * Trump-Jap: 4 h.p. engine, £2 10s. extra; 6 h.p. engine, £4 extra.; 8 h.p. engine, £6 10s. extra. * Williamson: Water-cooled; the price includes sidecar. * Zenith: Gradua gear on counter-shaft in front of engine and chain and belt drive, £5 5s. extra on 3½ h.p. model; £6 6s. extra on others.

Cancellation of German-owned British Patents.

A Case of General Interest Concerning Motor Cycle Engines.

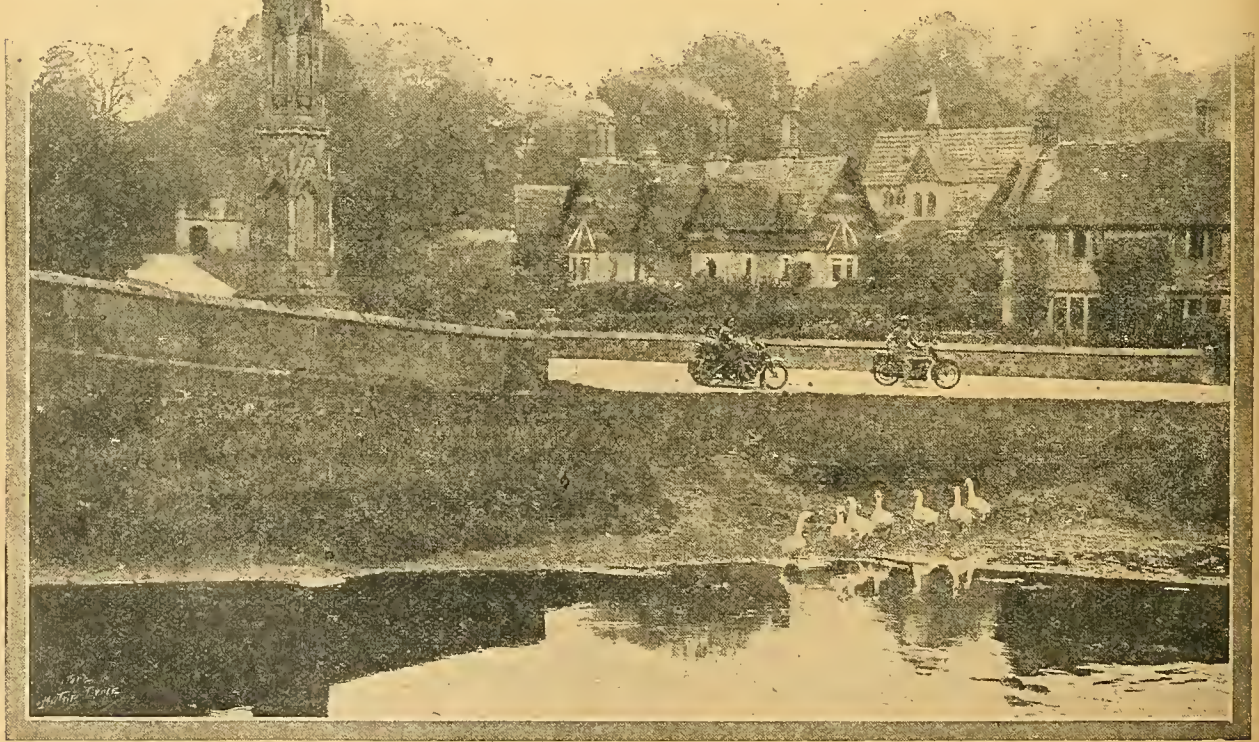
THE Board of Trade has now dealt with a considerable number of applications by British firms for orders to avoid or suspend German-owned British patents under the provisions of the Patents, etc. (Temporary Rules), Act, 1914, but we believe that, up to the present, there have been only a few instances in which the applications have been granted, and, as we understand that the Board of Trade does not propose to make public the grounds on which its decisions under the Act are based, the following particulars regarding cases in which a Birmingham firm has successfully taken advantage of the new legislation may be of interest.

The patents in question, which were granted in 1911 to the Neckarsulmer Fahrradwerke A.G., of Neckarsulm, Germany, relate to two inventions that are used in the construction of the well-known N.S.U. motor cycle engine, and the applications for their avoidance or suspension were made early in September last by Messrs. Humphries and Dawes, Ltd., motor cycle manufacturers, of Birmingham, who held an exclusive agency for the sale of N.S.U. engines in Great Britain and the Colonies.

When Messrs. Humphries and Dawes's petitions were heard by the Patents Court on the 12th October last, Mr. Arthur Sadler, patent agent, of Birmingham, who appeared on behalf of the applicants, explained to the court the nature of the agency agreement existing between his clients and the German patentees, and submitted that, as his clients were prevented by the war from obtaining the patented engines from Germany, and were therefore unable either to fulfil existing contracts with their own customers or otherwise to meet the existing public demand for the engines in question, it was desirable, and to the general interest of the public, that Messrs. Humphries and Dawes should be enabled themselves to manufacture the engines in this country. Mr. Sadler also argued that, having regard to the position in which his clients were placed by the agency agreement, the patents should be suspended solely in their favour, and he also informed the court that his clients were prepared to enter into an undertaking with the Board of Trade to keep a proper account of patented parts they might make in order to facilitate a reasonable settlement with the patentees at the conclusion of hostilities.

The Comptroller of Patents stated that, in the circumstances mentioned, he was inclined favourably to regard Messrs. Humphries and Dawes's applications, but suggested that it might be more satisfactory if, instead of merely undertaking to keep an account, they would make an offer to pay a definite royalty in respect of each of the patented inventions in the event of the court advising the suspension of the patents exclusively in the applicants' favour, and, after some discussion, Mr. Sadler agreed to adopt the Comptroller's suggestion, and undertook, on his clients' behalf, that any exclusive right the Board of Trade might grant should be subject to royalty payment based on a percentage of the estimated manufacturing cost of the parts of the engine actually covered by the patents. The Comptroller thereupon intimated that the court would take this offer into consideration when reporting on the cases to the Board of Trade, whose decisions would be issued in writing later.

These decisions have now been received by the applicants' agent, and state that the Board of Trade has ordered both the patents to be suspended exclusively in the applicants' favour, subject to terms which accord substantially with the offer made to the Patents Court at the hearing, and which will be embodied in a formal licence to be drawn by the Solicitor to the Board. The orders would, therefore, appear to place Messrs. Humphries and Dawes in the same legal position as if they held an exclusive manufacturing licence for Great Britain from the patentee company, and we understand that they are now proceeding with arrangements for the immediate production of the N.S.U. type of engine on a large scale.



ILAM, ON THE DERBYSHIRE—STAFFORDSHIRE BORDERLINE, FAMOUS DURING THE GREAT PLAGUE.

The exquisitely designed cross and drinking fountain in the Decorated style was erected in 1840 in memory of the first Mrs. Watts-Russell by her husband.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Rear Lighting.

I have a motor cycle and sidecar. On the sidecar I have a lamp which shows a white light in front and a red light behind. Is this sufficient for a rear light?—W.W.

The rear lighting regulations will be found in our issue for December 25th last. The rear light must be placed on the off side of the bicycle or sidecar, and in such a position that it is visible from any part of the road in the rear.

Difficult Starting.

I have a 3½ h.p. single-cylinder machine, magneto (1905 Rex), purchased some months ago. Being in the engineering trade I at once dismantled the engine, fitted new gudgeon pin, rebushed big and little ends, examined piston rings, ground valves, fitted new tappets, repaired cams, etc., cleaned cylinder, and crank case; in fact, I did all that was necessary to make it a satisfactory job. I fitted a new sparking plug, and had magneto overhauled by experts, but I have to run at a great speed to get it to fire. I have had the carburetter cleaned and correctly adjusted, and all induction pipe joints made air-tight. It runs well when I get it to go, but that is my difficulty.—J.D.

There are several possibilities which might cause the trouble you mention, but it is most likely to lie in the magneto points. See that the faces are trimmed flat and polished bright, and that they open not more than the thickness of the gauge on the magneto spanner, or about the thickness of a rather thick visiting card. Possibly, also, your air slides or inlet valve guide leak air badly, or you require a slightly larger jet in the carburetter.

A New Piston.

I have a two-stroke attachable boat-motor. The lubrication is on the usual petroil lines, but the engine a short time ago took to refusing to start on petrol mixed with oil. I used to start it on petrol alone, and, after a short time of running, pour into the tank the proper mixture. This caused under-lubrication causing the white-metal lining of the big end to break. The broken pieces got into the cylinder and chipped out of the piston a piece about half an inch deep. This bite in the piston comes exactly opposite the inlet port in the cylinder wall, and so must let the gas enter the crank case before it should. Can you tell me: (1.) Would it be worth fitting a new piston? (2.) Where could I get a new piston, the works in France being in the hands of the Government? The piston head is a very peculiar shape, even for a two-stroke, and I think it would be necessary to have it specially made.—RUGBEIAN.

(1.) It would certainly be worth while having a new piston, but it is hard to say how you can obtain it under the circumstances. (2.) We should advise you to apply to a local foundry accustomed to motor or motor cycle castings: such a firm as Rowland Hill, Coventry, or the Britannia Foundry, Coventry, would be able to cast you a similar piston, which you could afterwards have machined to fit the engine. In fact, if you are a skilled mechanic yourself, it would be possible to turn the job out in the school shops. However, a new piston cast from the broken one might prove rather an expensive job, and we should advise you to obtain a quotation.

A Stretched Band.

I have been for some time using a band to protect my tyre on rough roads. At first the band was a perfect fit and gave great satisfaction, but it has now stretched, not longitudinally but laterally, so much that it seems to be no longer safe to ride with it on. Would it be easy to have the clips taken off and re-riveted so as to make the band about ⅜in. narrower? At present I cannot inflate the tyre so as to take up the slack, even when it is board hard.—L.K.G. (Gibraltar).

We see no reason why the clips should not be taken off and refixed in such a position as to take up the slackness of the band.

EQUIPMENT

WILL FORM THE MAIN CONTENTS OF A SECOND SPECIAL ISSUE OF "THE MOTOR CYCLE" TO BE PUBLISHED ON THURSDAY, DECEMBER 10th, 1914.

Hints on Driving a Two-stroke.

(1.) In stopping for traffic in front is it sufficient to close the throttle, or must I put the engine free (it is a two-stroke two-speed lightweight), or must I lift the compression valve as well? (2.) Is it absolutely necessary to start off on low gear? (3.) Which brake is it advisable to use most, back or front? (4.) About how much oil does the magneto need?—P.L.

(1.) The best way to stop a two-stroke is to lift the compression valve. This in itself forms an excellent brake. (2.) It is not absolutely necessary to start off on low gear, but it is usually found to be more convenient, as the engine will start quicker and the machine will run along slowly. (3.) Use your back brake for preference. (4.) You do not state what magneto you wish to lubricate. If it is of the Bosch type very little oil is required, say a drop per week. Some magnetos, such as the C.A.V., are packed with grease and require no lubrication.

Building a Two-stroke.

Would you be kind enough to give me some information regarding a small two-stroke engine which I made myself? I cannot get it to run, as it will only fire weakly, not enough to keep it running. It is made exactly like the diagram in the two-stroke number, July 23rd, 1914. The ports are in the right places, but I do not know if they are large enough; the carburetter and spark are all right. The crank case is perfectly airtight, and small. The carburetter is a B. and B. lightweight, adjustable jet. I get the same results however I alter the jet and control levers.—E.J.D.

The diagram in *The Motor Cycle* was purely diagrammatic, and not intended to be a working drawing. However, the ports were approximately in the correct position. Without seeing your motor and the drawings it is impossible to say where you have gone wrong. The size of the ports largely depends on the general design of the engine. We should imagine it is likely that you have too low compression, both in the crank case and cylinder, and possibly your ports are not large enough. The position of the ports and their area is most important. It is quite impossible for us to locate your trouble without a personal examination of the machine or working drawings.

Combustion Space Formula.

(1.) What is a satisfactory formula for determining the volume of a motor cycle engine combustion space required to obtain a given compression pressure? (2.) What would be the probable cause of the following: When out for a run recently, the engine (a 600 c.c. Sarolea a.i.v. twin) began to misfire on one cylinder and finally stopped altogether. The back cylinder plug was taken out, as many times previously I had been troubled with this plug getting sooted up through superabundance of oil, as is often the case with a twin. On examining the plug, it was found to be a nice brown colour, dry, and in tip-top condition. It was thought that perhaps the front plug had got a piece of carbon between the points, so out it came, and I was somewhat surprised, to say the least, to find it absolutely swimming in oil, and also carboned up; on looking further oil was even seen exuding from the front inlet dome. After cleaning the plug the machine ran as well as ever. Verily, there is no end to the tricks of a petrol engine! Why should the front cylinder get oiled up, when previously it was always the back cylinder that was the culprit? Since the above happened I have had the engine down, and had a very hard job to get the cylinder off the front piston; in fact, the cylinder had to be knocked off with a piece of wood and a heavy mallet. On examination, the skirt of the piston was found to be considerably distorted, and it was at once scrapped. Do you think the distorted piston would have had anything to do with this strange oiling up? The compression was excellent before taking down. (3.) On drawing out the gudgeon pins of above engine, I was surprised to note that the little ends of connecting rods were very small, and had no provision for bushes at all. The gudgeon pins were not hardened. As I want to fit new gudgeon pins because of wear, should they be hardened? Could the little ends be case-hardened after reamering out the hole true for the new pins, without affecting the strength of the rod?—C.F.E.

1.) Assuming that atmospheric pressure is 15 lb. per square inch $x = \frac{15\,C}{P - 15}$ is the formula you require, where

x = Combustion space.
C = Cubic capacity.
P = Pressure required.

About 75 lb. per square inch is the usual compression employed on a touring 3½ h.p. single-cylinder machine. (2.) The distorted piston is almost sure to be the cause of your trouble, as oil will flow past the piston skirt, and very likely pass the rings as well. This would be most likely to occur with the engine running throttled down or after descending a hill with the throttle closed. We have known this to occur on other engines, and it is often caused by lack of lubrication to the front cylinder, causing a considerable amount of wear in the bore, after which a slight overdose of oil will permit leakage past the piston. (3.) New gudgeon pins should be hardened, and the small ends, if possible, case-hardened after truing up. Whether this latter is possible or not depends on the thickness of the metal in the top of the rod. If ⅜ in., or over, this can be done, but care should be taken not to harden deeply, or the small end will become very brittle and break under heavy strain. Also, you must take care to use plenty of oil until the bearings are run in, as two hardened steel surfaces running one on the other are apt to become almost welded together if a seizure occurs.

Piston Rings Sticking.

I was interested in the article on two-stroke engines in *The Motor Cycle* of October 22nd, as I have a Clyno. I can confirm what the writer says *re* piston rings sticking up, but I should like to know if there is a cure for it, and if the trouble is as bad with other lubrication systems? I find mine stick up very quickly indeed—200 miles is quite sufficient—and I cannot remove them without breaking them. I have tried soaking the piston in paraffin. I wrote to the makers on this point, and they advised me to use less oil and remove the cylinder oftener (I had not found out then how quickly they stuck up). I have used Huile de Luxe and Wakefield's Castrol with similar results, and only slightly in excess of the recommended quantity, and that hardly seems enough, as the piston tries to seize up if the machine is ridden at much over 20 m.p.h.; but this may be due to the stuck-up rings allowing the hot gases to dry up the piston and cylinder walls (this did not happen during the first 1,500 miles or so). The engine also knocks very readily on hills, needing constant retarding of the spark and closing down of air. A Senspray carburetter is used, 30 jet, and single-point Sphinx plug. If you can help me on these points I shall be much obliged.—X.

We cannot understand your trouble without personal examination, as, having ridden a machine of the same type throughout the year, we have seldom had a ring stuck up at all, and when this has been the case it has been a very simple matter to free it without breakage. If you have found that your power has been falling off, with a gradually increasing tendency to knock, we should be inclined to suspect that a plain bearing on the flywheel side has worn somewhat, thus causing considerable loss of crank case compression. We have recently cured a somewhat similar trouble by replacing this bearing. Five charges of oil to the gallon are the maximum necessary with a two-stroke Clyno once it has been run in. A 28 jet should be quite sufficient for all ordinary work.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

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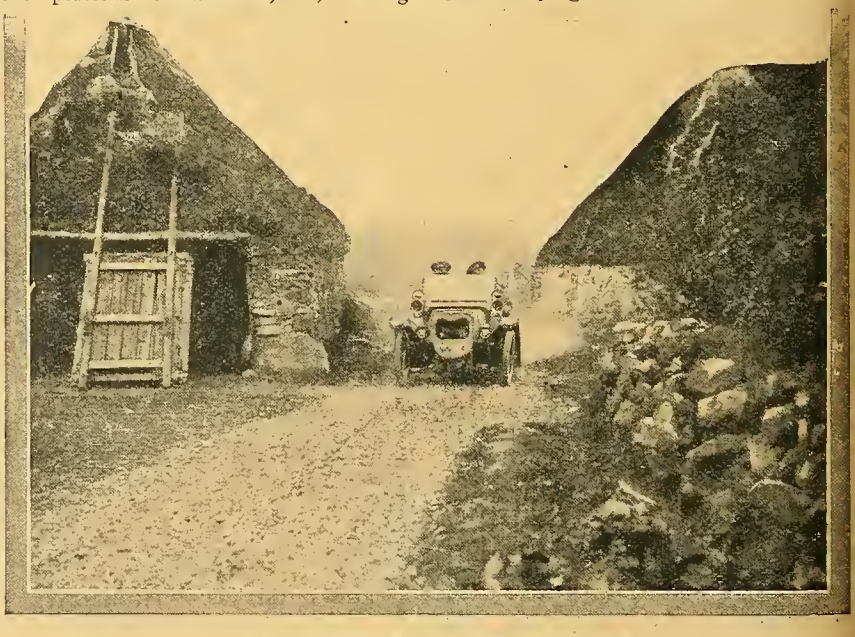

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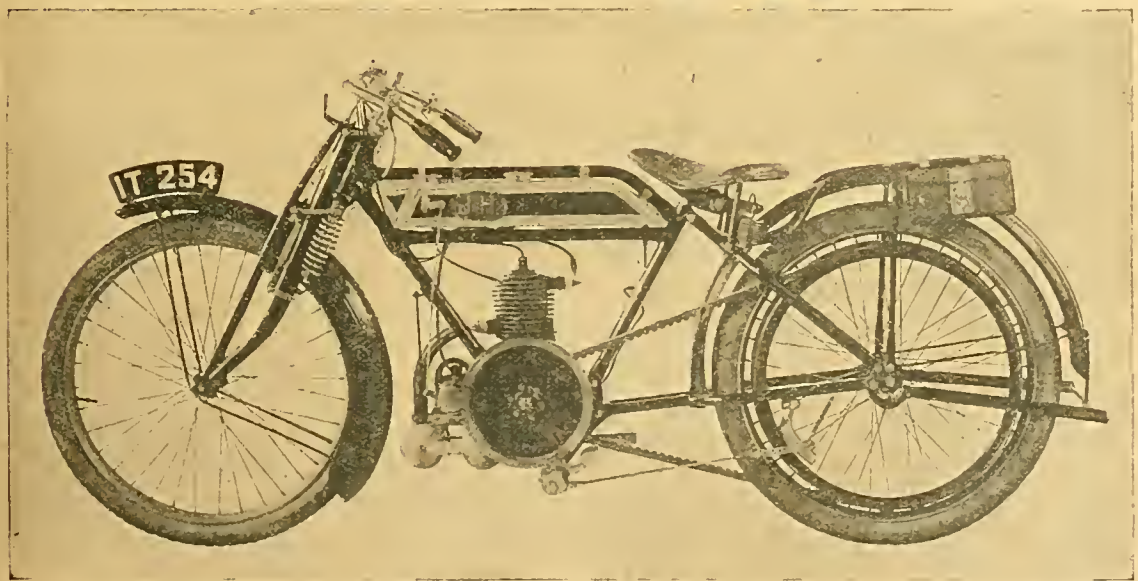

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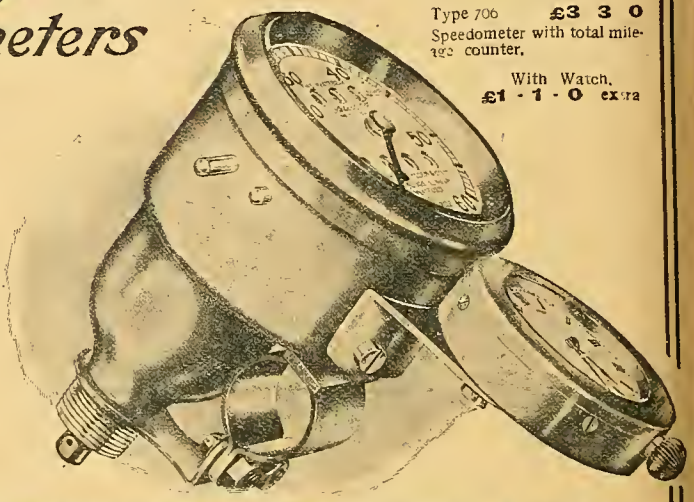

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An index to advertisements will be found on the page facing the back cover.

Limitations of Lightweights.

DURING the last month or two we have noticed with interest on several occasions that parties of motor cyclists tour about together, some on high-powered motor bicycles, others on machines of medium powers, and others even on lightweights. Now, it is obvious that the lightweight rider is hard pressed to keep up with his friends, but nevertheless he succeeds by some means or other in so doing, though seemingly regardless of the strain which he is exacting from his lightweight and sometimes frail machine. It is all very well to attain for a short distance the maximum speed of which a machine is capable, but it is quite another matter to maintain that speed for any length of time. The lightweight is not intended as a fast touring mount, and nothing will bring about its demise more quickly than putting it to uses for which it was never intended. The lightweight fills a purpose, and an important one, but it is not to be driven about with throttle wide open and spark advanced as a regular part of its life. It seems almost superfluous for us to point out that a machine working continuously at its highest capacity is bound sooner or later to give trouble, owing to every part of the machine being stressed to the utmost limits. Lightweight motor bicycles in the majority of cases are geared fairly low (sometimes six to one, or even lower on top gear), and it requires but a simple calculation to show that even at legal limit speed these engines are turning over at 1,667 r.p.m., that is on a machine fitted with 24in. wheels, which is the size most generally adopted on 1914 model lightweights at any rate. At thirty-five miles per hour, which represents the maximum speed of the majority of the smaller-powered machines of modern design, it gives a r.p.m. of 2,916. This latter speed is all very well for a short distance, as we have mentioned, but to expect a lilliputian engine to give off its utmost continuously is expecting too much.

It is a generally accepted fact among experienced motorists that the advent of the light car was delayed several years by troubles which were the direct outcome of overloading. In the early days of the movement it was no uncommon sight to see four-seated cars propelled by 6 h.p. and 8 h.p. engines, but they were such inefficient hill-climbers and troubles were so constant, owing to the fact that their engines were always working at their utmost capacity, that people fought shy of low-powered cars, and it took several years to wear down the opposition. We do not desire history to repeat itself in the case of the lightweight motor cycle.

It is certainly curious that men having a common interest and desirous of accompanying one another on their jaunts should select machines so different in size and design, though we believe it is often intentionally done to add interest to one another's outings in observing and comparing the performances of the mounts. Nevertheless, such riders would be well advised in future to consider whether they are doing one another a good service. Most probably few have looked at the matter in this light. The other day we noticed a couple of riders bowling along a fine stretch of road, the foremost rider on a 3½ h.p. single-cylinder machine. He was followed by his friend on a lightweight, who had his head down and a look of glee on his face, possibly at the sound of his little engine screaming round at a terrific pace.

Those who take a pride in the condition of their machines, and more especially as regards the power output, will not need two hints to handle their lightweights in a more rational manner. Long life is only obtained by careful usage; one can readily believe that lightweight motor bicycles might receive a serious set back were they to be put to indiscriminate uses such as fast touring about the country and hauling sidecars for long distances, seeing that they were neither designed for such work nor able to do it satisfactorily. Hence our words of caution.

The Motor Cyclist on Active Service.

THE ACTUAL DUTIES AND THE MOST SUITABLE TYPE OF MACHINE.

A GREAT deal has appeared in the papers about the hairbreadth escapes of motor cyclists, and numerous stories have been published concerning those who have been unluckily wounded and sent home. Elaborate pictures of a motor cyclist dashing through Uhlans, waving his revolver round his head, are all very well, but they are nothing like the real thing. Some people think that a motor cyclist on active service is a scout, but this is not the case. He is a despatch rider, and is used for carrying despatches from one division to another. Motor cyclists are also used to carry on communication between the headquarters and the different sub-divisions of the Army Corps, while they also prove invaluable in the case of failure in the telegraphic communications.

Those who have taken part in a Six Days Trials do not know what riding is until they journey to France and try the so-called roads they are asked to negotiate. One of the worst road obstructions is a large round hole left by the Royal and Imperial "Black Marias" which the Germans are issuing to "General French's contemptible little Army." These holes are about three feet round and about two feet deep. When one hits them at speed at night it is very difficult to make quite certain what happens, but one usually finds oneself in a very wet ditch complete with machine.

The roads we are now working over are of the worst *pavé* in the world, about every third brick being about two inches below its next door neighbour. The roads are very narrow and only half the surface is paved, leaving about four feet each side of thick mud. Here the motor cyclist is expected to ride, as the centre is occupied by literally thousands of motor lorries. These conditions are all very well in fine weather, but when it rains the cobbles become like a sheet of slime. If the reader cannot imagine these conditions, let him go to Kew Bridge and ride to Hounslow, through Brentford, on a very greasy day, and encounter two rows of lorries, one going each way, and both trying to do the other out of the centre of the road. Then you have the motor cycling conditions on active service.

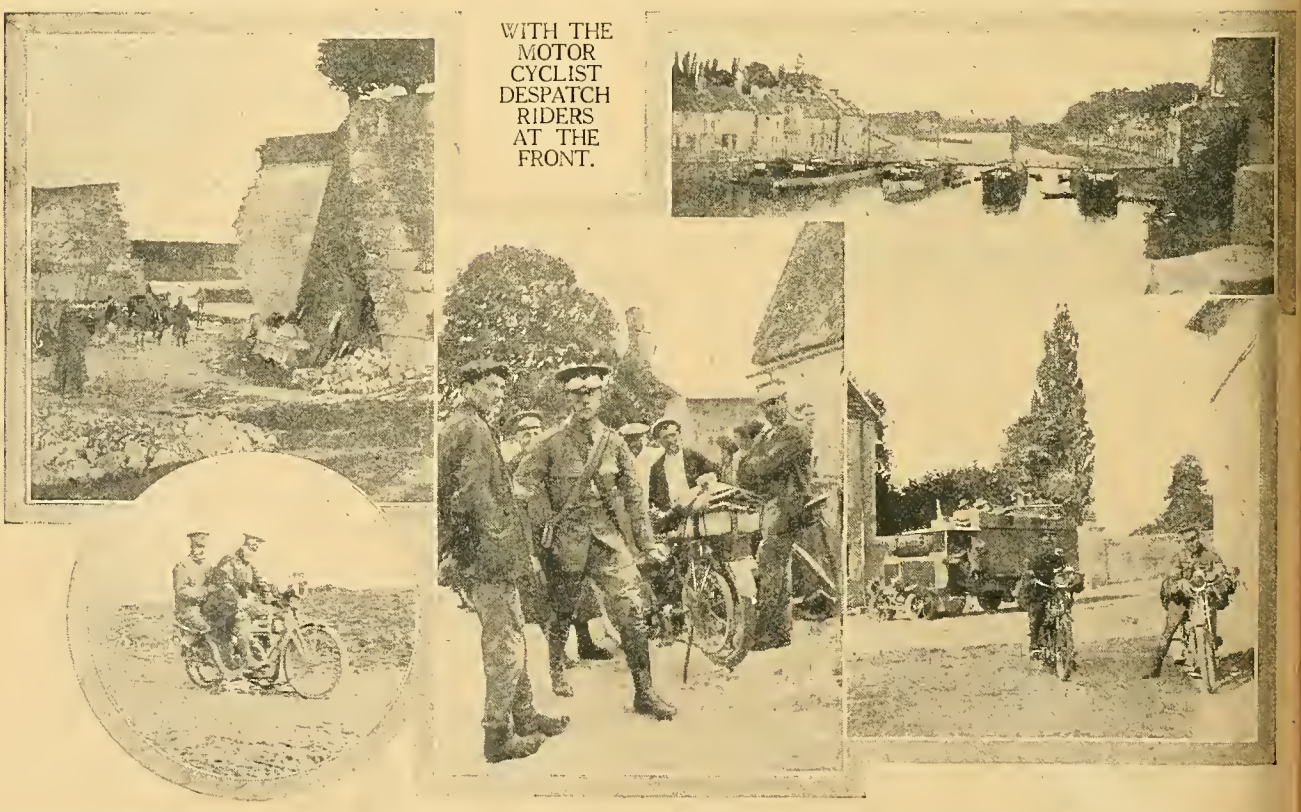
Dodging the Motor 'Bus.

Despatch riders are often called upon to cover long distances, 200 kilometres (124 miles) being nothing for one day. Another joy has just arrived in the shape of the London motor 'bus, which is the best skidder in the world. It is quite fun passing 'buses, as we dodge the front wheels of one to be hit by the back of the next as it swings across the road. Troops are also very difficult to contend with, but one must not be too hard on them, as they have very hard work to get along on greasy roads, and they must be passed at a slow speed.

With regard to the types of machines most suitable for the work, it is quite impossible for anyone to sit down at home and try to express an opinion. Of course, a speed gear is essential, and three speeds are much more satisfactory than two. The best all-round machine is the medium weight, which we are using in great numbers. A 3½ h.p. is all very well for a long run to the base, but it is no good among the troops, as one cannot paddle it off as one would like. Some of us have expressed a desire to try a three-speed two-stroke of about 2½ h.p., which must be light enough to lift out of a ditch and to enable one to get it out of the way quickly in the event of falling in front of a 'bus or lorry.

When we came over we expected to have much transmission trouble, but this has not been the case. The belt has been absolutely satisfactory, and to the writer's knowledge there has been no failure to deliver a message which could be attributed to the failure of a belt. Engine troubles have been scarce.

One frequently suffers from a complaint known as having the "wind up." The other day a motor cyclist was standing beside a church tower at three o'clock, but it only struck two, as the tower, complete with clock, was removed by a shell on the second stroke; the motor cyclist got the "wind up," collected the "revs.," and took up a new and safer position. S.O.B.

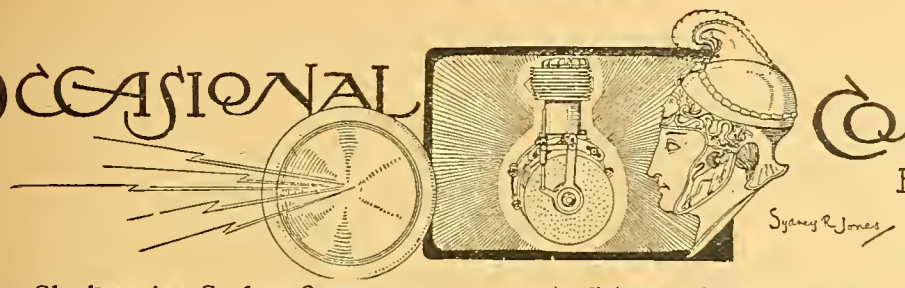


WITH THE MOTOR CYCLIST DESPATCH RIDERS AT THE FRONT.

(TOP ROW) A bridge blown up by the Allies; a German motor car fell through the gap, and all its occupants were killed. A pontoon bridge. (BOTTOM ROW) A sergeant of the Second Army Corps Headquarters takes an officer out to inspect telegraph lines. A motor cyclist returns from delivering a despatch. Motor cyclists (riders of B.S.A. machines) convoying a transport.

OCCASIONAL COMMENTS

By "IXION"



Clock-spring Carbon Scrapers.

In my lazier moods this summer I have used the clock-spring carbon scrapers, marketed by sundry accessory firms, in preference to dismounting my cylinders, and I have also resorted to the Cylclean oxygen blowpipe cleaners on three occasions. In each case the engine's running has shown signs of re-carbonisation considerable earlier than I had anticipated. The solution, of course, is that neither of these time-saving processes tackles carbon in the piston ring grooves nor inside the piston head. One would suggest that the use of a spring scraper or a Cylclean apparatus will be very fairly satisfactory provided the engine compression is tolerably leakproof, but that if the compression is easily overcome, though the valves are not pitted, it is a false economy to shirk the removal of the cylinder.

Thick and Thin Electrodes.

A well-known sporting rider writes to the office in praise of the mysterious "K.L.G." plug, supposed to have been brought to Mr. Coatalen's rescue by Mr. Guinness when all known makes of plug gave up the ghost after a lap or so in the Sunbeam cars practising for the Manx T.T. Incidentally, he gives it as his opinion that a plug with multiple electrodes will stand up well in what he calls a "wet" engine, *i.e.*, an engine which permits a lot of oil to reach the combustion chamber, but that such electrodes, which are necessarily thin and light in proportion to their number, burn away rapidly in "dry" engines, where three or four piston rings manage to maintain a blockade against insinuating lubricant. The point is new to me, and it would be interesting to hear whether other experienced riders can confirm it. It is common knowledge that thick electrodes, such as figure on "single point" plugs, stand up well in use, but personally, I have no materials for pronouncing a verdict on the alleged increased durability of thin electrodes in "wet" engines. I should not have thought that the "wettest" engine drew in enough oil to cool the plugs at all materially.

The Simple Cycle Car.

I have never been wildly enthusiastic about such "simple cycle cars" as have actually materialised upon our market, for the reason that the vast majority of them were extremely rubbishy, and quite unworthy even of the small cheques for which their designers were ready to supply them. Nevertheless, I feel extremely regretful that the popular light cars have been permitted to swamp the field so completely. Apart from the ever-green Morgan, there is hardly a single genuine "cycle car" left in existence. Both the name and the thing are practically obsolete. It is probable that the luxury and reliability of up-to-date sidecar outfits are quite as much to blame as the light cars for their decease. But surely our brains are not baffled? There is room on the market for a £100 four-wheeler, and when a really good one comes along it will hit the sidecars between wind and water. In the meantime, the Yankees are working hard, and are already producing vehicles at about 500 dollars a time, vehicles which to some extent represent a compromise between our moribund cycle cars and our booming light cars. These vehicles are certainly not worth a fastidious user's attention at the present moment, but they contain the germs of vast developments. The gap is there, even if it is momentarily plugged by the high-powered sidecar outfits. If we don't fill it in more permanent fashion, America will jump in and snatch a long start, as she has done before in other fields.

Wanted, a Light, Cheap, Two-speed Hub.

I cannot remember whether I have ever had the hardihood to confess in print that I still ride a push bicycle. My ten-year-old boneshaker has a Sturmey-Archer three-speed hub, which originally cost about 35s. (as near as I can remember), has never given any trouble at all, and has never been oiled or adjusted by me; I daresay it has received some little attention when I have had a new tyre fitted or the frame re-enamelled. Between this featherweight and inexpensive gear and the heavy, delicate ten guinea gears fitted to 500 c.c. petrol-driven roadsters there exists no halfway house. At the present moment the motor cycle industry is launching out in a new direction and producing a fleet of 100 lb. machines, ranging from 1½ h.p. to 2½ h.p. and selling at prices from £25 to £45. Of these the £25 patterns have obviously the best chance of a really large market, but at present they are mostly single-geared. The lack of a reserve gear does not disqualify them for ordinary use, but it will prevent their ever being widely popular with the numerous riders who want a light, cheap machine for *touring* work. It is quite difficult to plan routes for even a week-end's tour which will not include several hills beyond the scope of a single-geared "baby." If gears of the existing three-speed hub type or even of the light counter-shaft pattern are adopted to complete the specification, the price towers at once to well over £30; often a very great deal more.

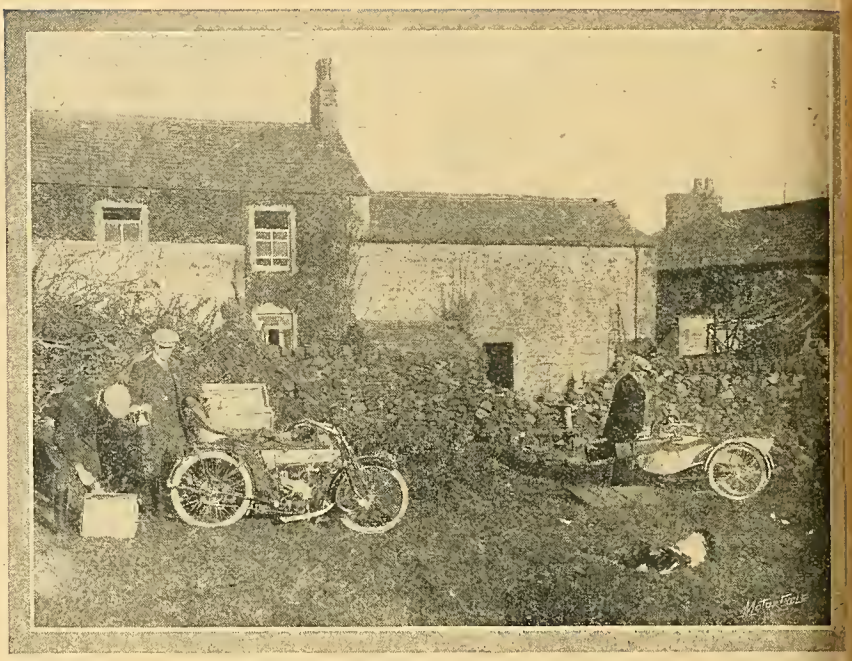
Accessories and Equipment Issue.

A Special Issue of "THE MOTOR CYCLE" will be published on Thursday, December 10th, devoted to Accessories, Tyres, Clothing, and Equipment generally.

A Sidecar with THE Autumn Guns

By H. MORTIMER BATTEN.

THERE has been little shooting in England this autumn owing to the fact that most of those who usually participate in the sport have been called to serve the country, and all honour to them. In most parts the grouse have been left to crow themselves hoarse from the tops of the butts, while the pheasants have become so numerous, and have learnt to regard life as an affair of such absolute security, that it is with difficulty one can motor over our woodland lanes without killing a few of them. Personally, I never try to avoid them, and more than once have nearly come a cropper while making a desperate attempt to run down an old cock pheasant meandering aimlessly about the road.



A SIDECAR WITH THE AUTUMN GUNS.
Two P. & M. outfits being loaded up with luncheon baskets and guns.

On the immense game preserves of Scotland, however, things have been somewhat different. In some parts it has been necessary to pursue the ordinary course of events in order to prevent the moors and coverts becoming overstocked, while quite a number of Scottish estate owners have been compelled to consider the financial side of the question and to cater for the markets.

An Unlucky Stalk.

For two years past the sidecar outfit possessed by the writer has proved most valuable during the autumn shoots in Scotland, and this season it was once more called into commission. The estate over which the shooting extends consists mainly of open stretches of country, thinly timbered with pine trees and gigantic Scottish thistles—if the latter may be described as timber. I shall not forget the day when a puppy of mine mistook one of these thorny obstructions for a sitting rabbit, and after a most elaborate stalk succeeded in catching it.

Most of the land is of sandy formation, severed by rapidly running brooks which have washed their way through the sand and down to the solid bedrock. Consequently the banks are enormously high, and these banks are literally honeycombed with burrows. Rabbits exist by the thousand, and unless they are killed off regularly they either contract disease or become so numerous that they destroy the grazing grounds for sheep and cattle.

This year we were compelled to make up the number of guns as best we could, most of the usual members of the party being at the Front. Two or three neighbouring gamekeepers were called to arms, likewise the village cobbler and hotel-keeper. Our main objective was, of course, rabbits, and we intended leaving the more valuable game till next season, when, let it be hoped, things will have resumed their normal order.

Narrow Bridges.

As is usually the case, the best shooting is situated at a considerable distance from the house, and, as the roads are appallingly rough and narrow, a choice as to means of transportation is somewhat limited. A big expensive touring car is hardly the thing for these cross-country jaunts, and, at any rate, its use is out of the question on account of the bridges over the burns. These bridges are made of timber, moss-covered and rotten with age, and are for the purpose of moving sheep and cattle from one grazing ground to another when the burns are flooded. Most of them are too narrow to admit the passage of a car, and those that are not too narrow would probably give way at the most inconvenient moment. On one occasion the back wheel of my motor cycle actually crashed through the planks, imparting a similar sensation to that which one feels when one sits on the extreme end of a form and sees the other end rise rapidly skywards. One can imagine the surprise that might have greeted the absent-minded old milch cow strolling leisurely across! Strange to relate, the pack ponies had crossed the bridge just ahead of me, and had everyone avoided the rotten plank!

This season most of the ponies had been sent to fill the gaps left in the stables by the commandeering of horses, so we were more dependent than usual upon our cycles and motor cycles. The first morning out the head keeper, having disengaged his legs from the tangle of leashes by which he led an army of kind-eyed, wet-jawed old spaniels, proceeded to pack bag after bag of wriggling, clucking ferrets into my sidecar.

"Look here, McLaren," I expostulated, "I don't mind rabbits, and I have been known to carry salmon, but I jib at ferrets."

A Sidecar with the Autumn Guns.—

McLaren had made up his mind. "It jolts the wee things up if we pack 'em on the ponies," he explained, producing still further bags of unsavoury odour. "They'll ride easy in here, sur, and maybe they'll work all the better for it."

A Bumpy Ride.

So away I went with a sidecar load of ferrets, a small boy, giggling jubilantly to be back at his old place, seated on the carrier to open gates and so on. It was a bumpy ride for him, but nevertheless his heart was light as the thistle seeds. We took up our positions at the edge of a long line of cliffs which extend, a natural wall, across the face of the country. The cliffs are about thirty feet in height, and the burrows are all along the foot of them. Here the ferrets worked, and the men in charge of them flattened themselves against the rocks, unseen by the guns above. It was splendid sport, for the rabbits bolted down the hill, dodging in and out among the pine trees, and making the best of the cover. Perhaps, for five minutes, all would be quiet, then again that warning whistle would sound from below. For a time sport would be thick and fast, and the boy was kept busy re-loading the spare gun and whispering, "Your rabbit, sor!" They were all my rabbits according to him, and they seemed to bolt in spasms, but bolt they did.

Beating the Bracken.

After an hour or so we tired of this kind of sport, and the damp, peaty ground began to strike chill through the rugs on which we lay. Numbers of rabbits had got away untouched owing to bad shooting and the profusion of timber, and had taken cover in the bracken lower down the hill. So away we went after them, leaving the men to recover their ferrets as best they could; the guns took up positions in the open, and the pack of spaniels was let loose.

A SIDECAR WITH THE AUTUMN GUNS

(Left.) A lively load. During the shooting season the sidecar comes in useful for all kinds of work. The photograph depicts a Lowland keeper loading up with the necessary impedimenta including ferrets

(Top.) A quick and handy way of carrying beaters from one cover to another.

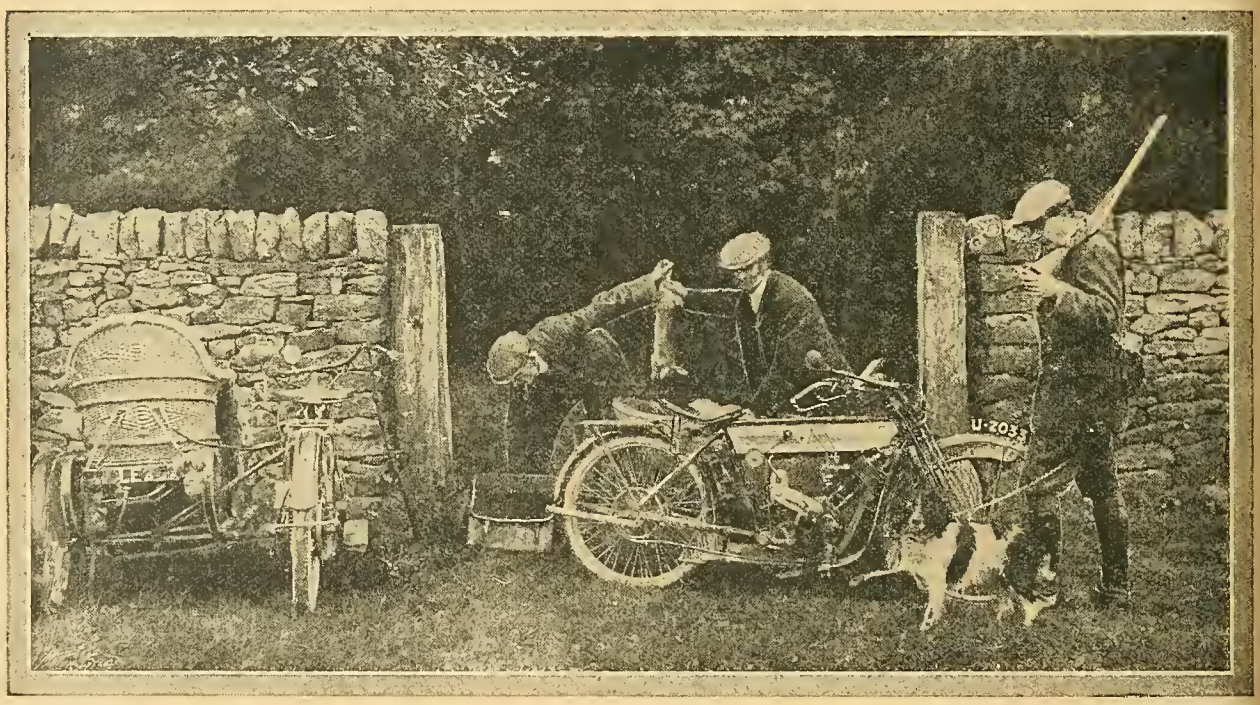
(Right.) The sprint for home by vague and uncertain byways. Note the mascot—black-cock plume, the mascot of a famous Highland Regiment.

A Sidecar with the Autumn Guns.—

Little did we expect the assorted bag that broke cover. First a mangy old red fox limped out, then a brace of roe deer shot through the widest gap. A regular maelstrom of pheasants whirled over our heads, and we all blazed away at them heedless of the bolting rabbits we were really out to kill. Most of the latter made for the allotment over the wall and crouched in the long grass. It was while walking them out that the hotel-keeper distinguished himself by firing both barrels slick down the line, and was politely requested to go home.

Not till the light gave out did we begin to think of our warm baths and comfortable dinner at home, and to realise we were a bit stiff. When I reached my machine I found the sidecar brimful of sanguinary rabbits, the stiffened corpses so neatly packed that not an inch of room was wasted. Strange how, on these outings, every vehicle is at the common disposal of the party, while its owner has no more say concerning it than anyone else!

My pilot had promised to lead me home, but it seemed to me that we were heading wildly in the opposite direction. As a matter of fact, we made a wide *détour* to avoid gates. We lumbered over allotments, where the path was a matter of imagination more than anything, and where dry mounds of earth fouled one's footrests with surprising regularity. We wound our course up narrow cart tracks, overgrown with moss and green grass, in which the wheel spun merrily on the least little gradient. Then as we dropped into the valley the mist became thicker, and already it was long after lighting-up time. At last, when I was giving up all hopes of ever seeing home again, the little Douglas plunged through a clump of trees on our left, and there we were at the back of the house. An hour later we were all, cobbler included, clinking our glasses to the good luck and safe return to those who are shooting elsewhere.



Each machine is at the common disposal of the party, and the keepers see that no one returns with an empty sidecar.

A Sporting Run Home.

I had hopelessly lost my bearings during the day's wanderings, and the white mist that hung about the trunks of the pine trees did not improve matters. "Never mind," said my host. "Follow me. I'll lead you home O.K."

Off he buzzed on his little Douglas, almost vanishing into the autumn mists before I got my engine going. It is surprising how heavily rabbits weigh, and how difficult it is to keep pace with a solo machine when riding with a sidecar full of them. One or two jumped out, but there was no stopping to pick them up The little Douglas accelerated so exquisitely on every open bit of going that it was all I could do to keep up.

To pursue a description of the days that followed would, perhaps, mean too much repetition, though the uses to which we put the sidecar outfits were many and various. The usefulness of a sidecar for shooting purposes must be experienced to be believed. It can go where a car cannot, and where most car owners would not care to risk their tyres, while the quantity of stuff it will carry is really surprising. My sidecar is a Watsonian featherweight, and, in spite of its lightness, is just the thing for the work and the power of the machine. Many a time I have carried a regular avalanche of game over narrow forest lanes, made originally by the woodsmen, and overgrown with rank vegetation A few sacks save the upholstering and prevent unpleasant associations from being left.

Not only is a sidecar outfit handier and cheaper than a car for getting about the shoot, but it comes in useful in a score of different ways For instance, on this par-

A Sidecar with the Autumn Guns.—

ticular shoot the distribution of game was a somewhat difficult matter to arrange in years gone by, but a brace of sidecar outfits have solved the difficulty. A run round to the neighbouring farms on the "rest days" is quite a pleasant change, as well as being a quick and economical way of doing it. I am not surprised to hear that on several big estates motor cycles are being extensively used during the shooting season, for certainly their usefulness has only to be realised for them to become more general.

To me the motor cycling incidents of the shooting season are among the most delightful of its recollections—the early morning runs through the dew-drenched woods, the sprints for home after the shadows have fallen. There is an atmosphere of adventure in taking one's queer loads across country—returning by vague and mysterious ways that always reveal something unexpected, plunging suddenly into a watersplash and bouncing out on the other side in pursuit of the dim figure of the pilot. The damp scents of autumn, the crisp rustle of the brown leaves, the white mists of the valley through which strange monsters loom and disappear, are things that retain possession of the mind till another autumn comes round, and I oil up again for the long, lonely journey to the North.

Saving a Poacher.

One night I was returning home with McLaren and two tired puppies on board by a road which skirts the river, when suddenly we beheld two water bailiffs making the best of their way along the ditch. It was the time of the year when the salmon are running, and as poachers are not unheard of in that part of the world we guessed what was in the wind. Half a mile further on we saw Peter McCary—ex-soldier, ex-prospector, the most lovable old heathen that ever peddled gin into a mining camp—get over the wall and throw a heavy sack he was carrying into a blackberry clump. We knew what the bag contained—salmon which he had cleaked, and for the possession of which he could be arrested if the keepers caught him.

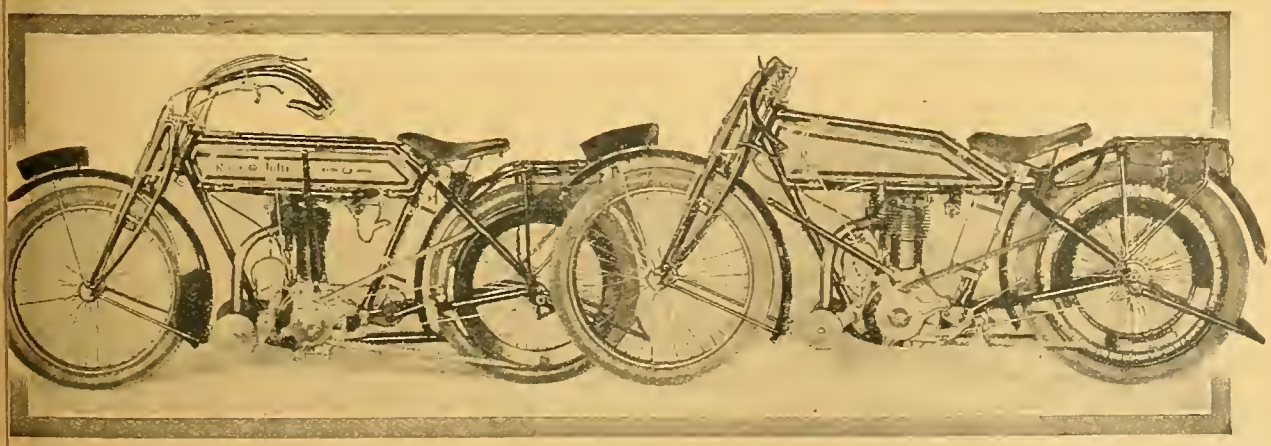
Now my heart went out to Peter McCary, for, apart from his poaching tactics, he is one of nature's sportsmen, so when he hailed us we stopped. Peter managed to gasp out the information that he had fifty pounds of salmon in his bag, and that he knew the bailiffs were closing in all round him. "Jump on the carrier," I advised. "Get the salmon and your cleak. Pity to lose them."

It took Peter about ten seconds to obey, and away we whizzed for all we were worth. The old P. and M. took top gear in fine style in spite of the gradient and the heavy load, but next moment we caught sight of two more bailiffs running down the road towards us, and blowing their whistles. A side road on the right proved opportune, and we dodged up it with only eighty yards to spare. And so we saved old Peter by the skin of his teeth, winning his everlasting gratitude and the everlasting enmity of the water bailiffs, for which we did not care a jot as they are not likely to catch us poaching. It was all part of a glorious day's sport, through the memory of which beams the devil-may-care face of Peter. He had poached, and so, by George, would I had not fortune paved the way more liberally.

On one occasion, when there was game to carry, we took the body off an A.J.S. sidecar and rigged up an arrangement of poles on the chassis, but it was not satisfactory At each corner the poles sagged, and five or six rabbits embraced the rider lovingly round the neck. Finally he left them behind a wall, and that night a brace of wild cats held a carnival. Anyway, a sidecar will carry more game, properly packed, than any practical scaffold arrangement, and the balance is better. It would not be very difficult, however, to design a special carrier for this kind of work on something the same lines as the flat carts made for carrying game and sporting impedimenta.

And so the opening of another shooting season has gone by, its brightness only marred by the absence of familiar faces and the unspoken enquiry so often in our minds—"Will they all be back next year to hear the rustle of the brown leaves, and to scent the burning ling of dear old Scotland when the autumn days are still?" All—all! It seems a tall order. Mons—Soissons—Ypres! A thousand times more honoured is the place that awaits them when they return

1915 MODELS OF THE ALL-BRITISH RUDGE. (See page 593).



5-6 h.p. long-stroke Rudge-Multi. The 1915 T.T model, which is similar to this year's Tourist Trophy winner

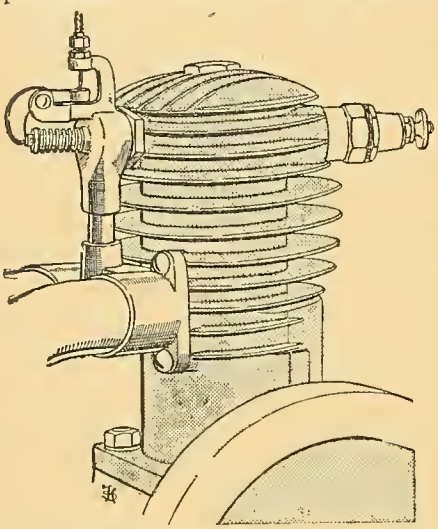
1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

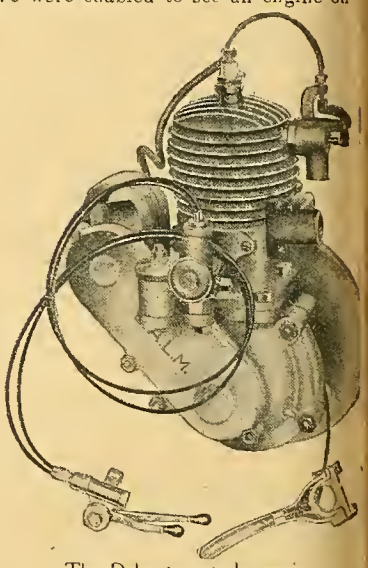
THE DALM TWO-STROKE.

AMONG the most interesting of the medium-powered air-cooled two-stroke engines the Dalm engine takes a high place. It is designed and manufactured throughout by J. C. Dalman and Sons, of River Street, Birmingham, and not the least wonderful point about it is the fact that no material alteration has been made to the original design. The cylinder has a bore and stroke of 73 × 76 mm., giving a capacity of 318 c.c. The transfer pipe is cast with the cylinder, and one of the first points to strike the eye is the great area of the exhaust ports, which discharge the gas into two separate pipes each of 1in. full inside diameter. The transfer ports also are of interest, for though the gas enters the duct by two large ports it is distributed over the face of the baffle by four smaller ones. A release valve placed in front of the cylinder is arranged, so that the gas is led directly into the exhaust box casting thus helping largely towards the ideal of a clean engine. The piston is domed somewhat less than is the case with the average two-stroke, but the baffle is extended somewhat above the dome so as to prevent loss of gas through the exhaust port.

It is interesting to note that both crank bearings and big end bearings are lined with white metal instead of the more usual phosphor bronze, and th large surface in conjunction with carefully ground crankshaft gives excell wearing qualities. The balance weig are carefully machined and riveted to crank webs. The "petroil" system lubrication is employed, the surplus pa ing through ducts to the crank bearin We were enabled to see an engine on test bench, and it was interesting to it started up by the simple expedient passing a rope round the belt pulley a giving a sharp pull. The engine evenly and emitted a clear clean exha The compression was excellent in spite the newness of the engine—a feat which is partly due to soundness of wo manship, and partly to the fact that th piston rings are employed.



The Dalm two-stroke, showing the two large exhaust pipes and the release valve connected to the port casting.

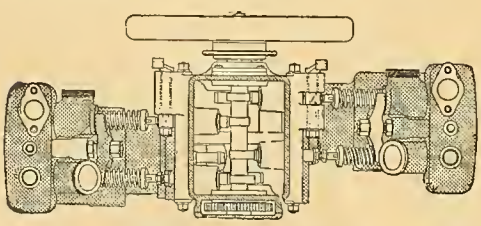


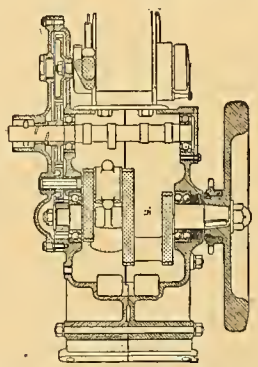
The Dalm two-stroke engine.

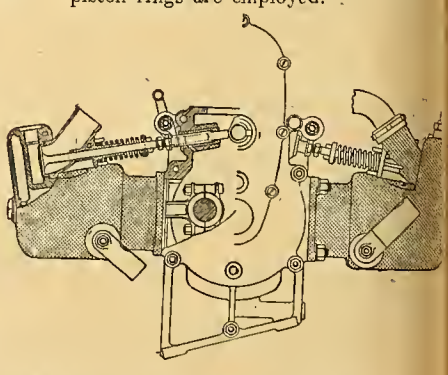
EDITORIAL NOTE.

ALREADY many full descriptions of 1915 models have appeared in these columns, and as a guide to readers we give below the dates upon which the different descriptions appeared:

Sept.	3rd.	Henderson and Levis Popular.
,,	24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct.	1st and also 29th.	Three-speed shaft-driven Rex.
,,	8th.	Radco and Abingdon.
,,	15th.	Ivy, Vindec, and 4 h.p. Brown.
,,	29th.	Calthorpe, Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and two-stroke Ariel.
Nov.	5th.	Sparkbrook, Lady's Metro, 2¼ h.p. and 6 h.p. Enfields, Omega, and 4 h.p. A.J.S.
,,	12th.	6 h.p. Humber, Sun-Vitesse, and Levis.
,,	19th.	Diamond, B.S.A., 6 h.p. twin P. and M., Indian, Royal Ruby, Velocette, 6-7 h.p. Sunbeam, James, Rover, twin-cylinder two-stroke Premier, and New Hudson.







Three aspects of the new 6 h.p. horizontal twin-cylinder Humber engine. which was fully described in our issue of November 12th, page 529.

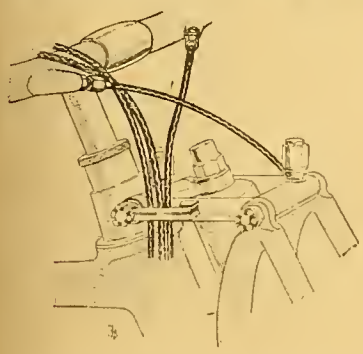
THE ALL-BRITISH RUDGE.

3½ h.p., 5-6 h.p. Single-cylinder and 7 h.p. Twin-cylinder Models, all embodying the Multi-gear.

LAST week Messrs. Rudge-Whitworth, Ltd., Coventry, arranged a press view of their 1915 model motor cycles, and, together with their pedal cycles, were able to make up quite a little show of itself, the new models in their resplendent finish being given quite a set off by the red baize on which they were displayed.

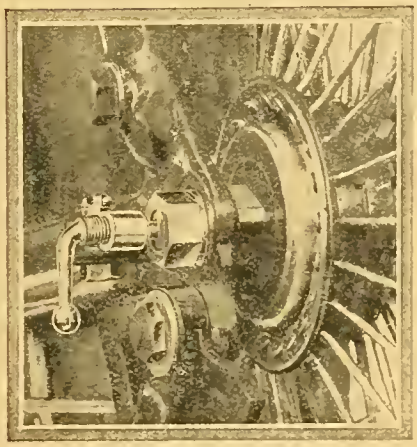
The new Rudges seem altered but little to a casual observer, though closer investigation reveals the master hand of experience at almost every turn. Trouble with a Rudge does not usually manifest itself on two occasions if the enterprising management can prevent it. They are not slow to profit by experience, and at once check any source of trouble by an amended design, or entirely new design, of part if deemed advisable.

The different models for 1915 remain as last year with the addition of the Rudge-



Spring fork grease cups and Bowden wire controls. Note adjustment for latter provided at forward end of handle-bar.

Multwin, which we described in detail during the summer. This model has, however, undergone several changes since last we referred to it. The magneto is now carried in front of the crank case on the usual design of bracket, provided with slots to take up any slackness in the driving chain. The sparking plugs are the Reflex, which are well spoken of, and they are placed in the centre of the cylinder heads. In connection with the crank case we noticed that a commendable attempt had been made to simplify cleaning, by making the exterior practically



A simple device for altering the position of the outer belt drum flange, and so adjusting the belt tension in a second.

smooth and devoid of the usual corners in which dirt collects. The halves of the crank case make a clean and flush joint. As regards the internal features, a flat topped piston is used with an obliquely cut ring, top and bottom and a deep recess between the upper and lower portions. This design of piston, it may be added, is common to all types. The forked connecting rod bearing has been slightly amended in design. The steel housing of the roller bearing is fixed in the double rod, the single rod working on the exterior of the housing. Several oil leads are formed.

The silencer is of very large capacity and placed under the bottom bracket. Separate pipes are used for each cylinder, and two outlet pipes of smaller diameter convey the spent gases to the rear. A new Senspray pilot jet carburetter with top feed to the float chamber has been adopted for this model, which allows this big twin to turn over smoothly and slowly. It is clamped to the inlet pipes so that ready removal is a feature.

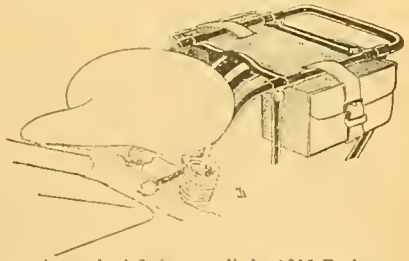
The engine is started by pedals connected to the half time shaft in the usual Rudge manner.

The Single-cylinder Models.

The other models are the very taking 3½ h.p. T.T. model (85 × 88 mm.) with sloping top tube—as natty a racer as was ever produced, and which scored a victory in this year's International T.T. race—a 3½ h.p. Multi roadster, and the 5-6 h.p. 85 × 132 mm. single-cylinder.

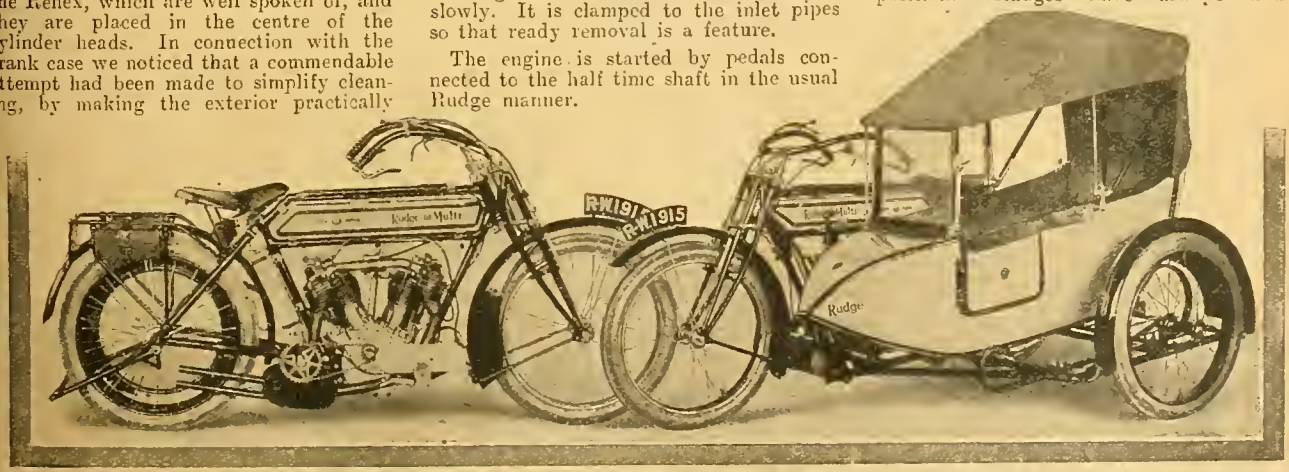
Free engine machines have given place this year to the wonderfully simple multi-gear. New features common to all the machines are spokes of 10 gauge (12 gauge was used last year), butted at both ends. Thus the points of contact when the gear is in operation have been greatly strengthened. The carrier is of stouter construction and has a couple of stays. A tray is formed on the top with extensions enveloping the tool bags and thus retaining their true shape. The spring forks are provided with greasers, having a hexagon head for the application of a spanner. Both these features are clearly indicated by the sketches on this page.

Foot operated pumps are worthy of attention, the pedal operating the pump by means of a Bowden wire being worked by the right heel. The oil compartment



A standard fitting on all the 1915 Rudges. The stout carrier has a neat metal top combined with the tops of the armoured tool bags.

is attached to the seat tube, and to prevent the security nuts coming adrift a wire is inserted through them. This practice we noticed had been adopted in several instances of important nuts in order to lock them permanently in position. Rudges have always had

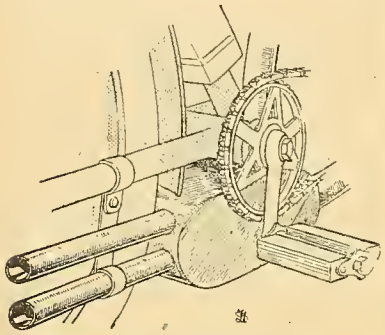


The latest 7-9 h.p. Rudge twin. Observe new magneto position and silencing arrangements.

A sidecar with hood and screen. It has improved upholstery and a polished aluminium panel in front.

The All-British Rudge.—

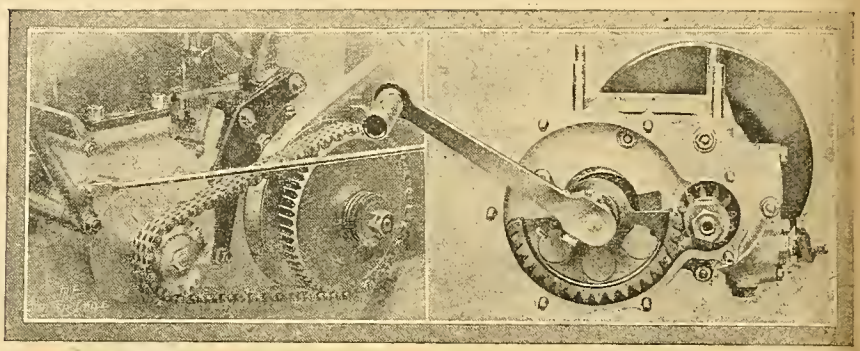
handle-bar controlled clutches and a powerful rear brake, which does not affect the ready withdrawal of the wheel. With the adoption of the C.A.V. magneto the 1915 Rudge is all-British—and a credit to its country of origin.



Large capacity silencer with double outlet pipes on the big twin-cylinder Rudge.

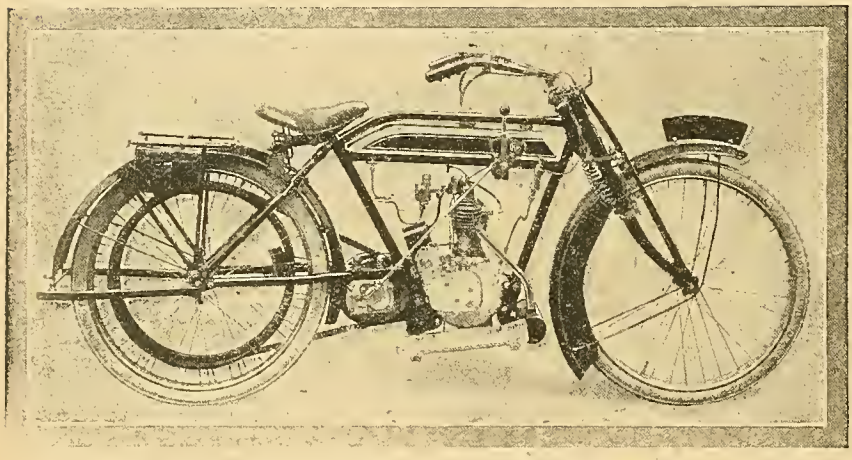
Well finished sidecars may be obtained fitted to any model Rudge. The spoking of the wheel is of the dished type with the flat sides of the spokes next the car.

The chassis is underslung, and a hood and screen may be obtained. The finish is either Rudge green and aluminium or dark green alone.



The 1915 Rover counter-shaft drive. The silent chain conveying the drive from the engine shaft to the gear box is shown on the left; the kick starter, shown in the second illustration, is combined with the gear box and is located on the other side of the machine. Of course both chain and kick starter are enclosed.

O.K. JUNIOR MOTOR CYCLES.

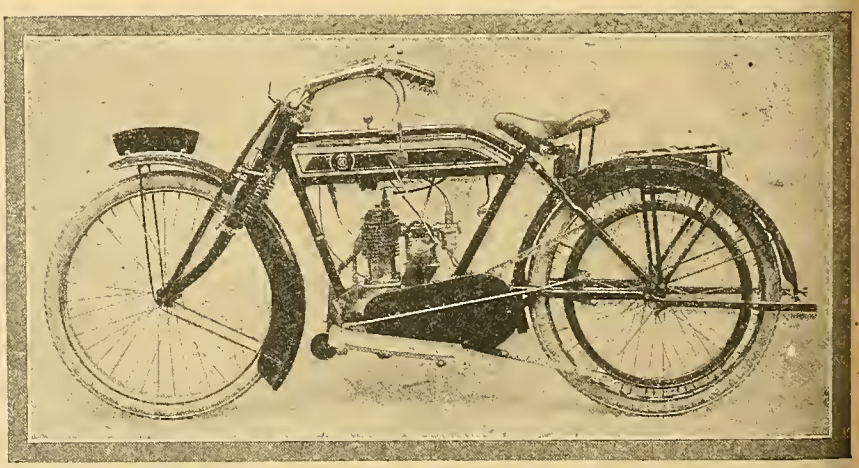


2 h.p. O.K. Junior, the engine dimensions of which are 58 mm. × 72 mm. As in the larger model, combined chain and belt drive is employed, and there are two speeds

MESSRS. Humphries and Dawes have decided to concentrate their attention upon one type of machine for 1915, viz., the lightweight. We do not mean by this that only one model will be marketed, for there are four in all, one of which will be fitted with a 2¼ h.p. two-stroke engine of 269 c.c. capacity.

The O.K. Junior Mark III. model remains much as it has been during 1914; indeed, it has given so much satisfaction that very little need for alteration has arisen. Still, it has been improved in many details. The engine is now bolted to the frame by engine plates, which also carry the footrest rods. The two-speed counter-shaft gear is operated by a lever on the right-hand side of the tank, attached, not to the tank, but to the tube below it. The engine is rated at 2 h.p., has a capacity of 190 c.c., and is fitted with an overhead inlet valve. As an extra, at a cost of £2 5s., a cork insert clutch, seven inches in diameter, is fitted in place of the ordinary chain wheel. This is operated from the handle-bar by means of a Bowden wire connected to a quick-thread screw; it is very flexible, and allows any amount of slipping. An improved chain cover has been fitted, which can easily be removed by undoing two screws only. The footboards have heel and toe pieces, and the inner sides neatly turned up. The brake can be applied without removing the foot from the footboard; this greatly assists in a gradual application of the brake. Other features are girder pattern forks, pan seat saddle, 26 × 2in. Clincher de luxe tyres, and a belt guard. The price of this model is thirty guineas. The same machine is supplied for ladies' use with an open frame at thirty-three guineas.

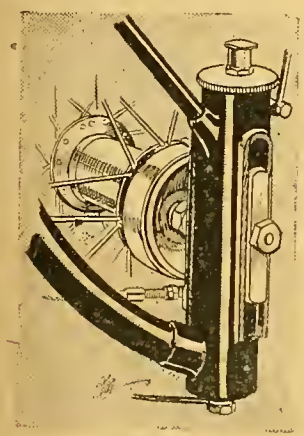
The Mark IV. machine is an entirely new model, having an engine rated at 2½ h.p., 70 × 76 mm. bore and stroke, 292 c.c. The bearings are of a special alloy of phosphor bronze cast under pressure, and the valves are made from the solid bar. Other details are as already described under Mark III. This machine retails at thirty-one guineas.



Left side of the 2½ h.p. O.K. The drive is by chain to a counter-shaft gear box containing two speeds, and thence by belt.

IMPROVEMENTS TO THE 2¾ h.p. WOOLER.

THE chief points of the interesting Wooler motor bicycle were recently dealt with in *The Motor Cycle*, but there has lately been a small but important improvement added to the engine. This consists of an extra port in the cylinder, connected by a short tube to the centre of the induction pipe. The main portion of the gas enters the cylinder through the automatic inlet valve. The rest of the gas left in the pipe, being at high pressure, rushes into the cylinder as soon as the extra port is opened by the piston, at the end of the induction stroke, after the inlet valve has closed by the action of its spring. The effect of the incoming charge at the end of the stroke is to ensure the cylinder receiving a full charge of gas; it also greatly assists in the scavenging. The makers claim that the engine runs cooler, gives more power, still maintains its slow-running properties without four-stroking, and is capable of a better speed on the level.

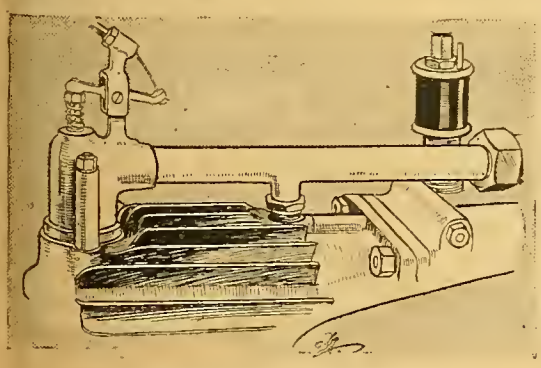


New band brake on Wooler front wheel.

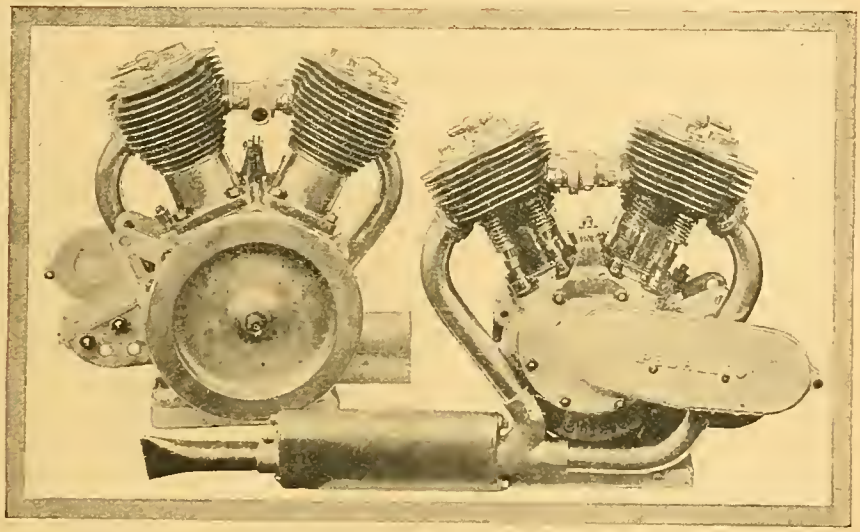
Other small improvements are the addition of a grease cup to the timing gear, the fitting of a belt guard, and an extra long exhaust pipe, which issues from an expansion chamber close to the exhaust chamber. Its extremity is fan-shaped, and saw cuts are made at intervals in its length.

Yet another alteration is the fitting of a band brake to the front wheel, which possesses the advantage of not interfering with the removal of the wheel.

The improvement in the engine to which we have referred certainly causes the machine to develop extra power, and in the course of a short run we were enabled fully to appreciate the flexibility, power, and silence of this attractive little machine.



Extra port to cylinder of latest Wooler



Both sides of the 4 h.p. twin Peerless Precision engine, showing outside flywheel and silencer.

NEW PRECISION ENGINES.

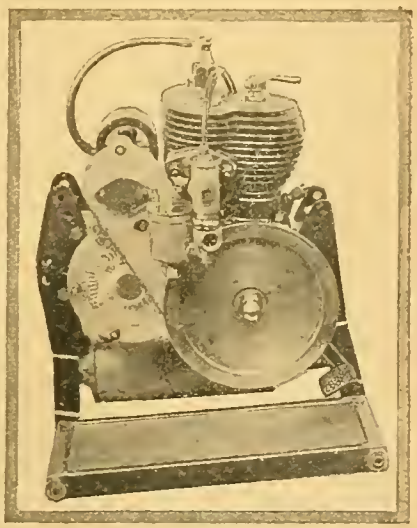
IN the August edition of *The Motor Cycle* Overseas supplement we dealt fully with the Peerless Precision twin.

At that time the makers were not prepared for the home market, but more recently it has been decided to supply the engine in this country under certain circumstances.

We may truthfully say that the engine is probably the finest production which has left the Precision works, and this is a high testimony to its design and manufacture. The engine has a capacity of 602 c.c. and is of the long stroke type (66 × 88 mm). Externally, the most striking features are the outside flywheel, side-by-side valves, and the domed cylinder casting. The usual Precision square radiating fins are replaced by the more conventional circular type. The valve gear is very well carried out, and neat adjustable tappets are employed. The exhaust lifter is operated by a fifth or central tappet, which can be depressed by a rocker, refreshingly stout in design. The construction of the big end is unusual, for a double row of roller bearings is carried on the crank pin. A steel sleeve in the forked connecting rod forms the housing, while the central connecting rod oscillates on the outside of the sleeve. The inlet pipe and exhaust pipe are held by flanges, the former being fitted with a neat expansion joint. It may be mentioned that the cylinders are interchangeable.

The overhead valve twin-cylinder engine is not quite such a novelty, as its forerunners made their appearance in the Tourist Trophy Races, and have since proved their worth in daily use and competitions. The engine is in every way suited for sporting mounts; it is also an excellent touring engine, being flexible and smooth running as well as being capable of high speeds.

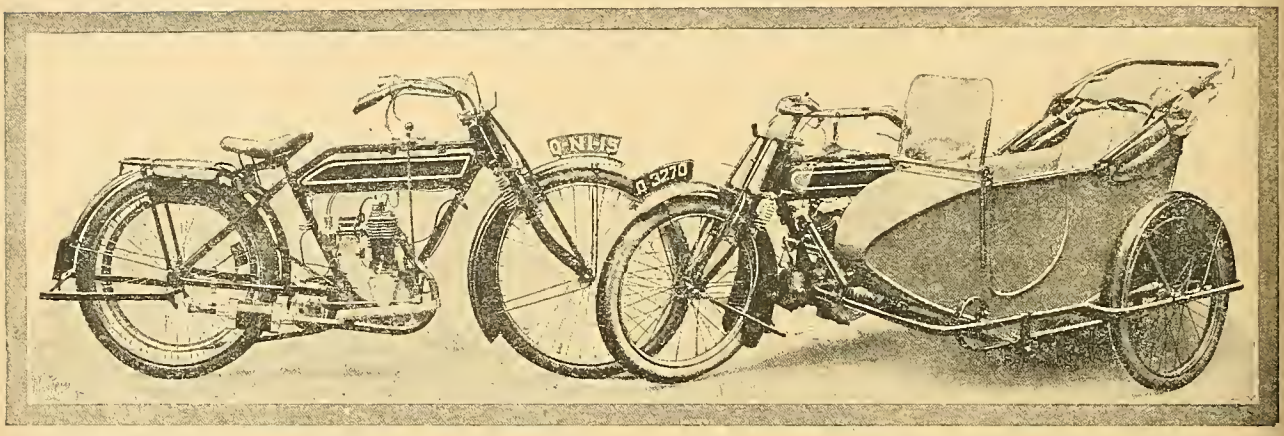
The chief change in the Precision Junior lies in the new cylinder and valve gear. The bore has been increased to 65 mm., the stroke remaining at 60. Both valves are now placed vertically behind the cylinder. The rest of the unit has been modified but slightly, and, in spite of the increased power, a considerable degree of silence has been attained.



1915 model of the Precision Junior engine, from the flywheel side

It is to be understood that these models are supplementary to, and, with the exception of the Junior, do not replace, present types. The big single is, of course, still a popular type of engine.

New Imperial Improvements.



New Imperial 2½ h.p. lightweight fitted with two or three-speed countershaft gear.

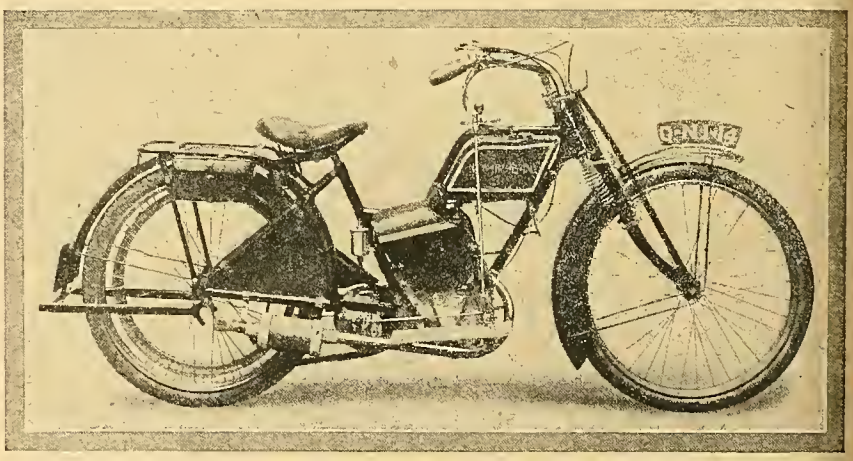
Sidecar combination made by the same firm, fitted with 6 h.p. engine and chain transmission.

WE illnstrate on this page some of the New Imperial models for 1915. The light tourist machine is fitted with a new pan seat, and several minor improvements have been made. Both mudguards are valanced and fitted to lugs to allow the wheels to be removed without difficulty. The rear brake is applied below the chain stay, and operated by means of a straight rod. The brake pedal is conveniently placed so that the rider can operate it without taking his foot from the footboard. The exhaust barrel is now oxidised, and the aluminium footboards improved. The two-speed model sells at 31 guineas, or with the addition of a clutch and kick starter at 35 guineas.

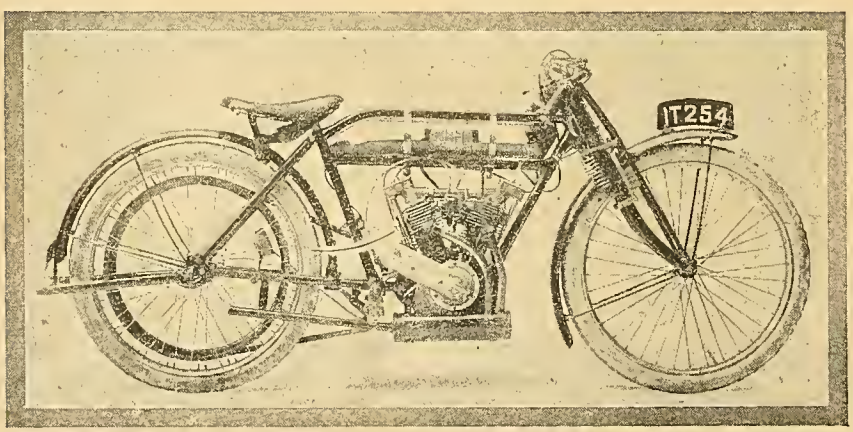
The specification of the ladies' machine is practically the same as that described, and it is supplied complete with clutch and kick starter at 36 guineas. Both machines are fitted with Dunlop tyres.

The sidecar combination has an engine of 76×85 mm. bore and stroke (770 c.c.), and is fitted with a countershaft three-speed gear and chain drive. Heavy Dunlop tyres are standard. The sidecar chassis has been dropped, and the lugs and joints reinforced at several points; it is attached at four points. The body is roomy, and is provided with a board in the rear for luggage. The combination complete retails at 79 guineas, but the machine alone costs £65.

In addition to these models, the company is also putting on the market a tradesman's light carrier machine. This is fitted with a 2½ h.p. engine, and designed to carry 1 cwt. of goods, though it is quite possible to take double this weight. The price will be 42 guineas.



Lady's model New Imperial. Note the dress guard which allows air to impinge freely upon the cylinder.



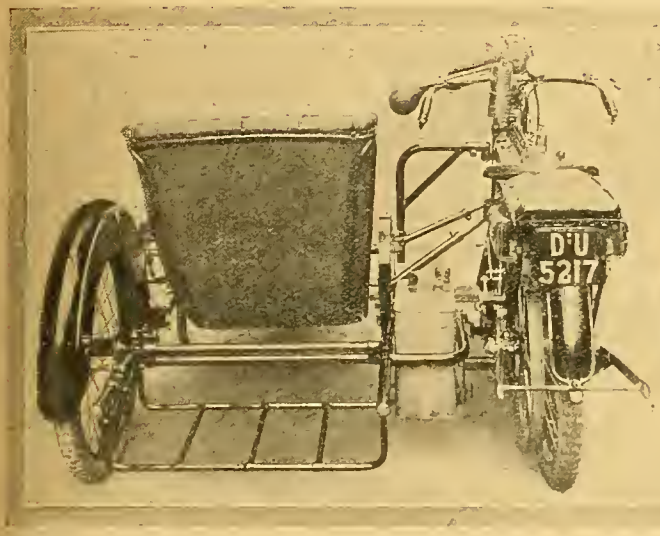
The new J.H. T.T. racer, which is fitted with a 3½ h.p. twin M.A.G. engine.

J.H. T.T. RACER MODEL.

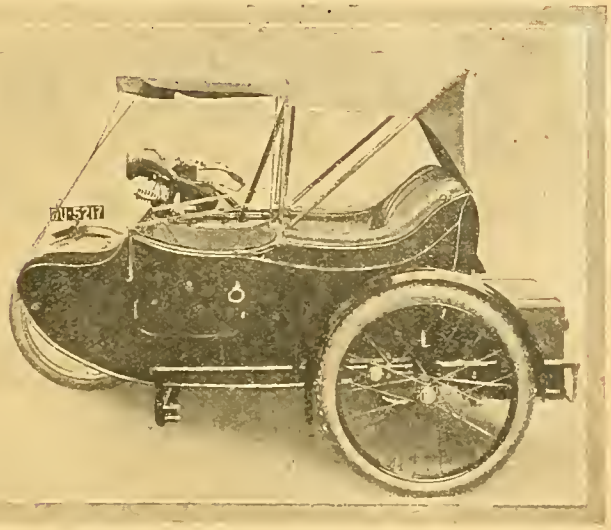
THE J.H. racer, of which we give an illustration on this page, is a very smart looking machine. The engine is a 3½ h.p. M.A.G. with overhead inlet valves, the mechanism of which is lubricated from the crank case through the tubes in which the tappets work. As will be seen, the magneto is snugly housed between the rear cylinder and the saddle tube. The silencer is capacious, and has a tube extended to the rear. The rear brake is operated by the left heel, and is applied above the chain stay—a position of great power. Brooks' saddles and Druid forks are fitted.

Other model J.H. machines have already been described in our issues of October 15th and 29th, viz., a 2½ h.p. two-stroke, a 2¾ h.p. single-cylinder, 6 h.p. and 8 h.p. twin-cylinder machines fitted with J.A.P. or M.A.G. engines.

LATEST GLORIA SIDECARS.



Double rear tube, tubular grid, and petrol can holder. The special attachments are clearly visible.



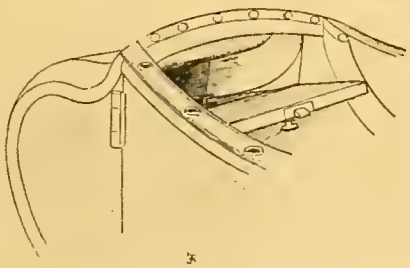
The No. 5 model Gloria with hood up. The adjustable screen is set in the normal position for a single passenger.

THE Gloria Co have established for themselves an excellent name for high-class sidecar manufacture, and their latest productions are in no way calculated to damage that reputation. Throughout the chassis there have been detail improvements, perhaps the most striking of which refers to the well-known Gloria double tube attachment, which is designed to distribute the strain between two of the cycle tubes instead of one only. The clips themselves are practically unaltered, but the actual attachment of the sidecar has been rendered much quicker and easier by the addition of vertical pivot lugs. Once the

Showing the adjustable Gloria wind screen in use as a reading desk.

clips have been permanently fixed on the machine, it is a simple matter to hook on the sidecar and lock up with a nut. The rear attachment is now provided with an adjustment for height, so that a 26in. sidecar wheel may be used with a 28in. wheeled motor cycle, or *vice versâ*.

The main rear tube of the chassis, which takes the chief strains, has been duplicated to prevent any chance of leakage, and the curved saddle pin fixing tube bas been replaced by a straight one.

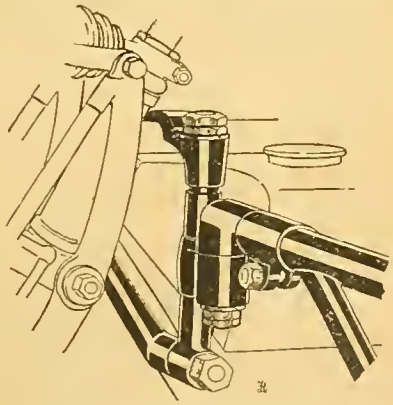


The spacious locker provided in the toe of the sidecar.

The front portion of the body is suspended on a cross leaf spring, shackled at both ends, which automatically adapts itself to the weight of the passenger. The bosses for the rear spring shackles are attached rigidly to the body. The tubular luggage grid has been strengthened, and the spare petrol tin carrying device improved. Incidentally, a simple device, consisting of a cross bar, the position of which is controlled by a wing nut, makes it possible to prevent all rattle from the spare can. The spring wheel is, of course, retained.

The body of the No. 5 model sidecar, which is mounted on this chassis, is a most refined production, having graceful lines and being beautifully upholstered with sprung seat and back. The tool and spare carrying accommodation is excellent, for, besides the large space under the seat, there is a roomy locker in the back of the body and a drawer in front of the passenger. The No. 5 outfit is a high class production selling at £25 without hood and screen.

The latest type Gloria screen is a most ingenious device which can be adapted in a few seconds for a single grown-up

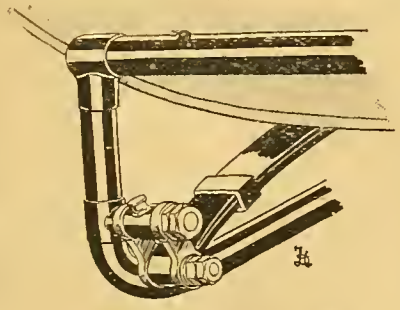


The latest Gloria attachment, which is considerably simplified.

person, a passenger and child, or even for use as a table or reading desk.

In all, seven models are listed, including the tradesmen's carriers described recently. The same chassis can be supplied with less expensive bodies in either cane or coach finish, and a somewhat simpler rigid wheel chassis is made with various forms of bodywork.

A very simple sprung child's seat can be fitted, which is easily adjustable for position or can be entirely dismantled and stowed away under the passenger's seat.

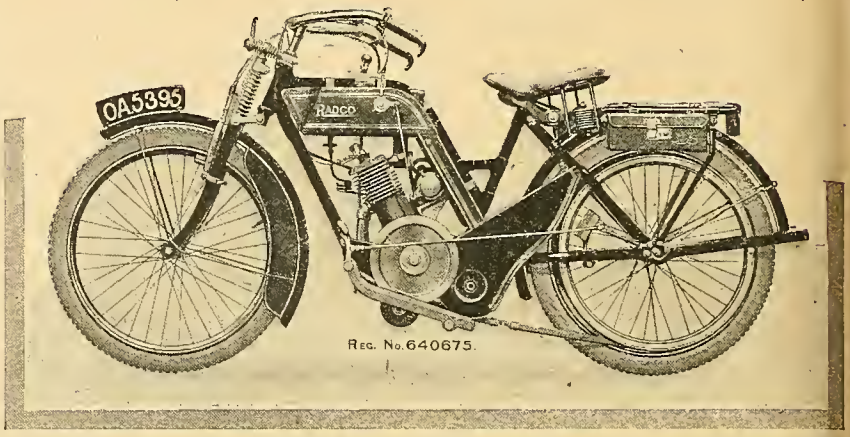


The shackled cross front spring.

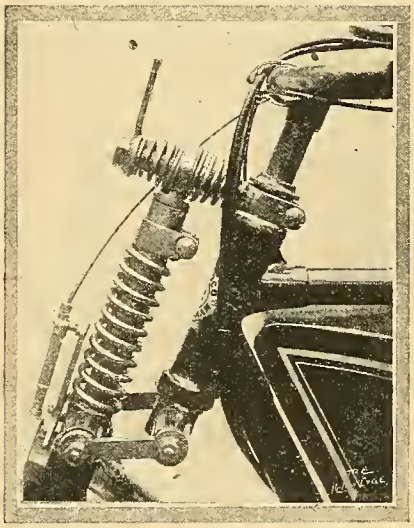
The Lady's Model Radco.

THE makers of the two-stroke Radco, E. A. Radnall and Co., Dartmouth Street, Birmingham, have standardised a lady's model for 1915. More than usual attention has been paid to the question of suitable dressguards, a feature being the guards placed at the sides of, and at right angles to, the tank.

The engine is a 2¼ h.p. single-cylinder two-stroke, the dimensions being 62 mm. × 70 mm. It remains practically the same as last year, minor detail alterations having been made which make it still more efficient. The principal alteration in the new models is in the front springing. Previously the spring forks had only given an up and down motion, but now a spring buffer is fitted which, in combination with the central upright spring, provides a double action.



Latest version of the Radco lady's model. The special dress guarding arrangement is referred to in the accompanying letterpress

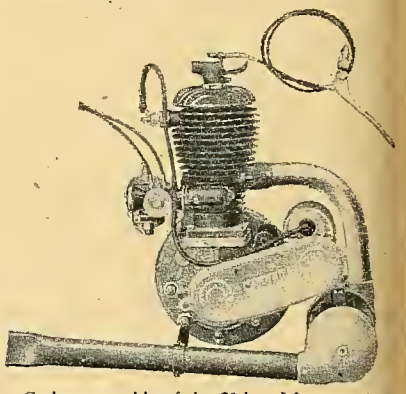


Supplementary spring fork on Radco allowing for lateral play.

The Albion two-speed countershaft gear is fitted, and this may be had, if desired, in conjunction with a free engine clutch. The price of the lady's model with two speeds is 32 guineas, and with two speeds and clutch 34 guineas.

1915 WULFRUNA.

Particulars of the Wolf machine were omitted from our Buyers' Guide owing to details not being available. There are four models of this machine: a 2¼ h.p. Peco-engined two-stroke, 62 × 69½ mm., 211 c.c., which sells at twenty-four guineas single geared, or thirty guineas with a two-speed counter-shaft gear: 2½ h.p. J.A.P. engine, 70 × 76 mm., 292 c.c., twenty-six guineas; with two-speed as above, thirty-two guineas; 4 h.p. J.A.P. engine, 85½ × 85 mm., 488 c.c., two-speed model forty-five guineas, three-speed model forty-seven guineas; 5 h.p. twin J.A.P., 70 × 85 mm., 654 c.c., three-speed counter-shaft and chain drive, sixty-two guineas. The two-stroke is fitted with a U.H. magneto, the rest with Splitdorfs. Senspray or Amac carburetters may be had to order.



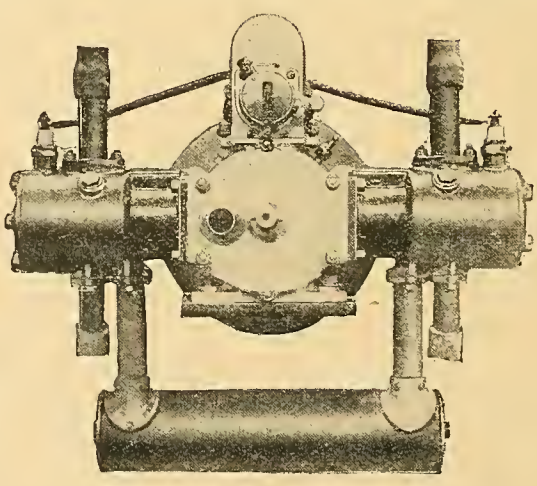
Carburetter side of the 2½ h.p. Metro engine of 70 × 70 mm. bore and stroke.

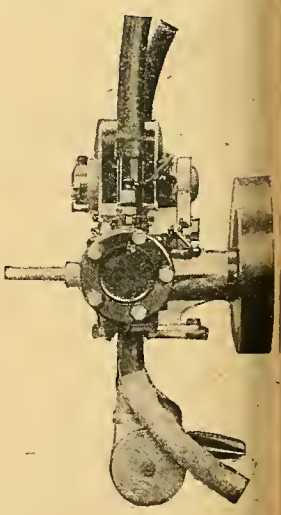
A Horizontally Opposed Two-stroke Twin.

READERS of *The Motor Cycle* will be interested to hear that a horizontally-opposed twin-cylinder two-stroke engine is now undergoing bench tests in the Midlands. The producer, Mr. W. H. Cuffin, of Grosvenor Works, North Evington, Leicester, is bringing forward the engine for cycle car purposes. The cylinders are water-cooled, and have a bore and stroke of 72 × 76 mm. The cranks are set at 180°, and consequently the balance is practically perfect, and both cylinders fire simultaneously every revolution. Gas is induced to the crank case through a rotary valve.

There are several special features in design, which will be dealt with as soon as the engine is in a rather more advanced stage.

In the meantime the behaviour of the Cuffin engine in a cycle car chassis will be looked forward to by many motorists with considerable interest.

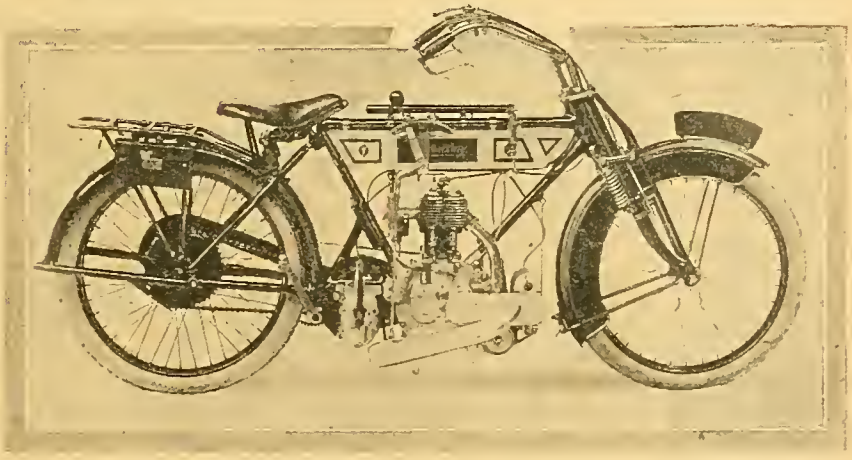




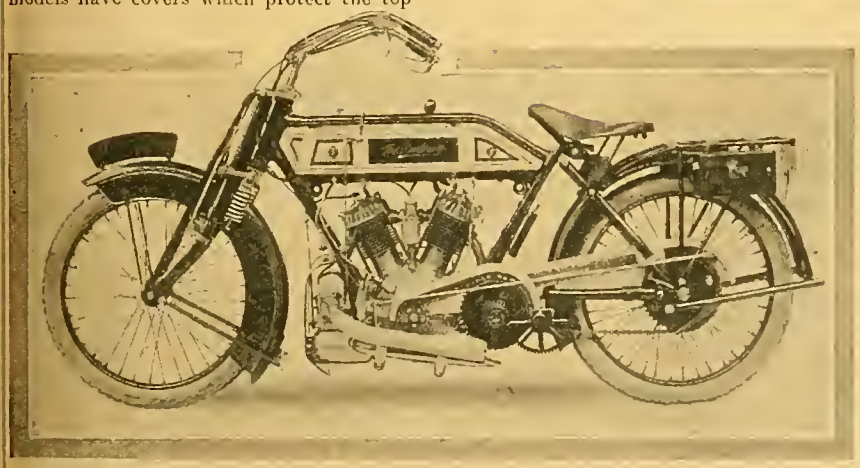
A CHAIN-DRIVEN BRADBURY.

THE 4 h.p. Bradbury can now be obtained with chain drive throughout, and a three-speed counter-shaft gear, which is mounted below the bottom bracket, and incorporates a kick-starting mechanism. The bolts which hold the gear box are allowed to slide in slots for the purpose of chain adjustment. The gear operating lever is mounted on the right-hand side of the tank in a convenient position, and clipped to the top tube. The clutch is handle-bar controlled by means of a Bowden wire. The well-known Bradbury method of combining the crank case with the frame is retained, and the latter is strengthened by a strut from the saddle tube to a point behind the gear box. The front mudguard is well valanced, and the rear guard has a small side flap, which will protect the chain to some extent from the mud thrown up by the wheel.

The chains of both the single and twin models have covers which protect the top layer of the chain and partially screen the inside of the chain links, but the drive is not totally enclosed.



The new 4 h.p. chain-driven Bradbury, with three-speed counter-shaft gear.



The 1915 model 6 h.p. twin-cylinder Bradbury.

The 6 h.p. twin machine, which we also illustrate, remains much as last year. The magneto is well protected by a metal guard and mounted just above the ample silencer, which has a pipe to the rear under the left footboard. The latter is of aluminium, and nicely shaped. The engine, which has detachable cylinder heads, is 74½ × 86 mm. bore and stroke, 749¾ c.c. There is an internal expanding brake in the rear hub actuated by a pedal applied by the left toe. The chain adjustment is very substantial in its construction. B. and B. carburetter and Druid forks are fitted to both models.

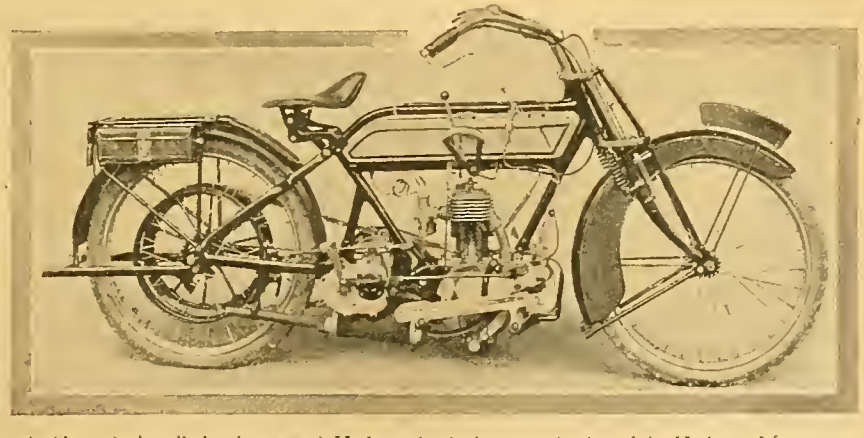
A third Bradbury is the 3½ h.p. horizontally opposed twin of 499 c.c., which is also supplied with a three-speed gear and chain drive. This should prove a very attractive solo mount, and be capable of drawing a sidecar if required.

A SINGLE-CYLINDER HAZLEWOOD.

INTEREST will be taken in the machine illustrated herewith in view of the fact that it is the first single-cylinder motor cycle to be built by the Hazlewood Company, of West Orchard, Coventry. This firm has hitherto specialised on big twin-cylinder machines which have justly earned a very good name for all-round excellence. Hence, it is not surprising to learn that the general design of the single-cylinder follows closely upon the lines of its predecessor.

The engine is a 4 h.p. J.A.P., 90 mm. × 93 mm. (592 c.c.). Drive is by an enclosed chain to a three-speed counter-shaft gear and thence by belt. The carburetter is a B. and B., and the magneto is placed in front of the engine on a platform, it being protected by a cover of sensible dimensions. The standard tyre fitting is the 26 × 2¼ Hutchinson.

A glance at the illustration will bear out our statement that the latest Hazlewood is a machine of taking appearance and substantial design. Another single-cylinder machine now made by this firm is fitted with a 2¾ J.A.P. engine and Sturmey-Archer three-speed hub.

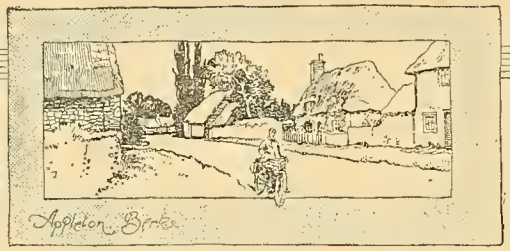


A 4 h.p. single-cylinder three-speed Hazlewood—the latest production of the Hazlewood factory.

DAYTON LIGHTWEIGHTS FOR 1915.

Particulars of the Dayton machines arrived too late to be included in our "Buyers' Guide." They consist of the following: A 1½ h.p. two-stroke, 57×63.5 mm. bore and stroke, 162 c.c., fitted with Amac carburetter and 26in.×2in. tyres, £24 3s.; a lady's machine similar to the above with variable gear, £30: and a 2½ h.p. machine. 70×70 mm. bore and stroke, 269 c.c., Senspray carburetter, at £26 5s. The U.H. magneto is fitted to all models.

CURRENT CHAT



SPECIAL FEATURES

A SIDECAR WITH THE AUTUMN GUNS.
THE MOTOR CYCLIST ON ACTIVE SERVICE.
MORE 1915 MODELS.

TIMES TO LIGHT LAMPS.

Nov.	26th	4.57 p.m.
,,	28th	4.55 ,,
,,	30th	4.53 ,,
Dec.	2nd	4.52 ,,

Our Equipment Number.

A particularly suitable Christmas present for a motor cyclist could be selected from the hundred and one accessories which will be dealt with in our special Equipment Number, to be issued on Thursday, December 10th.

M.C.C. Cinema Show.

To-morrow (Friday) evening the M.C.C. has arranged a cinematograph and lantern slide exhibition for the benefit of the Belgian Relief Fund, to be held at the Café Monico, London.

Another Substitute for Petrol?

According to the *New York Herald*, a new fluid to replace petrol has been discovered in America. It is stated that it can be made at a cost of ¾d. per gallon.

Its Composition.

The report continues that a small quantity of naphthalene is added to a large quantity of water together with two secret ingredients. The latter can be bought at any drug store. It will be interesting to see whether anything further is heard of it; in the meanwhile it may be added that the new fuel is said to have been tested on cars with very satisfactory results.

Speed of Despatch Riders.

In view of the recent controversy on the speed of military despatch motor cyclists in England, it is interesting to note that a rider summoned at Eastbourne on Friday last for excessive speed was let off, an officer stating that it was necessary that the riders should travel at speed. As intimated, the Bench decided not to convict, but said the police did right to bring forward the case.

Recruiting in Villages.

Over a score of sidecarists were present at a recruiting parade on motor vehicles through Warwickshire villages last Sunday. Over a hundred cars conveying a band and a company of khaki-clad men stopped at the entrance to each village; the soldiers, headed by the band, marched through, and at the other end of the villages the cars were occupied once again, and in a few minutes the same performance was repeated at the neighbouring hamlet. The demonstration was particularly impressive to us as showing the ease and rapidity with which a complete company of soldiers could be conveyed to any particular point on cars and sidecars.

Proposed Amalgamation of Liverpool Clubs.

It is not unlikely that the leading clubs in the Liverpool district will be amalgamated in the near future. Such a move, resulting in one powerful and influential body having a common interest, would, we feel sure, be of great benefit to the pastime.

How the War Funds Stand.

The totals of the principal war funds, as enumerated below, stood as under on Tuesday morning last:

	£	s.	d.
H.R.H. Prince of Wales's National Relief Fund...	3,907,000	0	0
H.R.H. Princess Mary's Fund to provide Christmas Gifts	95,300	0	0
The Times Fund for Sick and Wounded	633,399	12	2
The Queen's Work for Women Fund	91,580	7	10
Daily Telegraph Belgian Fund	70,290	12	0

Motor Cyclist as Engine Driver.

Another story illustrating the adaptability that the motor cyclist despatch rider displays is related by the *Daily Telegraph*. It was required to move a train of wounded out of the danger zone, but the driver could not be found. A motor cyclist at once volunteered, and he immediately jumped in the cab. The control arrangements of a railway locomotive and a motor cycle bear a very slight resemblance to one another, the result being that upon his first attempt the new driver found the train reversing in the direction of the firing line. Fortunately he managed to stop, and, "getting the hang" of the levers, drove the train out of danger.

British Success in Italian Race.

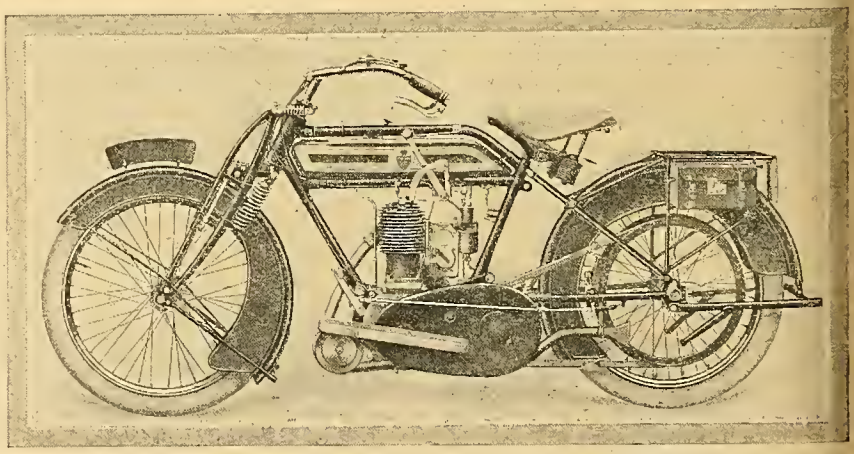
On the 25th ult. a reliability trial extending to 300 km. (approximately 186 miles) for the military championship took place over a very difficult course. Bersahliri Lampani, riding a New Imperial, gained the maximum award.

Club Finances.

So many motor cyclists having gone to the Front as despatch riders, certain motor cycle clubs are experiencing great difficulty in collecting sufficient funds to pay the big amounts representing affiliation fees due to the governing body. As a result, the resources of some clubs will be taxed to the utmost.

News from the Front.

The following are extracts from a letter received by Rudge-Whitworth, Ltd., Coventry: "Noble and I have covered many miles without any trouble. We have picked up another Rudge still, so we now have three. This one had a broken driving sleeve to the clutch when we found it, but our artificer made a new one. Our workshops are very good, with some clever fellows in them who can make almost anything. So far I have done about 1,500 miles in France without trouble, but plenty of gruelling. The roads are terrible, and *pavé* beyond description. We still continue to see sights and hear stories of awful slaughter and fighting, but I think we have just about got the 'dirts' on the run now. We have got quite used to shell fire and guns, and can sleep quite peacefully with awful dins going on. I met Glyn Rowden last night; he is driving a Wolseley ambulance. Pullin, Featherstonehaugh, Selwyn, Dug. Brown, etc., etc., are among others we have seen, too.—S. A. ROWLANDSON."



The 1915 model chain and belt-driven Rover with three-speed counter shaft gear.
(Described and illustrated in issue of Nov. 19th, page 565.)

Police Activity in Warwickshire.

The Warwickshire County police are again persecuting motorists for purely technical offences. This applies more to the neighbourhood round Coventry, such as Longford, Bedworth, and Berkswell.

A Motor Cyclist at Lord Roberts's Funeral.

Had anyone suggested ten years ago that a motor cycle would take a prominent part in a solemn pageant in the streets of London he would have been considered a lunatic. On the occasion of the funeral procession of Field Marshal Earl Roberts last week a motor cyclist despatch rider hurried down the route just as the body left Charing Cross and delivered a message to an officer on the Embankment. Apparently his mission was to acquaint the officer that the *cortège* had started, as the guns boomed out the moment the despatch was delivered.

Christmas Gifts for Despatch Riders.

Among the amounts received in reply to *The Motor Cycle* appeal for funds to provide Christmas presents for despatch riders at the Front was a money order for £5 from the Hamilton and District Motor Cycle Club.

An amount of three guineas was received from the Tyldesley and District Motor Cycle Club, per the hon. treasurer, Mr. Frank Peters.

As is well known, the fund introduced by H.R.H. Princess Mary has exactly the same objects as the fund we inaugurated, and we therefore recommend that subscriptions be forwarded direct to Her Royal Highness at Buckingham Palace. Envelopes should be marked "For the Sailors and Soldiers."

Mr. R. G. Lindsay, president of the Ulster Centre of the Motor Cycle Union of Ireland, acting upon our suggestion, has forwarded a donation of £2 to the Princess Mary Fund, and has requested that it may be specially devoted on behalf of the motor cyclist despatch riders at the Front. We are afraid, however, that such a wish, though well intended, is impossible for the administrators of the fund to carry out, as the despatch riders are so scattered about.

Certified Trials.

As mentioned in our last issue, the A.C.U. is now in a position to carry out private tests for both motor cycles and light cars under 1,100 c.c. The revised scale of charges, which has just been published, is £5 5s. per day for a certified trial of one, two, or three days' duration. The fees for tests extending beyond three days are proportionately lower.

Big Coats for Military Drivers.

We understand that the War Office are supplying every driver in the A.S.C.M.T. with a heavy fur-lined coat for winter use. It is, therefore, to be assumed that the claims of the motor cycle drivers will not be overlooked.

Well-known Motor Cyclist Killed.

D. M. Brown, of Douglas, Isle of Man, writing home from the front last week, announced that K. H. Clark (the James rider), who had taken part in several T.T. Races, had been killed in action. We extremely regret to record this fact, as Clark was one of the most popular competition riders in the country.

A Horse Shoe Competition.

The Roads Improvement Association, in conjunction with the Royal Society for the Prevention of Cruelty to Animals, lately organised a horse shoe competition with the object of producing a shoe which would damage neither the horses' feet nor the surface of the road. The judges state that no device was of sufficient merit to warrant the presenting of the £100 prize, but premiums were awarded to the three best designs.

When Will Controls be Standardised?

Our crusade on behalf of the standardisation of controls is fresh in the minds of our readers. Accidents, some of them fatal, have occurred from time to time which are directly traceable to the lack of uniformity of control levers fitted to motor cycles. The latest instance comes from Bedfordshire, where an accident occurred through the driver of a sidecar opening the throttle when he was under the impression that he was shutting it.

Export to Neutral Countries.

There still appears to be doubt in some quarters as to whether the export of motor cycles and parts to neutral countries is allowed, and we hasten to state that such is the case. There is nothing, for instance, to prevent manufacturers of English sparking plugs exporting their wares to Holland or Sweden.

A Thoughtless Suggestion.

A reader actually suggests that motorists should boycott all places where, since the outbreak of war, it has become customary to examine all licences. We are afraid we cannot offer any sympathy to our correspondent, as it is extremely important at the present time that every motor cyclist and motorist should be able to prove his identity. The examination of licences is no vexatious action taken by the police, but a useful check to find out if any alien enemies are using machines, which is now prohibited for very good reasons. Moreover, the law directs motorists to carry their licences on every occasion, and if they do not do so they must not complain if conviction is the result.

A.A. and M.U. Notes.

A Level Crossing Warning.—Some level crossings are being constructed across the Staines and Sunbury Road, about one mile out of Staines, and across the Ashford to Laleham Road at the points where the Metropolitan Water Board's Aqueduct crosses these two roads. Notice boards are erected to warn approaching traffic, but the Automobile Association would especially warn members of the great need for caution at night time.

Military Authorities and Driving Licences.—The Automobile Association warns motorists that, although non-production of driving licences is purely a technical offence, the magistrates are regarding the offence more seriously just now. Several military controls are on the roads requesting production of licences, therefore it is most necessary that these documents be carried.

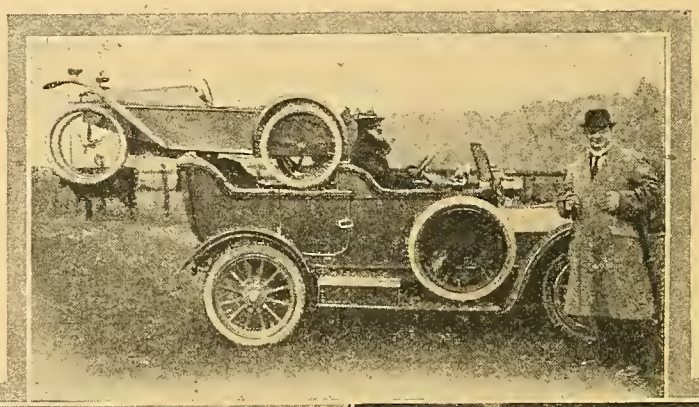
Motor cyclist scouts attached to the Armoured Car (Naval) Section waiting under cover. All the mounts are 2¾ h.p. two-speed Douglases.

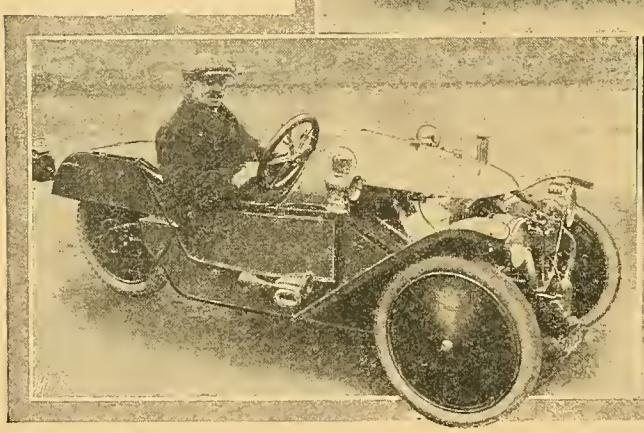
THE CYCLECAR CLUB'S RALLY.

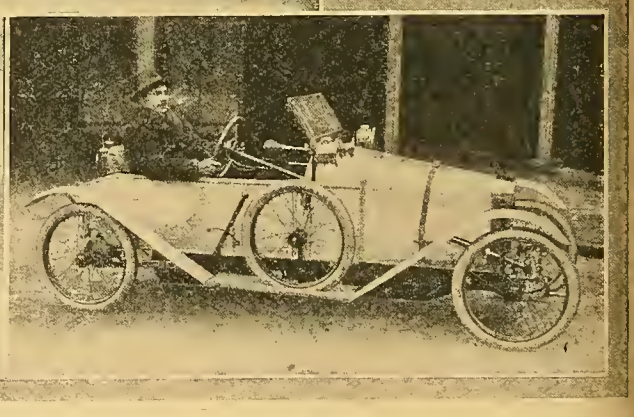
An Interesting Display of 1915 Model Cycle Cars and Light Cars.

DURING the week-end the Cyclecar Club held an interesting event, the object of which was to some extent to make up for the absence of a Show. A meet was arranged at the Red Lion Hotel at Hatfield, where the appearance of the competing vehicles was judged, followed by a run through Barnet and Finchley to London, and thence *viâ* the Portsmouth Road to Burford Bridge. Here dinner was followed by a concert. The next morning the machines were judged for the most novel mechanical feature, and after lunch a run was made to the Hut Hotel, where the final judging took place, the award going to the machine which had travelled the longest distance to be present. The judges were Dr. Low and Messrs. T. W. Loughborough and W. Cooper.

On Saturday the weather was fine, but dull and bitterly cold. The run from London was uneventful (our little Swift behaving in the most exemplary manner) until the outskirts of Hatfield were reached. Here two special constables and two of the ordinary variety stopped us with the object of inspecting our licences. They had a busy time, as there were about ninety competing cars, and nearly as many belonging to interested spectators.







(1) The Carden arrived in spotless condition on the back of a touring car.
(2) W. Cooper on a new racing Morgan with disc wheels.
(3) H. E. Dew on the D'Ultra cycle car.

When we arrived a goodly number of people had already put in an appearance. Their cars were arranged in the yard of the hotel, while the competing vehicles were parked in an adjoining field quite close by. It was not surprising to find that the majority were light cars which could in no way be described as cycle cars. It is our intention to deal with only those which more or less conform to that elastic term.

An Inspection of Cycle Cars.

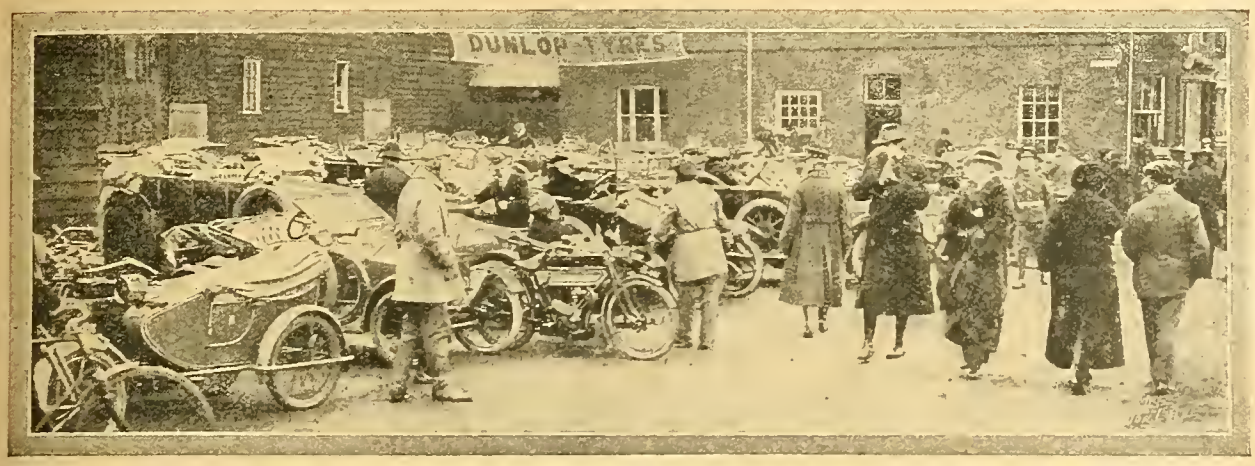
In the course of our tour round the line the first that we came to was the D'Ultra, built by the D.U. Manufacturing Co., Charlotte Place, Clapham, formerly known to our readers as the Dew. This, it will be recollected, is a light two-cylinder car, driven by a water-cooled V Chater-Lea engine, the power being conveyed in the first place through friction discs, and thence by means of a single chain to the back axle. We next came to the Kennedy, a more ambitious type of vehicle. This was fitted with a four-cylinder water-cooled engine (69 mm. × 90 mm.) of the *monobloc* type. A friction gear was employed, but the final drive was by belts. These, we understand, will in future models be enclosed in cases. The finish, design, and general appearance were most attractive. The machine is made by Messrs. Kennedy-Skipton and Co., Leicester.

Our attention was then attracted by the Victor, which has on several occasions been described in *The Motor Cycle*. Its chief innovation is the fitting of an extra contact breaker to the magneto, for a coil and accumulator, the object of which is to facilitate starting. We recently saw this device demonstrated with great success. A make the name of which is not at present well known to our readers is the Crompton, made by the H.D.C. Motor Co., 141, The Broadway, Hendon. It is a true cycle car, being fitted with a 5 h.p. J.A.P. motor cycle engine, the drive being by chain through a multi-disc clutch to a two-speed gear box, and thence by belts to the back wheel. Another car very much of the same type was the Aviette, made by Messrs. Hurlin and Co., 295, Mare Street, Hackney, the most distinctive feature of which was a pedal starter on the off side running board. A rather remarkable little car of the same size as the two to which we have just referred was the Winter.

A Four-cylinder Air-cooled Engine.

This was fitted with a four-cylinder Henderson engine, driving by chain to a counter-shaft, and thence through a two-speed gear box by belts to the back wheels. It was equipped with a change-speed lever placed horizontally on the floor boards, and a hand-starting device. The Morgans formed a very attractive display. W. Cooper's Grand Prix model fitted with disc wheels was a most handsome outfit, while we also noticed an ordinary touring Morgan which looked particularly smart. Another old friend was the well-tried and much appreciated A.C. three-wheeler, the only one of its kind present.

The most noticeable of the two Cardens was fitted with an M.A.G. engine, which was running very slowly, partly owing to the Binks carburetter with which it was equipped, while its silence, due to its enclosed valve gear, was quite remarkable. While the procession was beginning to leave



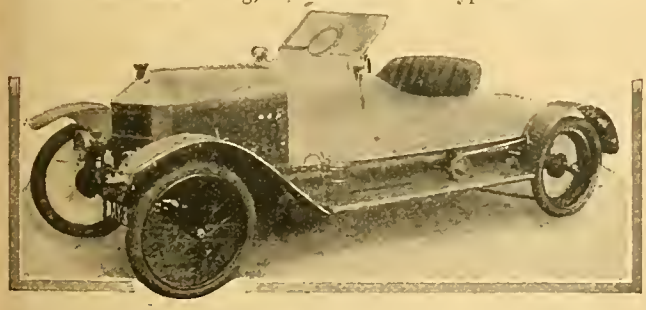
Motor cyclists and sidecarists were much in evidence at the Cyclecar Club's rally last week-end. The illustration shows a corner of the group outside the Red Lion Hotel, Hatfield.

Hatfield on its way towards the south, two H.S.M.'s were seen on their way to the exhibition field.

The concert after the journey from Hatfield was a great success largely owing to the fact that two Pavilion artistes (the Dulcet Duo), who were interested in light cars and happened to be passing, heard of the meeting, and gave a free performance, which was much appreciated.

At Burford Bridge, next day, we noticed one or two vehicles which had not put in an appearance at Hatfield. The judging for the most novel feature began at eleven o'clock and towards noon there was a huge crowd of cars and spectators. In fact one of the officials put the number of the former at 250 and the latter at from 800 to 1,000. Among the later arrivals were the Duo and the G.N.'s. The makers of the latter had brought down a new inexpensive model selling at eighty-eight guineas. In this the engine has the crankshaft set transversely in the frame, a disc clutch and a two-speed gear, the final drive being by belt as in previous models. After lunch, the cars were driven to the Hut Hotel, Wisley, for the final judging.

The day, though very cold, was delightfuly bright, and The Hut, always a pretty place, looked its best. Here the crowd was even greater than it had been in the morning, and the number of people was estimated at 1,500. The little vehicles attracted a great deal of interest, and altogether the meet was a most successful affair. A rather amusing feature of the event was the fear expressed by the Society of Motor Manufacturers and Traders lest it should assume the form of a show, and the participants had to evade the bond by labelling each car by name without mentioning the price. The awards will not be made until they have been submitted to the committee, but we understand, unofficially, that certificates will be granted to the following makes: For appearance (1) an open bodied Calthorpe of handsome design, (2) a blue coupé of the same make, (3) a Singer. For the most novel features (1) the Hortsmann. After these awards had been announced it seemed that the true cycle car stood a poor chance of appearing in the roll of honour, but happily, our surmises were wrong, as hereafter this type of vehicle scored.) Number three was the interesting Kennedy, which gained this place through the excellent design of its chassis. The award for the 1915 model which had travelled the farthest distance to be present at the finish of the event went, we understand, to the Morgan Motor Co.



The Kennedy belt-driven cycle car which is propelled by a four-cylinder water-cooled engine.

NIGHT TRIAL IN THE WEST COUNTRY

UNDER the circumstances, a total of twenty-five entries, which the Bristol Motor Cycle Club has received for its open eighteen hours' reliability trial, may be considered quite satisfactory. An interesting point is the number of passenger machines, both sidecars and cycle cars, there being only eleven solo machines.

The entries are as follow:

P. Grout (8 Morgan)	W. H. Rudge (3½ Wolf)
F. C. Wasley (8 Zenith sc.)	L. Martin (10 Singer c.c.)
A. Stevens (3½ Zenith)	H. N. Walker (2¾ Douglas)
W. W. Moore (4 Douglas sc.)	T. Heath (6 Sunbeam sc.)
C. E. Hokes (3½ Sunbeam)	G. Brough (3½ Brough)
D. Hawkes (10 Victor c.c.)	C. Hooper (10 Douglas c.c.)
E. Kickham (2¾ Douglas)	H. Petty (3½ Brough)
C. H. R. Norrington (6 Enfield sc.)	W. Egginton (8 Enfield sc.)
P. H. Mathews (4 Norton)	P. B. Phillips (2¾ Douglas)
A. L. Clayden (10 A.C. c.c.)	R. Davis (8 Chater-Lea sc.)
F. G. Ball (2¾ Douglas)	W. McKeggie (3½ Brough)
H. Greaves (8 Enfield sc.)	P. A. Stone (8 Morgan c.c.)
	M. S. P. King (10 A.C. c.c.)

The start is from the Queen's Hotel, Clifton, at nine o'clock to-morrow (Friday) evening. There are doubtless many readers who are desirous of seeing the competitors at some place *en route*, and so we give the course with the times at which the first competitor is due to arrive.

Clifton. First man starts 9 p.m. Friday.
Bridgwater. 10.42 p.m. Friday.
Porlock. 12.18 a.m. Saturday.
Countisbury.
Lynmouth.
Top of Lynton Hill. 12.54 a.m. Saturday.
Barnstaple.
Bideford.
Launceston. 1.40 a.m. Saturday.
Tavistock.
Ashburton.
Exeter. Arrive 6.36 a.m., leave 8.6 a.m.
Sidford.
Lyme Regis. 9.33 a.m. Saturday.
Bridport.
Dorchester. 10.45 a.m. Saturday.
Shaftesbury. 12.9 p.m. Saturday.
Frome. 1.21 p.m. Saturday.
Bath. 2.6 p.m. Saturday.
Bristol. 2.42 p.m. Saturday.

There will be timed checks at top of Lynton Hill, Launceston, Exeter (Bude Hotel), Blandford, and Bristol.

Letters to the Editor

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

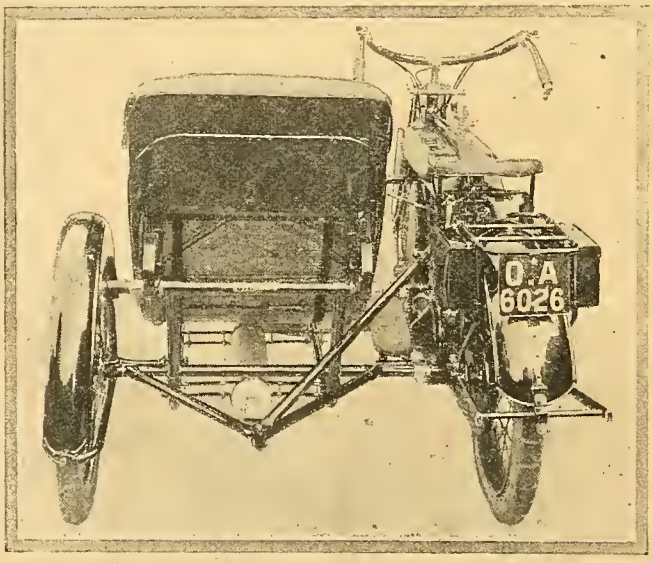
Petroil Lubrication.

Sir,—I have read with interest the letter from your correspondent, Mr. P. W. Hampton, in which he upholds the petroil method of lubrication. I have a Connaught single-speed machine which I always over-oil a little, but have never been perfectly satisfied with the lubrication, for this reason: When running down hill with throttle nearly closed, the engine gives a curious "scraping" sound (not a "knock" by any means). The result of this is that the engine gets hot before the bottom of the hill is reached. This can only be caused by lack of lubrication. If Mr. Hampton will try the above experiment he will find that the petroil method has its disadvantages. W. EDNER.

Delivery Tune.

Sir,—In a recent issue, "Ixion" appears to be needlessly apprehensive over the effect of his repeated criticisms on the delivery tune of motor cycles. Far from being tired of the subject, I fancy that most readers of *The Motor Cycle* would desire him to be even more explicit. Personally, I have no grumble, as the two machines I have had—a Grandex-Precision and a Scott—were delivered in first-class condition, and required no adjustment of any kind.

After running the Scott for 2,300 miles a curious mishap befell me a fortnight ago. When about to enter a garage there was a slight crack. Investigation the next morning showed that the crankshaft had been torn clean in half. A metallurgist and engineer, after examination, declared the metal to be perfect, and could give me no explanation as to the cause of such an extraordinary accident. In order to get the damage repaired I took out the engine and sent it to the Scott Engineering Co. Their expert has also been unable to account for the breakage. As my guarantee had expired I made no claim on the Scott Co., but they made no charge for the repair. LEWIS E. RUSSELL.



The big single James sidecar outfit (back view), showing silencer under seat and sidecar chassis design.

Why an Engine Konks.

Sir,—I have read with great interest the letter of Messrs. Lodge Bros. on engine knocking, and agree with them that Mr. Watchorn's point is not the prime factor, and in the case of an engine having excessively loose piston (and bearings) the rattle set up is of a very different order from the tune of a professional konker.

Another point in support of this view is that metal (iron in particular) can be made to emit noises without the application of any external mechanical forces or moving parts whatever. The well-known hum of a transformer, not to mention numerous other H.C. and three-phase machines, is interesting in that the forces acting on the molecules of the metal are considerably smaller than the stresses attained by pre-ignition. EO 293.

Sir,—After reading the article, and the several letters in reply, on the above subject, the real reason for konking seems to me to be as far away as ever. From my own experience, I have traced the position where the konking may occur, but I cannot explain just exactly how it occurs.

I have acquired the habit of driving entirely on the throttle, except in cases of emergency. I also always use top gear until it is absolutely necessary to change down. (This may, or may not, be a bad practice, but I find it a considerable saving in petrol consumption over driving on the exhaust or constantly changing gear.) Consequently, in slowing down to round sharp corners, I am quite accustomed to konking. While driving in the dark, under such circumstances, I have frequently noticed a distinct spark or flash occur, as near as I could judge, between the exhaust tappet and the valve stem, simultaneously with the konking. I do not know if two *similar* metallic surfaces striking violently together, under any circumstances, can produce a spark or not. For obvious reasons, I could not minutely examine the point mentioned to ascertain the exact nature or cause of the flash, with the machine still in motion on a dark road. One might say that this flash could be caused by a portion of the exploded gas escaping down the side of the valve stem which did not fit well in the guide; but in this case the flash would be noticeable on *every* exhaust stroke, whether the konking occurred or not. I can, however, say that I have noticed the flash *only* in conjunction with the konking.

If this subject is followed up by your readers I shall watch it with keen interest. D.D.D.

Sir,—I would like to reply very briefly to a few points raised by your contributor on the question of engine knocking and pinking.

I think it is not easy to quote examples from different types of engines as regards degree of knock. One might immediately remember the example of the one hundred mile an hour Talbot, which was extremely ordinary in combustion chamber shape, and yet under the most adverse conditions was not greatly troubled by knock. I do not quote this as an example, but merely to point out that examples are of no great value.

Mr. Watchorn states that there is very little more knowledge left to be discovered on the subject of internal combustion engines. In my humble opinion the boot is on the other leg, and there is not much that *is* known about them definitely. The fact that this type of prime mover was discovered one hundred years ago is no argument at all, because the turbine in principle was in use at the time of Archimedes, and yet now is *far* from being "completely

understood." Noises in all types of gas engines do not as a rule consist of any particularly definite type of sound, and, however closely the running of the engine is watched by indicators and the knocks examined by a sonometer, it is not often easy to obtain any definite relation between the two instruments, neither is it easy to tell where one noise commences and another ends. Most noise is composite in nature.

Mr. Watchorn would have us believe that the particular "konk" which so often causes trouble is due entirely to translation of the exploding gases. Konking can often be cured by a liquid stream of water injection; also the variation of plug position will not cure konking by giving what your contributor imagines as a direct push; and, what is more, an examination of the pressure by means of a manograph on both sides of even a large cylinder does *not* show a lag or translation of pressure or temperature large enough to cause any effect such as he refers to.

I have no doubt that Messrs. Lodge Bros. will confirm this point, which I have frequently checked by experiment, and I might say I think that their explanation, in conjunction with the various mechanical sounds due to the give of metals and taking up of unlubricated places, is frequently correct. I have made many examinations of different forms of knocking sounds by measuring the varying electrical resistance between bearing and shaft, etc., and during many forms of knock and konk one can only see the transmitted current rapidly rise in conjunction with a rapid rise of pressure during a small degree of piston motion on one's manograph

I have made the experiments referred to with movable heads fitted with pockets in different positions in conjunction with multi-cylinder two-stroke engines, and I must say that I have been unable to get the effect referred to by Mr. Watchorn to any reasonable extent.

I certainly consider his suggestions of interest from some points of view, but I do not think that one can sweep out the ground with the ease assumed.

A. M LOW, A.C.G.I., D.Sc., etc., etc.

Sir,—I have read the article and correspondence on this subject, and note that, although all the writers criticise your contributor rather severely and perhaps justly, none actually explains what causes the phenomenon. Now, I do not profess any deep technical knowledge as to the actual cause, but I have a theory based on observation, and I imagine the suggestion made in Messrs Lodge Bros. and Co.'s letter is nearer the mark than any of the others. The noise produced by suddenly shutting a tap from which water is flowing under considerable pressure is, I have always understood, caused by the sudden arresting of the flow rebounding along the pipe. The pressure of ignited gas in process of expansion is analogous to a fluid pressure, and if the charge be fired even a fraction too early, the flow of its expansion is arrested against the ascending piston or even against the piston while in a stationary position on the exact dead centre of the stroke.

When the charge is ignited at the correct fraction of a second to produce a pressure on the descending piston, the gas is expanding freely, and no rebound occurs, and consequently no "konking."

That is my theory, and I think it explains why an engine which is provided with too high a compression knocks itself to a standstill when driven hard. COMPRESSION.

Some Two-stroke Tips

Sir,—As a regular rider of and agent for Levis two-strokes, I should like to take exception to some of the remarks in your article, "Some Two-stroke Tips," as being entirely inapplicable to the Levis machine, and calculated to give a wrong impression of its performance as a two-stroke.

To my mind the troubles seem to come entirely from one source, viz., petroil lubrication.

Now, in the Levis, the lubricant is led to precisely the spot where it is required to do its work instead of being splashed all over the internal economy of the engine in the hope that some portion, at least, of the oil will find its way to the required place.

Although when driving a new machine I lubricate plentifully, and for the first 500 miles or so keep the engine smoking practically continuously, I have yet to have my first stop for a sooted plug, and I know of customers who have done distances of over 2,000 miles without touching the engine or its accessories for any purpose whatever

It will be found occasionally, if the gap at the plug points is on the small side, that it becomes bridged across by a minute filament of metal, after a run at speed, due, no doubt, to the excessively hot spark produced by the magneto at high rotational speeds, which certainly does cause misfiring, but can be cured by widening the gap.

There is no doubt that, although the petroil system may be cheap and handy, its virtues end there.

A.M.I.E.E.

Oildag.

Sir,—Perhaps my experience with Messrs. Acheson's Oildag may tend somewhat to allay "H.W.K.'s" fears as to the advisability of continuing its use. I have used Oildag in my J.A.P. engined Morgan for a distance of about 7,000 miles and have derived the following advantages from its use:

1. The engine does not gum up as much when standing, and is, therefore, easier to start from cold without priming.
2. Reduction in carbon deposit. I run about 3,000 miles before dismantling cylinders, and then find only a very small amount.
3. 50% reduction in oil.

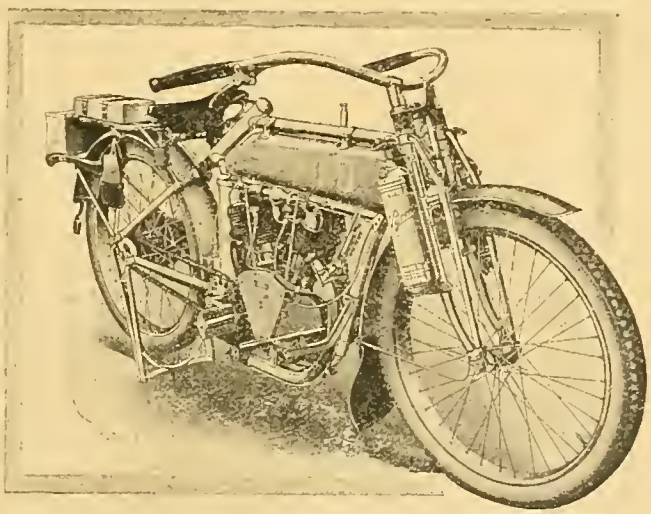
Before using Oildag I gave a pump every five miles, and if I missed a charge the engine soon reminded me. With Oildag I give one in ten, and the engine certainly does not appear to miss a charge as much now as it did when I oiled one in five without Oildag. With regard to wear on bearings caused by its use, I can only say that when last my engine was dismantled there was no undue wear in any of the engine bearings. W. J. VICKERY.

Overheating of Motor Cycle Cylinder.

Sir,—At the beginning of this year I purchased second-hand a 3½ h.p. three-speed sidecar combination. Whether or no the "load" was more than the engine was intended to pull I cannot say, but on every occasion when out for a ride I was troubled by the overheating of the cylinder.

At the beginning I attributed this to my lack of experience in driving, etc., but found that more experienced riders had, with my cycle, the same difficulty. The advice tendered, in books and by friends, was tried, but proved, in my case, unavailing, and as a last resort I determined to adopt a suggestion, namely, that the "grooving" of the piston rings might be of advantage.

I had this carried out, and since then have had no trouble whatever from the above cause. My engine not only keeps cooler, but, probably as a result of its coolness, pulls much better. As the remedy seems to me to be a new and unique one, I thought I would like the opinion of other readers upon it FRED WARBURTON.



A specially-equipped motor cycle for service in an American fire brigade. It will be noticed that, in addition to two fire extinguishers on the forks, a hatchet and surgical appliances are carried at the rear. The machine itself has an exhaust whistle

Standardisation of Controls.

Sir,—May I, through the medium of your columns, express my opinion on the above interesting subject. Whilst I greatly favour the handle-bar control for both carburetter and magneto, as suggested by your correspondent, A. Statham, I must say my views of the clutch control are quite the opposite to his. I think the foot-operated control for the clutch is the ideal control, especially in traffic; for, what with the carburetter, magneto, exhaust, horn, and the change speed, combined with the steering, a rider in traffic will find the foot much easier to use, instead of adding to what at present, I think, is quite a handful.

CHARLES BURKE.

Mudguarding.

Sir,—As a patentee of devices to improve the cleanliness of motor cycles, I have read with interest "Ixion's" remarks upon weatherproofing. He states, "It took me three hours to get my mount and my clothing really clean that night because I could not apply a hose." I ask, why apply a hose, especially to oneself? The proper place for mud is on the road, not all over the machine and rider. Obviously, wheels revolving in mud must throw it far and wide, and if it is wished to restrict its damaging effect it must be confined to the wheels by mechanical means and conducted back to the road. With a single track vehicle like the motor cycle the engine and rider are placed in the position to receive the whole of the bespoiling mud put up by the front wheel. With the back wheel the machine runs from the mud thrown, and beyond the spray thrown getting upon the rider's back and hair, choking the carburetter and causing belt slip, no mischief occurs. Perhaps this is enough.

The writer went through "Ixion's" experience years ago, and came to the conclusion that there was but little pleasure in a fifty-mile ride with three hours' labour at the finish, and, as the time of year producing the muddiest roads is when the country side is at its best and riding most invigorating, therefore not only enjoyable but beneficial, the necessity of efficient mudguarding was made clear.

Four years' work since, with 10,000 miles testing, has produced three patents giving the weatherproof machine—that is, a machine on which one can ride a hundred miles in any weather to a friend and enter his house by the front door at once. This is only got by departing from pedal-cycle mudguarding made a trifle larger, as generally used by motor cycle manufacturers. The motor cycle now, with its great pace, is far removed from the pedal-cycle, and nothing but radical alterations can give cleanliness.

One point is of the utmost importance. Forks must be made wider, and the back stays also, to permit mudguards to pass, giving an inch clearance each side of the tyre.

F. WAIGH.

An Appreciation of a Heavyweight.

Sir,—As one rarely, if ever, sees any article published on the heavyweight motor cycles of the present time, especially as solo machines, I feel that perhaps the experiences of, and the data gathered by, a rider of such a machine might be of interest to readers of your paper.

The machine in question is the 8-10 h.p. two-speed, four-cylinder Henderson. This does not pretend to be anything but a heavyweight, and therefore nothing has been taken from the design of any part to reduce weight; consequently, each piece is amply and solidly made, thereby absolutely eliminating all those annoying rattles, and the continual necessity for adjustments, so prevalent on many modern machines.

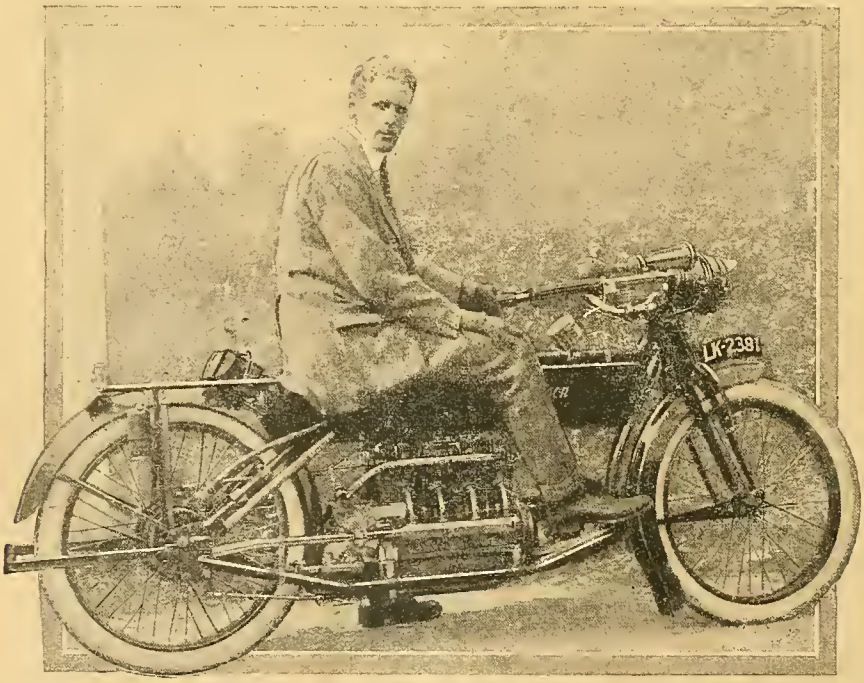
The most wonderful part of the machine, however, is its balance. The moment it moves, even at two miles an hour, the rider can put both feet up and carry out any manœuvre he wishes without the least difficulty, the engine turning over evenly and quietly. It is no exaggeration to say that, with the exception of reversing, a rider of a Henderson can do anything that a high-powered modern car can do, either running slow through traffic or at high speed in the open.

The machine which I have, and ride solo, was bought by me this summer. It has now covered over 2,000 miles, and up to date has not had one involuntary stop on the road, nor has it cost one penny for repairs or replacements of any sort. I have kept a careful account of every drop of oil and petrol used since the first day I used it, and the result works out to the consumption of eighty-nine miles to the gallon for petrol, and one thousand two hundred miles to the gallon for oil.

The machine is geared 4½ to 1 on top gear, and on this will run at seven miles an hour with throttle closed, and sixty-eight miles an hour with throttle open. From a standing start it will accelerate to sixty-one miles an hour in two hundred yards without being forced, and will take Westerham Hill on top at over fifty miles an hour, or at fifteen miles an hour if wished. I only use the low gear for dead slow running in emergency, and have never found any main road hill which it will not take on top gear, even at slow speed. Recently I had the engine entirely down for inspection and cleaning out carbon, and found every part inside in perfect condition with no sign of wear. I have had the valves out twice for inspection since I bought the machine, but in neither case did any of them require grinding.

As to the usual idea that an air-cooled four-cylinder engine overheats, I may mention that I have never had this occur. Moreover, the nickel plating of the cylinders of my machine is still white and not even discoloured. Another point in favour of the Henderson is its extreme cleanliness, the engine always looking bright and smart, and the entire absence of creeping or dripping oil on the crank case being very noticeable. With a good fitting tyre security bolts are quite unnecessary, owing to the even turning effort of the engine, and 5,000 miles should be quite an average for a good back cover. Taking all the above-mentioned points into consideration, I think that the most critical person must admit that the initial price is not unreasonable.

P. F. W. BUSH.



P. F. W. Bush, a heavyweight enthusiast, who relates his experiences with an 8-10 h.p. Henderson for the benefit of readers.

Removing Flywheels.

Sir,—A useful Douglas tip from Mr. A. V. Hughes appears in your November 5th issue. Will someone give us another on the best way to remove the flywheel without investing in a special flywheel remover?

H.A.C.

QUESTIONS & REPLIES

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Pistons Too Heavy!

Since I had my 1911 V.S. Peugeot twin fitted with new pistons, rebored, etc., vibration is more than it used to be, and at one certain speed very bad indeed. The pistons are much heavier than the old ones, and I have drilled and cut down as much as I dare. The machine has done 3,000 miles since repair. Will it spoil the cylinder if I turn all the skirt off each piston—A.M.

We should not advise you to turn off the base of the piston unless it be a very long one. The bearing surface of the piston should have a minimum length equal to the bore of the cylinder. It would be preferable to fit new and lighter pistons if it is found to be impossible to lighten your present pair further.

A Suitable Gear for Sidecar.

I have been specially interested in two articles in a recent issue of *The Motor Cycle*, and shall be glad if you will kindly advise me on two points. (1.) I have had a good deal of trouble with sparking plugs of the non-cleanable type. Can you recommend an English plug that takes to pieces for cleaning? (2.) *Apropos* of your correspondent "Single Cyl.'s" contribution, what gear is likely to give the best results on a 5 h.p. J.A.P. twin and sidecar for ordinary touring work? I have noticed the phenomenon pointed out by your contributor, *i.e.*, that increased engine power does not—as I am geared at present—give proportionate increase of speed. As I am at present a "child in these matters," I have found your excellent paper a most useful source of information on all subjects connected with motor cycling.—H.P.B.

There are several makes of English plugs with detachable insulators. Try the Forward, Sphinx, or E.I.C. Having driven a 5 h.p. twin J.A.P. and sidecar during the past year, and, after considerable experimenting, we found that a gear slightly below 4½ to 1 was the best all-round gear with a three-speed hub. Of course, it should be lower than this for a single-geared machine, say 5¼ to 1 to ¾ to 1. It depends, of course, on the weight of the sidecar and passengers, the amount of fittings, etc., but the above ratios will be found satisfactory under most circumstances.

Sidecarriers and Taxation.

Are the motor cycles with commercial sidecars exempt from Inland Revenue tax?—T.B.

Sidecarriers should be exempt from the Inland Revenue tax, as the reading of the exemption is: "Any vehicle which is constructed or adapted for use, and is used solely for the conveyance of any goods or burden in the course of trade or husbandry, and whereon the Christian name and surname and place of abode or place of business of the person, or the name or style of principal place of business of the company or firm keeping the same, is visibly painted in letters not less than one inch in length." If, however, you use the bicycle apart from the carrier or for pleasure purposes, it is necessary to pay the tax.

Sidecar Alignment.

Please give me some hints as to fitting a sidecar correctly. I am troubled by the back tyre of the cycle pulling off when turning to the left; this has occurred no less than five times.—C.C.

The sidecar axle should be as nearly as possible in line with the rear wheel spindle; if anything, the sidecar wheel may be 2in. to 3in. in front. It is not advisable for the passenger to sit far behind the sidecar axle; in fact, if possible, the weight should fall slightly in front of this line. At the same time, we should advise you to examine your sidecar connections and see that there is no unexpected play in them, taking particular notice of the stay from saddle-pin to sidecar axle. If there is any tendency on the part of this joint to telescope, it should be prevented at once. Further than this, it is almost impossible to advise you without inspecting the machine. You might check the alignment of your wheels, as this, of course, is an important point, and might be the cause of the trouble. Your sidecar wheel should, of course, be parallel with the motor cycle wheel, or, if anything, point very slightly inwards towards the front wheel.

Water in Carburetter.

I have lately bought a new 2¼ two-stroke, and it has given trouble by firing back through the carburetter; this only happens occasionally. It is also uncertain in starting. I might say that I have had the carburetter down and cleaned it and have found a few spots of water and grit in it.—E.R.S.

The water and grit in your carburetter, especially the former, would be quite sufficient to cause the trouble you mention. If, however, its removal does not cure the back-firing, we should advise you to take off the cylinder and clean the piston rings, which may have become stuck.

A NOVEL HILL-CLIMBING TEST.

A 3½ h.p. Ariel, driven by the Ariel Italian representative, climbing and descending a flight of 97 stone steps in Rome. The machine is a standard touring model Ariel with three-speed countershaft gear. The feat was witnessed by a crowd, and was also duly recorded by the cinematograph.

Three-speed Gears.

(1.) I have been thinking of fitting a three-speed gear of the hub type to my 1913 2½ h.p. Levis, although Butterfields, Ltd., recommend a counter-shaft gear. Shall I obtain satisfaction from an Armstrong Mark VII., and is it to be preferred to a Mark VI.? I may say that I own a three-speed A.J.S. and have owned a two-speed A.J.S., and am doubtful if a hub gear will be as reliable. (2.) I wish to have as high a gear on top as possible. Would 4 to 1 be too high, or not?—P.L.H.

(1) We have had excellent results from the Mark VII. Armstrong gear on two machines, and you should have no trouble with this type on a 2½ h.p. two-stroke. On the other hand, if the makers state that a different gear is more suitable to their particular machine, we should advise you to fall in with their advice. The Mark VII. gear is an infinitely stronger hub than the Mark VI., but is, of course, somewhat heavier. (2.) 4 to 1 would be rather a high gear for the machine in question, unless you are prepared to use the middle ratio to a fairly large extent. You can do more harm to the average motor cycle engine by overgearing it than by almost any ordinary driving.

Compression Ratio.—Lubrication.

(1.) I have a Triumph two-stroke motor cycle, and would like to know if a packing put between the cylinder and the crank case, in order to reduce the compression ratio, would be likely to interfere with the proper opening and closing of the ports. I propose reducing the compression ratio during the winter, as I understand that the engine will run more sweetly, and imagine this would mean greater stability on greasy square sets. I do not mind sacrificing power temporarily, as all my riding in winter time is done within the city limits. (2.) I have been recommended to use a pure mineral oil for my engine. Four fills of the measure provided with the machine are supposed to be mixed with every gallon of petrol (proportion one to twelve). Could I safely use, say, three measures of oil to one gallon of petrol? I do not want to experiment with my engine to find the least quantity it will do with, as I am afraid of worn bearings, etc. I understand that the less oil used, the less carbon deposit will result, and this is rather an important matter with "petroil" lubrication. There would probably also be less chance of the upper piston ring seizing in its groove.—OILE.

(1.) If you place a washer below the cylinder it will quite alter the port openings, as both inlet and exhaust and transfer port will open earlier and close later. A thin washer would not make very much difference, though the machine would produce less power, and would waste considerably more fuel. The only way to reduce compression with a two-stroke is to machine a small amount out of the cylinder head or off the back of the piston, and we do not recommend your attempting to try this. The compression on the engine you mention is not unduly high, and we should advise you to leave it as it is. (2.) The Triumph Co. recommend Prices' Motorine C, and in this connection we would remind you that the selection of lubricant is of first importance to two-strokes, especially those that use the "petroil" system, and it is unwise to go beyond the makers' advice, for you may be sure that they have experimented with all kinds of oil in order to obtain the best all-round results. Do not attempt to cut down the supply unless you are suffering from constant smoking and over-lubrication.

Valve Seatings.

I am in the possession of a 3½ h.p. single-cylinder motor cycle, 1913 pattern, that has the exhaust seating worn in a hollow. The garage people inform me that it is impossible to get it right and that it was caused by excessive grinding in of the valve, and, furthermore, that it would require a new cylinder. Would you be good enough to inform me if this is so, as I am hardly prepared to accept this statement as correct, as it appears quite a simple operation to grind this seating?—X.Y.Z.

There should be no difficulty in facing down the top of the valve seat on your machine (a special tool is sold for the purpose), provided it is not worn so low that too thin a layer of metal is left. It will not be possible to machine the whole of the bottom of the port, but a circle of about ⅛in. bigger radius than the valve head should be possible. You must be losing a very large amount of your valve efficiency if the seating has sunk to any appreciable degree.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"S.F.H." (Birmingham).—4-5 h.p. four-cylinder F.N. Reliability and cost of upkeep.

"T.R.M." (Lancs.)—T.T. 3½ h.p. Norton, Triumph, and A.B.C. Speed and reliability.

"G.H.H." (Manchester).—Velocette two-speed. Reliability, fuel consumption, speed, and chain drive.

"E.P." (Doncaster).—Brampton variable gear for 3½ h.p. Triumph. Wear of belts, reliability, and general efficiency.

"J.G.T." (Dublin).—7 h.p. Indian two-speed, spring frame. Reliability, economy, hill-climbing, speed and consumption with sidecar.

"H.S." (Durham).—Philipson hand controlled pulley with two-speed sidecar combination. Also reliable aluminium solder and maker's name.

"T.A.B." (London).—James two-stroke, Invicta and Royal Ruby two-strokes. Wearing qualities, cost of renewals, silence, wear of chains and belts, consumption, and hill-climbing powers.

Harry Reed (maker of the Dot motor bicycle) in a new rôle. He is seen leading a company of the Athletes' Defence Corps, now in training at Belle Vue Gardens, Manchester.

MOTOR CYCLES FOR SALE.

Bat

1913 8h.p. Bat and Racing Sidecar, with overhead valves, just overhauled, in perfect condition; 38 gns., great bargain.—Julian, Broad St., Reading. 43 years' reputation. [X3722

BAT-J.A.P., late 1913, 7h.p., 2 speeds, coachbuilt sidecar, speedometer, electric hooter, only done 2,000 miles, good as new; genuine bargain, £60.—F.S.S., 67, Pall Mall, Leigh-on-Sea. [9061

Bercley.

BERCLEY, 5h.p. vertical twin, U.H. mag., tyres good; nearest £20.—Further particulars, photo, etc., Timms, 82, Walton St., Oxford. [9166

Bradbury.

£4.—3h.p. Bradbury (accumulator), in good running order.—Jones, 18, Benjamin Rd., Wrexham. [X3688

BRADBURY, 1912, 3½h.p., Bowden 2-speed gear; £29/10; exchange.—Collier's Motories, Halifax. [0445

BRADBURY, 1911-12, T.T., since re-enamelled, accessories; £21.—5, Devonshire St., Islington, London. [9002

BRADBURY, 4h.p., 1912, free engine, all accessories, splendid condition; £25.—Murray's, 37a, Charles St., Hatton Garden. [X3794

BRADBURY Lightweight, mag., good tyres, low, recently overhauled; £9/10; exchange offers.—69, Cambridge Rd., Kilburn. [9102

BRADBURY, 1913¾, 4h.p., 2-speed, kick starter, done 4,000, sidecar, just overhauled makers; offers over £30.—108, Manor Rd., Brockley. [9055

T.T. Bradbury, 1911, 3½h.p., free engine, Harcourt radiators, lamp, horn, complete kit, spares, reliable; bargain, £20.—Apply, Heath, Farm, Dartford. [9058

1913¾ Bradbury, 4h.p., 2-speed, free engine, coachbuilt sidecar, lamps, horn, generator, and all spares, splendid condition; £40.—P. Nelson, 24, Hamilton St., Cardiff. [X3743

Brough.

BROUGH, marvellous motor cycle, nothing else like it.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [0581

Brown.

BROWN, 3½h.p., complete with wicker sidecar; bargain £13.—Premier Depot, 20, Holborn Viaduct. [9157

BROWN, 1912, 3½h.p., and sidecar, 3-speed Sturmey-Archer, h.b.c., spares, and accessories, just overhauled; £32 · sell separately.—Stow, 107, Gowan Av., Fulham. [9150

B.S.A.

B.S.A., 1915, 4½h.p., model K, for immediate delivery. —B.S.A. Agents, The Morris Garages, Oxford. [8746

B.S.A. Counter-shaft 3-speed, chain-cum-belt, latest model, ridden 50 miles only; £55.—Macdonald, Ely, Cambs. [X3701

3½h.p. B.S.A., 1911-12, like new, £3 worth of accessories and spares; gift, £22.—Worwick, 80, Dorset St., Leicester. [X3793

B.S.A., late 1914, 3-speed, chain drive, white basket sidecar, F.R.S. lamp; cost £78, sell £53.—Teall, Colmore Row, Birmingham. [X3693

B.S.A., 3½h.p., 1912¾, 2 speeds, free engine, and coachbuilt sidecar, good condition; £35.—Kennison, Harvey Rd., Walton-on-Thames. [9052

B.S.A., 1912, 3½h.p., T.T. roadster model, had careful usage, excellent order, Miller lamp set, Lucas horn; £25.—Layton's, Bicester, Oxon. [X3811

B.S.A., 1915 models in stock; call and inspect; exchanges, easy payment terms.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0596

B.S.A., 2-speed, fitted with Canoelet sidecar, hood, screen, all accessories appearance as new; £50.—Colmore Depot, 49, John Bright St., Birmingham. [X3682

B.S.A., 1914, model H, 4h.p., 3-speed counter-shaft gear, shop-soiled only; catalogue price £63, Layton's cash price £52/10.—Layton's, Bicester, Oxon. [X3812

B.S.A. 1915 Models, ready for immediate delivery; twenty second-hand combinations between £20 and £40 wanted in part paymeat.—The Walsall Garage, Walsall. [X2963

B.S.A., 1914, 3½h.p., 3-speed countershaft gear, and sidecar, speedometer, all accessories; sacrifice, £48; seen by appointment.—Lunnon, 2, St. George's Parade, Golder's Green. [9145

Calcott.

CALCOTT, late 1912, 2¼h.p., excellent condition, B. and B., h.b.c.; £24, or offer.—A. Giles, Dockeng, Norfolk. [9141

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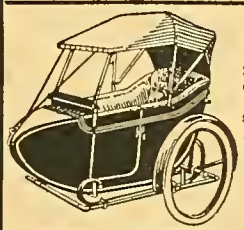

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6 h.p. **EXCELSIOR** Big Single, 2 speeds ..	£35 0
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6 h.p. **REX** and Sidecar, free engine	£16 10
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Calthorpe.

2h.p. Calthorpe-Precision 2-speed Motorcyclette, complete with horn, tools, etc., very little used, perfect order; very cheap to run; £19/10.—Box L6,465, *The Motor Cycle* Offices, 20, Tudor St., E.C. [8868

Chater-Lea.

3½h.p. Chater-Lea, low, coil ignition, variable pulley, good condition; £10, nearest.—G., 60, Elmar Rd., Tottenham. [X3660

Chater-Lea-Fafnir.

3½h.p. Fafnir-Chater-Lea, spring forks, Bosch, B. and B., h.b.c., low build, recently overhauled and enamelled, excellent going order; bargain, £15, or offer. —J. Marshall, Ashford Hill, Newbury. (D) [X3654

Clyno.

CLYNO 5-6h.p. Twin, 2-speed, good condition; £29.—Premier Depot, 20, Holborn Viaduct. [9158

1912 Clyno Combination, overhauled and re-enamelled, Pedley 2½ tyres, nearly new; £28/10.—Flower, Harpenden. [X3719

1913 6h.p. Clyno Combination, 3 speeds, chain, kick start, run 900 miles; £49.—Bleacathra, Highfield Rd., Walton-on-Thames. [X3825

CLYNO, 1912, 5-6h.p., 2-speed model, with Michelin and Kempshall tyres, chain drive, thoroughly overhauled; £30.—The Morris Garage, Oxford. [9173

CLYNO 1914 2-stroke Lightweight, practically new, guaranteed perfect, powerful and reliable, solo mount; £24.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0551

Connaught.

1914 2-stroke Connaught, done 500 miles only; £25 —Foulkner, Gilbertthorpe St., Rotherham. [X3785

CONNAUGHT, 1914, T.T., uncratched, unpuncatured, very fast; £28/10.—Owner, Deepdene, St James Rd., Sutton. [9090

1914 Connaught 2-stroke, cost £33/10, in every respect as new, fitted with Michelin tyres, horn, etc.; 22 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3728

Dayton.

DAYTON 2-stroke De Luxe, new July, little use, lamp, horn; £18.—Philpot, Canterbury. [X3585

DAYTON, 1½h.p., Model de Luxe, run 600 miles, perfect condition; £18.—H. Wood, Meadowbrook Rd., Dorking. [9045

De Dion.

DE DION, 3h.p., in perfect running order; £5/5 —Longman, 1, King St., Acton. [9071

Douglas.

DOUGLAS, 1915 models, for almost immediate delivery.—The Morris Garages, Oxford. [0617

1915 Douglas.—Book with us. Immediate deliveries —Clifford Motories, Eastwood, Notts. [X3791

DOUGLAS, 1914, 3½h.p., only done 200 miles; £54 —Browne, 168, Brompton Rd., London. [9061

DOUGLAS; all models supplied, cash or easy terms.—Turpins, 22 and 29, Preston Rd., Brighton. [0509

DESPATCH Rider's Douglas Motor Cycle, in use 3 days only; 40 gns.—Chilton, High St., Wotford [X3804

DOUGLAS, 1911, just overhauled, excellent machine throughout; £18/10.—W. P. Edwards, Taunton. [X3574

DOUGLAS, 1911, 2-speed, free engine, good condition, accessories; £17.—Freeman, Germain St., Chesham. [9062

DOUGLAS, 1915.—Book your order now to prevent disappointment.—Motor Exchange, Westgate, Halifax. [0388

DOUGLAS, 1914, T.T. roadster model, quite new but slightly shop-soiled; £44.—Layton's, Bicester, Oxon. [X3813

DOUGLAS, all models for immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt Portland St., W. [6610

DOUGLAS, 1914, T.T., lamp, horn, perfect condition; owner on active service; £35.—Apply, Hewson, Cannock, Staffs. [X3328

DOUGLAS.—War Bargain.—1914 T.T., 2 speeds, new July, fine condition, last; £39.—Brooklands Paddock, Weybridge. [X3587

DOUGLAS, 1911, 2-speed, fine condition, footboords, accessories, etc.; bargain, £19/10.—29, Annandale Rd., Chiswick, W. [9060

1914 Douglas, 2¾h.p., 2-speed, U, perfect condition, hardly used; £38.—Dovaston, 107, Penny Lane, Wavertree, Liverpool. [X3746

1912 Douglas, 2-speed, footboards, just overhauled, new cylindere and pistons; any trial; £30.—194, Oxford Rd., Manchester. [X3845

1914 Douglas, model W, perfect, speedometer, accessories, spares; any trial; £42/10, offers.—185, Markhouse Rd., Walthamstow. [9034

DOUGLAS, 2¾h.p., 1911, 2-speed, free, clutch, new tyre and belt, splendid condition; £21.—Strachan, Thatched House, Leytonstone Rd., N.E. [9036

1914 Douglas, model W, 2-speed, free engine, clutch, kick starter, accessories, and spares, splendid condition; £41.—Hule, Garage, Campbeltown. [X3691

MOTOR CYCLES FOR SALE.

Douglas.

ARMY Cyclists.—Advertiser will exchange regulation 2¾h.p. Douglas, 1914, for higher powered cycle, or sell £40.—James Aman, Formosa, Surbiton. [X3220

DOUGLAS, 2¾h.p., 1911 model, P. and H. lamp set, horn, Dunlop belt, splendid condition; £18, bargain.—Murray, 37a, Charles St., Hatton Garden. [X3795

DOUGLAS, 1913, 2-speed model, just overhauled, enamelled, and plated, very fast, complete with accessories; £52/10.—A. Holland, Clarendon St., Coventry. [X3847

DOUGLAS Agents in England.—Models A and B in stock; delivery of any 2¾h.p. models instantly; trade supplied. T.A.: Bicycles. Tel.: 388.—Robinson's, Green St., Cambridge. [6864

1914 2¾h.p. Model V T.T. Douglas, new Dunlop studded covers, Dunlop belt, Brooks B130 saddle, rubber knee pads, P and H. lamp and horn, Amac carburetter; £39.—Robinson's, Green St., Cambridge. [6866

DOUGLAS Motor Bicycles.—We are still in a position to give immediate delivery of all the latest pattern 2¾h.p. and 3½h.p. models; trade supplied. T.A.: Bicycles. Tel.: 388.—Robinson's, Green St., Cambridge. [6865

1914 Douglas, 2-speed, free engine, absolutely as new, fitted with large head light, Hutchinson tyres in good condition, good kit of tools; 37 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3726

DOUGLAS, late 1912, 2-speed model, kick start, clutch, footboards, Kempshalls, P. and H. lamp, Cowey speedometer, new belt, tools, and accessories, perfect order; owner on foreign service.—H., 62, Granville Park, Lewisham [8863

2¾h.p. Douglas, late 1912, specially overhauled last September, excellent condition, complete with lamp, horn, tools, and usual accessories, insurance (available until May, 1915), transferable; accept 29 gns.—Box L6,499, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0622

Enfield.

ENFIELD, 2¾h.p., 2-speed, 1913; £30, or offer.—Price, 57, Wellington Rd., Bridgwater. [9030

6h.p. 1914 Enfield Combination, coachbuilt sidecar, tyres good, machine perfect, little used; £62.—Walker, Fishburn, Ferryhill. [X3826

ENFIELD Combination, 1913, 6h.p., cane sidecar, Dunlop tyres, guaranteed; special bargain, £50.—The Morris Garages, Oxford. [9174

1915 Royal Enfield Sidecar Combinations on offer for cash, or exchange; delivery from stock.—Wanchope's, 9, Shoe Lane, London. [X3797

ENFIELD 1914 6h.p. Combination, perfect condition, 3 lamps, horn, electric horn, Al'all bucket saddle; cost £92, accept £70.—A. Lewis, Tetbury, Glos. [X3579

3h.p. Twin 1914 Royal Enfield, 2-speed gear, free engine, new condition, done 600 miles; cost £52/10, accept £37.—Whittaker, 53, New Bank Rd., Blackburn. [X3772

ENFIELD, 6h.p., July, 1913, perfect, all accessories, F.R.S. lamp, Turner coachbuilt sidecar, screen; £48/10.—Hughes, 63, Kingswood Rd., Moseley, Birmingham. [X3767

ENFIELD 6h.p. Combination, 1912, in perfect condition, all spares; cost £90; must sell, money wanted; £39, or best offer.—Burn, Hollyhurst, Holly Hedge Rd., West Bromwich. [X3744

1914 Royal Enfield 6h.p. Combination, new last May, complete with accessories, puncture proof bands, F.R.S. head lights, electric tail light; £65.—G. Teasdale, Chilton, Ferryhill. [9029

1912 Royal Enfield, painted grey, plating and enamelling good, just overhauled, tyres in good condition; 22 gns.—Julian, Broad St., Reading. 43 years' reputation [X3724

1913 Enfield Combination, engine and gears guaranteed perfect, coachbuilt car with wind screen, Lucas lamp and horn, tyres new; cheap, £60.—Colmore Depot, Colmore Row, Birmingham. [X3663

ENFIELD 1914 6h.p. Coach Combination, screen, Watford trip and watch, large F.R.S. set, Lucas hooter, electric side and gas tail lamps, tyres perfect, whole outfit as good as new; £65, cost £100.—58, Bridport Rd., Thornton Heath [9147

Fafnir.

FAFNIR, overalls, spare tyre, belt, tools; best offer—Full particulars, Quickly, 29, St. Mary's Rd., Faversham. [X3765

F.N.

1911 F.N., 5-6h.p., 4-cyl., perfect; best offer over £14.—Isherwood, Grocer, George St., Bolton. [X3776

F.N., 4-cyl., 5-6h.p., 1911, clutch, new tyre, new coachbuilt sidecar, large Miller lamp £30.—Auto Mart, 133, Hammersmith Rd., W [9143

F.N., 4½h.p., 4-cyl., bevel drive, Bosch mag., B. and B., h.b.c. carburetter; £12.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9190

1914 F.N., 4-cyl., 7h.p., horn, lamp, tools, also Purcell's double seated coachbuilt sidecar, both new July, done 1,000 miles, excellent condition; price £80, or near offer.—Box L6,498. *The Motor Cycle* Offices, 20, Tudor St., E.C. [9039

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Hazlewood.

3½h.p. Hazlewood, J.A.P., 1913½, Armstrong gears, new condition; £40; exchange higher power; will give cash.—Bolland, Easingwold, Yorks. [9013

Hobart.

1914 2¾h.p. Hobart, free engine, 3-speed gear, new; £37.—Taylor, Old Church Rd., Whitchurch, Cardiff. [X3745

Humber.

2¾h.p. Humber and sidecar; £9, or nearest offers.—J. T. Hick, Sherburn, York. [X3710

HUMBER, 1911, 3½h.p., 2-speed; £17/10.—Moss, 1 St. George's Mews, Primrose Hill. [9137

HUMBER, 3½h.p., late 1911, 2-speed gear, Millford sidecar, complete with accessories; £25.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0597

HUMBER, 3½h.p., 2-speed, and free engine, Lucas lamp set, tyres, platiog, and everything perfect, with coachbuilt sidecar; any trial; bargain, £22/10.—Fearn, Drapery Stores, Alfreton. [8876

HUMBER, 1913, 2¾h.p., twin lightweight, 3-speed Armstrong gear and clutch, good condition throughout, accessories complete; £25.—Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0479

Indian.

1915 Indians, 5 models; earliest deliveries; order now to avoid disappointment.—Turner's, Indian specialists, 185, Markhouse Rd., Walthamstow. [9033

1913 Indian Combination, excellent condition, all accessories; £55; would take 1914 Douglas part payment.—Shuter, 28, Lisson Grove, N.W. [9004

INDIAN, 1915 models; earliest deliveries; cash or easy payments.—Best terms from Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0600

1914 Indian, 7h.p., T.T., clutch model, only done 100 miles; too powerful for owner; speedometer, etc.; sacrifice £40; must sell.—49, Mile End Rd., London [9121

DECEMBER, 1912, 2-speed 7h.p. Indian, with Millford cane sidecar, lot of spares, just overhauled; sacrifice £35.—Gollings, Norfolk St., Peterborough. [X3770

INDIAN, 1914, special model; list price £80, shop-soiled; £70.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0604

1910 5h.p. Indian, P. and M. gear, with good sidecar, new 650×65 wheel and tyre, also handlebars; £24 the lot in exchange for 2-stroke.—Canney, Meltham, Huddersfield. [X3831

INDIANS, 1914, shop-soiled bargains; standard £70 model, accept 60 gns.; Road Racer, list £59, accept £49; fully guaranteed. — P. J. Evans, John Bright St., Birmingham. [9084

INDIAN, 1914, 7h.p., 2-speed, standard model, with complete electrical equipment, speedometer, etc., new September last, perfect throughout; private owner accept £55.—Seen at The Morris Garages, Oxford. [9169

INDIAN Combination, late 1912, 7-9h.p., 2-speed, kick starter, speedometer, all accessories, just overhauled, splendid condition, large cane sidecar, underslung, 4-point; price £45.—Galloway, Alsager, Stoke-on-Trent [X3839

1914 Indian, 7h.p., standard, electrically equipped, ridden solo only, new July, perfect condition, new heaviest Kempshall fitted; only reason for selling, enlisted.—H. Newman, 381, Brixton Rd., London. [9148

1913 Indian (red), and sidecar, 7-9h.p., 2-speed, free engine, 28×3 Kempshalls, good, fast, powerful, guaranteed faultless, 5-point sidecar, Lucas accessories, bargain, £47; exchange 3½h.p. and cash.—17, Fore Sq., Oxford St., Mile End. [X3817

1913 (late) 7h.p. Indian, 2 speeds, clutch, kick-starter, engine and gears perfect, used about 2,000 miles, back tyre new, heavy Kempshall front, studded, horn, lamp, generator, tools, enamel as new; bargain, £40.—King, Stapleford, Cambs. [X3848

1914 7-9h.p. Hendee Special Model Indian Sidecar Combination, electric starter and lighting, fully equipped with speedometer, tools, etc., Mills-Fulford de Luxe body, splendid condition, very little used; cost nearly £100, bargain at £65.—M.R., 21a, Store St., W.C. [4829

INDIAN Motor Cycle, 7h.p., 1914 model, fitted with Mills-Fulford coachbuilt sidecar, completely equipped with electric lighting set and electric self-starter, electric horn, speedometer, tools, etc., hardly been used; owner on active service; price £80.—The Premier Garage, Ltd., Bull Close Lane, Halifax. [9009

Invicta.

INVICTA, 2½h.p., 2-stroke, nearly new; £25, or nearest offer.—R. Webb, Longworth, near Faringdon. [9010

Ivy.

3¾h.p. Ivy-Precision, 3-speed, nearly new; £33.—Grove 224, Fore St., Edmonton, London. [9161

1913 T.T. 2¾h.p. Ivy-Precision, overhead valves, long exhaust, lamp, horn, spares, fast; genuine bargain, £20; trial.—Saunders, Prospect House, Long well Green, Bristol. [X3370

James

1913 James and Canoelet sidecar, 3 speeds, complete Lucas lamps, horn, tools, numbers, etc.; £46.—Cross, Agent, Rotherham. [X3780

MOTOR CYCLES FOR SALE.

Singer.

SINGER, 1914, 4½h.p., free engine, Ivy coachbuilt sidecar; cheap for cash; owner going to the front.—Brown, 6, Dunstable Rd., Luton. [X3740

SINGER, 1914, 2¾h.p., free engine, 2-speed, and clutch, in splendid condition; £32.—33, Wynadale Rd., George Lane, South Woodford. [9019

SINGER, 1913, 3½h.p., 3-speed, with Palmer tyres and Dunlop belt, Barbury coachbuilt sidecar, in very good order, lamp, horn, etc.; £35.—The Morris Garages, Oxford. [9172

Stag.

STILL Running.—Stag, 4½, 5, 5-6h.p. single-cyl. engines; unbeaten for power, durability, price.—Ooly nddress, Buckman and Howard, 18, Canal St., Nottingham. [8571

Sun.

SUN-VILLIERS, 1914, 2½h.p., ridden few times. £20; Baby Levis, £24.—Ricks, Kingfield, Woking. [9125

SUN-VILLIERS, 1914 models, shop-soiled; offers wanted to clear.—Motor Exchange, Westgate, Halifax. [0390

Sunbeam.

3½h.p. Sunbeam T.T. Roadster, quite new; £62, usual price 69 gns.—Cross, Agent, Rotherham. [X3786

SUNBEAM, 1914, 3½h.p., 3-speed, with Gloria coachbuilt sidecar, 3 Lucas lamps, and horn, in beautiful order, just overhauled at Sunbeam works; cost £90, accept £65/10, no offers; buying 2¾h.p. solo.—T. H. Pierce, Victoria House, Abergele. [9067

T.D.C.

3½h.p. T.D.C., 1914, perfect condition; £23, or offer. —Bowers, 36, Norfolk Rd., Seven Kings. [9130

Triumph.

3½h.p. 1910 Triumph, 1912, N.S.U. 2-speed; £20/10.—J. T. Hick, Sherburn, York. [X3708

TRIUMPH, 1913¾, clutch model, shop-soiled only; £33.—Longman, 1, King St., Acton. [9072

TRIUMPH, 1909, splendid machine; must sell £14.—V., 97, Chamberlayne Rd., Willesden. [9043

1911 3½h.p. Triumph, free engine; £20.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9196

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1910	4½	**F.N.**, 4 cylinders, B. & B. carburetter, speedometer, and horn	£15
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1909	2¾	**MINERVA**, lamp, and horn	£10
1911	3½	**BRADBURY**, 2-speed, speedometer, and horn	£24
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TRIUMPH, 1914, 3-speed, T.T., new September, run 500 miles, Kempshall heavy non-skids, good as new; sacrifice; owner at front; £50. — Williams, Y.M.C.A. Buildings, Leicester. [X3705

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TRIUMPH, 3½h.p., late 1909, just been overhauled and re-enamelled, tyres in excellent condition, back nearly new, acetylene lamp and generator, usual tools, etc.; will take £20.—Box L5,014, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0553

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VELOCETTE, 2-stroke, 1915 models in stock; 25 gns. and 30 gns.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

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V.S. 6h.p. Twin, mag., free engine, sidecar, fine order; £19.—Chatwins, King St., Richmond [9149

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A.C. Sociable, 6h.p., perfect condition, hood, screen, speedometer, 4 lamps, horn, spares, front and hack brakes; owner gone to front; trial; price £40.—40, Somerset Rd., Meadvale, Redhill. [9182

SWIFT 7h.p. Cycle Car, 1914 model, new end of July, perfect condition, complete with 2 acetylene side lamps, paraffin tail lamps, Stepney wheel, tools, etc., tyres first-class order; excellent value, £100.—Box L6,487, The *Motor Cycle* Offices, 20, Tudor St., E.C. (P) [9187

7h.p. Morgan, new July, 1914, perfect, any trial, special fitments throughout, speedometer, clock, etc.; first over £80, cost £120; part exchange, 3½h.p. 3-speed considered.—Preston, Park Garage, Brighton. [X297]

9h.p. Aster Cycle Car, 2 cyls., w.c. engine, Solex carburetter, dual ignition, Bosch mag., new stream-body, M.A.B. 4-speeds and reverse, pressure-fed control, foot clutch, brake, and accelerator, also side brake, side steering, scuttle dash, wire wheels, new hood, pump circulation, ready for road; price £45, or exchange considered.—W.N., 48, Bournemouth Rd., Peckham. [9188

1914 Grand Prix Morgan, water-cooled J.A.P., guaranteed in perfect condition throughout, complete with screen, electric side and tail lamps, automatic lubrication, Binks 3-jet, or B. and B., semi-automatic carburetters, spare chains, valves, large quantity tools, etc., foot mats, luggage platform, Klaxon and Lucas horns, 700×80 Dunlops front, 700×85 heavy Kempshall back, all in good condition; any trial and examination given; cost £125, offers.—128, Coltman St., Hull. [X3714

CARS FOR SALE.

5h.p. Humber Landaulet, good hire car; sell; part exchange.—15, Curzon St., Leicester. [X3758

SINGER Light Car, 10h.p., 1914, for immediate delivery; trade supplied.—Rey, 378, Euston Rd. [6612

THE SERVICE BARGAIN LIST.

HAVE YOU HAD OUR NEW LIST (BUFF COVER)?

IF NOT-WRITE FOR COPY

Below we give a few examples of shop-soiled goods at prices which will effect a speedy clearance, as the quantities in each case are strictly limited.

	Our Price.
Dunlop Studded Covers, heavy, 26×2½ only..	17/3
Palmer, 26×2½, heavy fabric, ribbed or studded	21/-

BARNES ACETYLENE LAMPS.

	Usual Price.	Our Price.
21 Acetylene Tail Lamps	6/6	4/9 each.
17 Acetylene Tail Lamps	10/6, 12/6	9/8, 10/9
5 Electric Tail Lamps	10/6	9/6
4 Acetylene Head Lamps, small, 1913 pattern	17/6	14/9
7 ditto, large	20/-	17/3
13 Nickel-plated 1914 pattern Head Lights	20/-	17/3
17 ditto, ebony black	20/-	17/3

GENERATORS.

Several shop-soiled, in ebony black and nickel-plate, at a considerable reduction.

COMPLETE LAMP AND GENERATOR SETS.

	Usual Price.	Our Price.
17 the Nirona and Toneylite Sets, N.P.	21/-	17/6
14 " " " ebony black	21/-	17/6
43 the Celebrated Pasha Self-contained Lamp, in ebony black	12/-	10/3
17 ditto, nickel-plated	10/6	9/3

A visit to our Showrooms will repay intending purchasers, as we have a large variety of goods, both new and second-hand, at bargain prices.

The latest models of **LUCAS, F.R.S., FALLOT and LOW Lamps and Generators** are on show, together with the new **Fluid Pressure Tyre Pump.**

Although leather has advanced 20% in price, we are still supplying the **Celebrated SERVICE BELT** at the following prices. Our belt is acknowledged to be the ideal for winter riding:

⅜in.	½in.	⅝in.	¾in.	1in.	1¼in.	
1/9	2/-	2/3	2/6	2/9	3/-	1st quality.
	1/5	1/7	1/11	2/2	2/6	2nd quality.

Per foot.

The Service Company Ltd. (LONDON)

289, 292 & 293, High Holborn, LONDON, W.C.

Phones—260 Central, 2071 City.
Telegrams—"Admittedly, London."

CARS FOR SALE.

5½h.p. Baby Peugeot, very smart, reliable, economical car; £15.—Palmer's Garage, Tooting.

8h.p. Rover 2-seat., side change speed, very reliable; £35.—Palmer's Garage, Tooting.

10-12h.p. Darracq 2-seat., fast, reliable; £30.—Palmer's Garage, Tooting.

12-14h.p. F.I.A.T. Landaulet, suitable hire, petrol consumption 25 m.p.g.; £175. — Palmer's Garage, Tooting. [9078

ROVER 6h.p. 2-seater, good condition, mag., 5 lamps, Stepney; £27.—Bulbeck, Southborough, Tunbridge Wells. [9113

10-12h.p. Humber, side entrance, double screen, beautiful condition, Stepney; £36.—Washington, Middlewich. [X3783

CALCOTT Light Cars, 1915 models, now ready, in stock; £185.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., Loodon [8852

PHŒNIX, 2-seater, dickey, Bosch, Zenith, 5 lamps, unscratched, perfect order; trial appointment; £58; photo.—34, Queen's Rd., Walthamstow. [9037

16h.p. Gladiator, 4-cyl., 2 ignitions, 5-seat., side entrance; for sale, or exchange for good motor bike.—Pilcher, 184, High St., Herne Bay. [9105

SHOP-SOILED Lagonda, G.W.K., and Victor-Precision light cars, Grand Prix Morgan; cash offers or exchange wanted.—Motor Exchange, Westgate, Halifax. [0488

HUMBERETTE, late 1913, grnod order, fully equipped, very fast and powerful; bargain, £65; good motor combinotion or solo part.—77, Tower Ramparts, Ipswich. [X3834

BUCKINGHAM, 1914, 12h.p., water-cooled, hood screen, lamps, head lights, speedometer, clock, etc., tyres brand now; £95.—Motor Exchange, Westgate, Halifax. [0489

1913 Late Ford Car, 5-seat., 5 detachable wheels, 3 new tyres, paint unscratched, climb owt; any trial; exchange 1915 new combination to value.—A. Clifford, Eastwood, Notts. [X3790

DARRACQ, 14-16h.p., torpedo body, 4-seat., 5 wire wheels, interchangeable, first-class order; price £110, or exchange light car or sidecar combination.—Briggs, 53, Grafton Place, Leicester. [X3754

PHŒNIX 2-seater, twin-cyl., 8h.p. Fafnir engine, Bosch mag., new tyres, going order, any trial, £25; sociable tricar, 5h.p., Aster engine, 2 speeds, bargain, £7.—Apply any evening, 54, Whitbread Rd., Brockley, S.E. [9116

EXTENDED PAYMENTS.

EXTENDED Payments.—All makes supplied; lowest terms.—Service Co., 292, High Holborn, London [0618

ENGINES.

1911 7-9h.p. Rex Engine, pipes, silencer, magneto cradle, complete, perfect condition; £5.—Baxter, 5, Blantyre Rd., Liverpool. [X3801

6h.p. Vertical Twin Fafnir, water-cooled, mechanically operated overhead inlet valves, perfect working order; £12.—Greaves, Birchfield Rd., Redditch. [X3850

2-3h.p. De Dion, £2; 3h.p. M.M.C., £2/10; 3½h.p. Rex, £4/10; 5h.p. N.S.U. twin, £6/10; 5h.p. Rex twin, £5; 6h.p. Rex twin, £8/10; 3½h.p. 2-stroke Rex, £8/10; 6h.p. A.C. engine, £6/10; J.A.P. cylinder, 3½ bore, 30/-.—Murray's, 37a, Charles St., Hatton Garden, Holborn. [X3796

IGNITION APPLIANCES.

BOSCH Magneto, latest, 70/-; B. and B., 17/-; lamp set, 25/-; all new.—Star, 64, Gt. Portland St., London. [9124

ACCUMULATORS Repaired and made as new; work guaranteed; liberal allowances for old cells in exchange for new; lists free.—Richford, 153, Fleet St., London. [1775

BIRMINGHAM.—Magneto Repairs.—Re-winding, re-magnetising, and overhauling promptly executed; moderate charges.—The Electrical Trades Supply, Ltd., 21, Gt. Charles St., Birmingham T.A.: Motors, Birmingham [6967

24 Hours Magneto Repair Service. — All makes of magnetos, coils, or accumulators repaired by experienced mechanics, and returned within 24 hours as efficient as new. Spares for all makes stocked.—Simms Motor Units, Ltd., 191, Wardour St., London, W [0539

MAGNETO Repairs of every description, armature winding a speciality, guaranteed 12 months. Don't pay enormous prices. Having a long experience with the Bosch Magneto Co., we give same guarantee at half their prices. Second-hand and new magnetos in stock.—The Magneto Repairing and Winding Co., 158, Seymour St., Euston Rd., London. [9177

MAGNETO Repairs of every description; we are specialists in this work. Bosch magneto repairs a speciality, re-winding, re-magnetising. All repairs guaranteed. Avoid incompetent tinkerers. All spare parts actually stocked. Catalogue. Large stock of second-hand magnetos. Coils and accumulators repaired. Northern representative for the Eisemann Magneto Co. Send for illustrated booklet.—J. H. Runhakeu, Magneto Specialist, 7, Peter St., Manchester. 'Phone: 6111 City. [0406

BELTS.

BASTONES.—Best quality leather chrome belting, ⅝ 11d., ¾ 1/1, ⅞ 1/2, 1in. 1/4, 1¼in. 1/6 per foot.

BASTONES.—Clearance rubber and canvas belting, best English made, ⅞ 1/-, 1in. 1/3 per foot; Pedley and John Bull belts in stock.—228, Pentonville Rd., King's Cross, London, N. [9081

300 Ft. New 3in. Machine Leather Belting, 1/5 foot; exchange, magnetos preferred.—Grove, 224, Fore St., Edmonton, London. [9162

SPECIAL Line Balata and chrome belts for autumn and winter use, ¾in. 9d., ⅞in. 10d., 1in. 1/-, 1⅛in. 1/2 per foot, post free.—Pollin, V Belt Specialist, Shepherdswell, Dover. [9010

THE Whitchurch Motor Belt, best raw hide, ¾in. 2/3, ⅞in. 2/6, 1in. 2/9, 1¼in. 3/- per foot; made to order.—The Witchurch Motor Belt, 33, Dover Rd. East, Northfleet, Kent. [9178

LAYTONS.—Very special offer, 50 clearance belts, each 7ft.×⅞in., made by the leading English tyre firm, quite new, fastener with each belt; 6/9 each; approval if required.—Layton's, Bicester, Oxon. [X3816

TYRES.

LEGGATE, Edinburgh, for tyre value.

LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Clinchers, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

LEGGATE, Edinburgh.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2¼ 32/6, list £2/7/3; 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10. The Dreadnought is specially designed for passenger machines, is built of 6-ply fabric, and has a tread half an inch thick. An experienced sidecarist says: "Dreadnought is undoubtedly IT."

LEGGATE, Edinburgh.—1914 Clincher De Luxe heavy rubber studded, beaded covers, 26×2⅜in. to fit 2¼ rims, 27/6, list £2/1; 26×2½ 29/6, list £2/2/9. A Cheltenham customer writes: "Your 'De Luxe' tyres are a perfect marvel for value: I bought a 26×2⅜ for 2¼ rim from you a year ago, and it has now covered quite 10,000 miles on my Triumph."

LEGGATE, Edinburgh.—1914 Clincher A Won, heavy rubber studded, beaded covers, 26×2 21/-, list 31/6; 26×2¼ 23/- list 34/-; 26×2½ 23/-, list £2/1/6

LEGGATE, Edinburgh.—1914 heavy Clincher made, rubber studded, beaded edge covers, 26×2 17/6 26×2¼ and 26×2½ 20/-; exceptional value.

LEGGATE, Edinburgh.—Heavy tubes, brand new, guaranteed, 26×2 6/6, 26×2¼ 6/6, 26×2⅜ 6/6, 26×2½ 7/-, worth double.

LEGGATE, Edinburgh.—Above goods are all guaranteed brand new, and sent anywhere on 7 days' approval against cash, which will be refunded in full if goods not approved of.

LEGGATE and Co., Motor Cycle Specialists, 15, Slateford Rd., Edinburgh. [X3762

BASTONES.—Special clearance lines of new Englebert, Collier, and other covers.

BASTONES.—Englebert plain ribbed covers, 26×2¼; 14/-.

BASTONES.—Englebert rubber studded, solo model, 26×2¼; 16/6 (list price 30/6).

BASTONES.—Englebert touring rubber studded, 26×2¼; 19/6 (list price £1/17/6).

BASTONES.—Englebert Passenger, rubber studded, 26×2¼; 25/- (list price £2/1).

BASTONES.—Englebert super reinforced rubber studded, 28×3; £1/19/6 (list price £2/19/6.

BASTONES.—Collier heavy square tread small car covers, 650×65; 23/-.

BASTONES.—Henley oversize covers, heavy, 700×80, fit 650×65 rim; 25/6.

BASTONES.—Midland heavy ribbed and studded, clearance, 26×2¼; 18/6.

BASTONES.—Hutchinson Brooklands rubber non-skid, 26×2, 12/-; ribbed pattern, 26×1¾, 10/6.

BASTONES.—Dunlop heavy rubber studded covers, 26×2¼; 17/6; 1913 stock.

BASTONES.—Dunlop Pillion covers, 1913 stock, 650×65, 22/-.

BASTONES.—Hutchinson passenger 1913 rubber studded covers, 26×2½; 25/-.

BASTONES.—Guaranteed red tubes, 26×2 4/9, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-.—228, Pentonville Rd., King's Cross, London, N. [9080

TWO Old Tyres made into one unpuncturable one; 3/6. —196, Seaside, Eastbourne. [9139

GET Prices for tyres, best goods; lowest trade prices.—City Rubber Co., Peterborough. [8259

CONDITION as New, Liga plain tread cover, 26×2¼, only ridden 60 miles; will accept 15/-.—Box No. L6.155, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0589

TYRES

50% OFF LIST.

SPECIAL CLEARANCE LINES.

	Our Price.	Usual Price.
DUNLOP—		
26 × 2¼ heavy studded	17/6	32/6
26 × 2⅜ „ „	19/6	33/11
650 × 65 Pillion	21/-	50/-
KEMPSHALL—		
26 × 2¼ heavy non-skid	37/6	45/-
26 × 2⅜ „ „	39/-	47/6
26 × 2½ „ „	40/-	50/-
650 × 65 „ „	45/-	67/-
28 × 3 „ „	67/6	77/6
KEMPSHALL—		
26 × 2¼ heavy anti-skid	24/6	32/6
26 × 2⅜ „ „	26/6	37/6
28 × 2½ „ „	30/-	42/-
28 × 3 „ „	35/-	57/6
HUTCHINSON—		
26 × 2½ Passenger	28/-	41/3
26 × 3 for 2½in. Passenger	26/-	44/-
26 × 2½ T.T.	15/-	33/-
24 × 2¼ Brooklands	15/-	23/-
24 × 2½ „	15/-	24/6
26 × 2 T.T., wired-on	15/-	29/3
26 × 2¼ „ „	16/6	31/-
CLINCHER—		
26 × 2¼ Dreadnought	32/6	47/3
26 × 2½ for 2¼in. Dreadnought	32/6	47/3
26 × 2½ Dreadnought	35/6	50/10
26 × 2¼ A Won	23/-	34/-
26 × 2⅜ for 2¼in. De Luxe	27/6	41/-
26 × 2 A Won	13/6	29/-
26 × 2 B grade	12/6	25/-
700 × 80 small car } for 650 × 65 rims	21/6	
700 × 80 tubes } for 650 × 65 rims	6/6	
26 × 2¼ extra heavy tubes	5/9	7/9
MICHELIN—		
26 × 2 light	8/9	14/9
26 × 2¼ heavy standard	18/6	32/-
26 × 2½ „ „	19/6	35/-
HENLEY—		
650 × 80 for 650 × 65 rims	27/-	
ENGLEBERT—		
26 × 2¼ wired-on for F.N. machines	15/-	28/6
26 × 2 „ „ „	12/6	25/-
COLLIER—		
650 × 65 square	24/-	
WOOD-MILNE—		
28 × 3 Grip rib patt. for Indians.	25/-	
ELITE—		
Best Quality Tubes.		
26 × 2	5/-	
26 × 2¼	5/6	
26 × 2½	6/-	
26 × 3	7/6	
Butted extra	1/3	

BELTS.

AVON LYSO—			
7ft. 6in. × ⅞ for Triumphs		7/-	
CONTINENTAL—			
1in. section	foot	1/6	2/2
⅞in. „	„	1/3	1/11
¾in. „	„	1/1	1/7
⅝in. „	„	11d.	1/5
DUNLOP—			
Clearance Line.			
⅞in. section	foot	1/-	1/9½
1in. „	„	1/3	2/1
LEATHER BELTING—			
Service Pattern.			
⅞in. section	foot	1/-	
1in. „ with fastener	„	1/3	

RETREADING.

Special heavy	16/-
Heavy	12/6
Medium	10/-

Sections on application.

ELITE offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE RUBBER Co.,

264, VAUXHALL BRIDGE ROAD, VICTORIA, S.W.

'Phone: Victoria 6553

TYRES.

FOR Sale, two Hutchinson T.T. rubber-studded ne covers, 26×2½, fit 26×2¼ rims, 20/- each; als two ditto passenger, 24/- each.—Rossiter, Draper, King wood, Bristol. [X184

REDFIELD Rubber Co., Bristol (Showrooms, Ty House, Bristol Bridge, Bristol), offer you specia terms for this month. All goods cash with order; days' approval with pleasure. During the whole this year not a single return.

GUARANTEED Rubber-studded Covers, proved t have done 4,000 miles, carrying passenger, 26in ×2in. 16/6, 26in.×2¼in. 18/6, postage 6d. extra.

HEAVY 3-ply Rubber Non-skid Covers, 26in.×2in 19/6, 26in.×2¼in. 21/-.

12 ONLY 26in.×2in. Second-hand Covers, used fo testing purposes only, had slight repairs, 5/- t 10/- each, postage 6d. extra.

20 Second-hand Tubes, 26in.×2in.. 3/6 each.

BRAND New Heavy Tubes, 26in.×2¼in., 5/9 each postage 3d. extra.

MOTOR Cycle Covers, retread heavy rubber-studde tread, 10/-; special tread, suitable for drivin wheels, 12/6; special heavy covers, 4-ply fabric, 2¼in 27/6, 2½in. 32/6 each.

SPECIAL Lines in John Bull, Clincher, Avon, Dun lop, Palmer, all sizes, from 10% to 20% less tha list prices, perfect goods.—Redfield Rubber Co Works: Redfield, Bristol. Showrooms: Tyre Hous Bristol Bridge, Bristol. Tels.: 2107, 3577. [X326

DUNLOP 50/- 650×65 1913 Pillion Covers, 21/- Dunlop heavy 26×2¼, 17/6; round top Dunlo belting, ⅞in. 1/-, 1in. 1/3; Hutchinson 26×2¼ Tourist Trophy, 16/6; Clincher 26×2 A Won, 13/6 heavy non-skid clearance Kempshall 26×2¼ 35/-; ditt 650×65, 45/-; ditto 28×3, 67/6; all Kempshall carriage paid, guaranteed for good mileages.—Economi Tyre Co., 137, Lewisham High Rd., S.E. [917

PATENTS.

PATENT for Straight Through Multiple Jet Carbu retter, giving 140 to 150 miles per gallon o 3½h.p. single, with great increase of power.—Liddel Craiglielea Terrace, Hozier St., Coatbridge. [900

PATENT AGENTS.

G. T. MILLARD, 28, Martineau St., Birmingham specialists in automobile patents. Low charge Enquiries invited. [568

MOTOR Manufacturers, Inventors.—Prepare now fo trade revival by protecting new ideas.—Particulars and advice free.—Kinge Patent Agency, Ltd., 165, Quee Victoria St., London. [581

SITUATIONS VACANT.

WANTED, good all-round man, used to charge motor repair shop as foreman.—Apply, Britis Gregoire Agency, Ltd., 2, Halkin Place, Belgrave Sq S.W. [901

WANTED, motor mechanics, need to repairing ca from top to bottom; no mechanic labourers nee apply.—British Gregoire Agency, Ltd., 2, Halkin Place Belgrave Sq., S.W. [901

BUSINESSES AND PROPERTY FOR SALE, TO BE LET, OR WANTED.

FOR Sale, as going concern, modern motor garag business and high-class showroom, replete worksho fitted with 1914 electrically driven plant, also H.F. va canising appliances, inspection pit, petrol stores, etc electrically lighted throughout; stock and plant a fa valuation approximately £450; most central position i Southport.—For further particulars apply, Fred. Marsh, Chartered Accountant, 13, Hoghton St., Southport. [902

CONSULTING ENGINEERS.

EXPERT Reports.—Purcells send experts to examin machines; 10/6, plus fares.—78, Charlotte St., Fitzroy Sq., W. (See advertisement.) [347

TUITION.

MOTOR Car Tuition, £3/3, driving and mechanism until proficient and satisfied. — Prospectus Palmer's Garage, Tooting. [905

AGENCIES.

WANTED, sub-agents for motor power saving preparation.—6,937, *The Motor Cycle* Offices, Coventry [X37

WANTED.

SPARES.—Morgan and Maxwell. Streatham. [X78

P. and M. Sidecar, new condition, cane or coachbuilt. Thomas, Penryn, Cornwall. [86

WANTED, Douglas W, 1914, bargain spot cash.—H 4, Dollis Rd., Finchley. [91

100 Motor Cycles wanted, spot cash paid.—Despat Palmer's Garage, Tooting. [90

WANTED, crank case, for 1907 Triumph, cheap.— Sewell, Long Melford, Suffolk. [90

AUTO-CARRIER, any condition.—Price, particula R., 159, Clive Rd., West Dulwich. [X37

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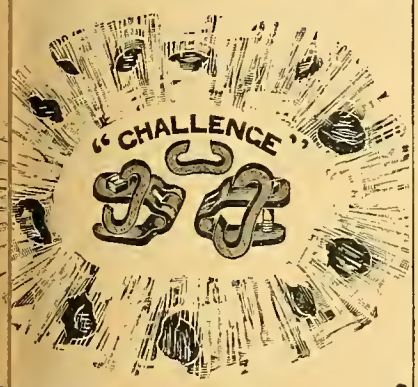

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The only adjustable fastener on the market at the price.

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The only plated detachable fastener on the market at the price.

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Challenge fasteners are now the finest value fasteners at the price ever offered.

Factors and agents write at once for samples.

FORWARD MOTOR CO.,

The Belt Fastener Specialists,

Summer Row, Birmingham.

WANTED.

WANTED, a brown leather jacket.—Peacock, 36, Hawcoat Lane, Barrow-in-Furness. [X270S

WANTED 1914 Douglas, Sunbeam, or Triumph combination, for cash.—Kelham, Bourne. [9048

WANTED, magneto, carburetter, lamp set, speed gear.—Star, 64, Gt. Portland St., London. [9123

WANTED, N.S.U. 2-speed Gear.—Wilkinson, 6, Dewhurst Rd., West Kensington Park, W. [9008

WANTED, magneto, anti-clockwise, suit 3½h.p. single.—Ralph, Highgate Cottage, Lostoak, Lancs. [X3742

KERRY 3½h.p. 1911 Cylinder, piston wanted.—Write, Latham, 22, Malfort Rd., Camberwell. [9146

MAGNETO, single, clockwise, Bosch or Simms preferred.—Jobling, 87, Markham Av., Roundhay, Leeds. [X3580

CASH Waiting.—Wanted, magneto motor cycles, any condition.—Box No. 6,943, *The Motor Cycle* Offices, Coventry. [X3823

XL'ALL Spring Forks, for heavyweight large head light and generator; cheap.—Vyner, 26, Newland Av., Hull. [X3851

WANTED, 1913-14 coachbuilt sidecar, or body, for 1912 Enfield; state price.—Burnup, Fordwood, Ashford, Middlesex. [9026

MAGNETO for 2-cyl. Aster in exchange for magneto with continual current for lighting.—Hoyle, New Waverley Hotel, Hull. [X3658

WANTED, Aluminium Torpedo-shape Sidecar, must be thoroughly up-to-date.—Stancliffe House, Grimethorpe, Barnsley. [9003

ANY Number of Douglas 1913 and 1914 models, also Morgans; spot cash paid.—Maudes, 136, Gt. Portland St., London, W. [9176

WANTED, for cash, motor cycles, combinations, and light cars.—Write, Box L6,469, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9082

WANTED, Douglas, 1912-1913, or exchange 8h.p. overhead valve Matchless. — Bound's Garage, High Rd., Kilburn, London. [9138

WANTED, 2 or 3-speed gear, also lamp set, speedometer, good saddle, and motor cycle accessories, cheap.—125, London Rd., Manchester. [0S60

WANTED, counter-shaft gear, or Philipson, fit 3½ h.p. Premier; exchange 3 ga. gramophone and records to value.—F. Gasson, Harstgreen, Sussex. [9095

WANTED, magnetos, carburetters, tyres, speedometers, lamps, frames, engines, motor cycles, old cars; spot cash.—Grove, 224, Fore St., Edmonton, London. [9160

WANTED, motor cycles, second-hand (Rex-Jap, Douglas, Triumph preferred); state full particulars; rock bottom cash price.—Write, Box L6,500, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0624

LET us sell your motor cycle on commission. We have customers waiting for machines. No sale, no charge. Full responsibility taken.—Longman Bros. and Aitkin, 1, King St., Acton. Tel.: Chiswick 1578. [8801

AUTO-WHEEL and Cash, for 1911 twin Enfield lightweight, just overhauled and renovated, looks new, speedy, powerful, good tyres, new B.B. carburetter, Brooks best saddle, easily manipulated.—Photo, 26, Tapton Bank, Sheffield. [X3849

ADVERTISER, having designed and perfected high tension magnetos, for which working drawings, patterns, etc., are prepared, invites enquiries from engineering firms desirous of taking up their manufacture in return for wholesale agency. Principals only.—Address, Box L6,495, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9024

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell, London Motor Salerooms, 80, High Rd., Streatham, London [X9559

EXCHANGE.

3½h.p. Ivy-Precision for furniture or cash. — 137, Holland Rd., Harlesden. [9103

EXCHANGE 5h.p. Rexette Tricar for motor cycle.—Minor, Pinfold Gate, Loughborough. [X3737

PALMER'S Garage, Tooting, will make you a good exchange. Write for complete catalogue.

WILL Give £15 Cash and 7-9h.p. 2-speed Red Indian for Humberette or good cycle car.—Palmer's Garage, Tooting. [9075

MOTOSACOCHE Lightweight, new tyres; £6; exchange good road racer and cash.—Myers, Lees, Keighley. [X3835

EXCHANGE two motor cycles, 2½h.p., and 3¼h.p., for one higher power.—Clow, 47, Cooper St., Leicester. [X3702

EXCHANGE 1914 P. and M. for 1914 2-speed Douglas and £10.—Box 6,940, *The Motor Cycle* Offices, Coventry. [X3787

EXCHANGE 3½h.p. Zenith-Gradua, perfect, for Sizaire, cycle car, or 2-speed lightweight, small cash adjustment either way.—16, Lee Park, Blackheath. [9017

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4¾in.	800ft.	52/6 and 58/6

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Other particulars, prices etc, send for booklet to-day while you think of it.

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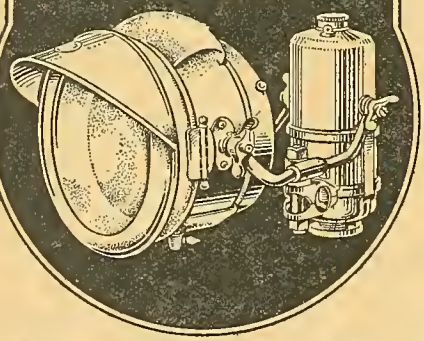

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Our London Address and Depot: 57, HATTON GARDEN.

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WORKS COVER 5 ACRES

6ft. x 4ft. x 7ft. high	£2	2	6
7ft. x 5ft. x 7ft. ,,	2	10	0
8ft. x 5ft. x 7ft. ,,	3	15	0
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Double doors 2/6 extra.
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These houses are tenants' fixtures, and can be bolted together in a few minutes. They are made of sound, well-seasoned matchboard, and complete with floor. Window in any desired position. Roof of Stoniflex Felt. We treat each house with Brown Sideroleum. Catalogues with particulars of other sizes Free.

EXCHANGE.

EXCHANGE 4h.p. Campion-Jap, 1913, free engine, for good late Douglas, or sell £34.—Bird, Sutton Bonington, Notts. [X3659

12h.p. Taxi, mag., new tyres, Stepney, tools, lamps, photo; terms arranged; £45; part exchange.—241, Balfour Rd., Ilford. [9108

ROVER, 6-8h.p., new July, 1912, modernished May, 1914; cost £230; combination and cash; sell £90. —11, Lesley Rd., Southport. [X3775

6½h.p. Wolseley Light Car, with new 2-seat. flush-sided body, for motor cycle, or would sell.—Bird, 10, Amersham Vale, New Cross. [X3842

CYCLE Car, tandem, 8h.p. J.A.P., hood, screen, speedometer, lamp, perfect, for combination and cash; sell £45.—Etheridge, Castle Bromwich. [9050

VULCAN Light Car, 6½-7h.p., new streamline body, for good combination, or Douglas, value £40.—H. Payne, Waldens Park, Horsell, Woking. [9128

1908 5-6h.p. Rex, free engine, Bosch, Amac, overhauled; £15; for lightweight, cash either way. —Walton's, Shorey Cottage, Burnley. [X3838

EXCHANGE nearly new 3½h.p. Humber combination for higher power, Indian or Enfield preferred, cash adjustment.—194, Philip Lane, Tottenham. [9104

EXCHANGE Steam Engine for mag. motor cycle, a bargain, 4h.p., no boiler attached to it, compound cylinders.—E. Farrar, Rurn, Selby. [X3657

1914 5-6h.p. Hazlewood, 3 speeds, new Whit. week, and only ridden 500 miles; cost £68/5; sacrifice for £58.—125, London Rd., Manchester. [0562

4h.p. White and Poppe Engine, with carburetter and radiator; exchange for 7h.p. twin air-cooled engine.—Central Garage, Sunnyhill Rd., Streatham. [9007

EXCHANGE 5-6h.p. 1913 Blumfield Twin and sidecar for 3 or 4-wheeled cycle car, or lightweight motor cycle, or sell £35.—Etruria, Tile Hill Lane, Coventry. [X3716

8-10h.p. Darracq, 3 speeds, mag., 2-seat., 10 cwt., fast, quiet, completely equipped; £35. Wanted, 3-speed modern combination.—64, Mill Lane, Brixton Hill. [X3843

1913 15.9h.p. R.C.H. Car, 2-seat., dickey, fully equipped, new condition, guaranteed; £100; for combination and cash. — Walton's, Dawson Sq., Burnley. [X3837

EXCHANGE Piano Player and music, cost £58, for motor cycle, lathe, gas engine, slot machines, Elliot motor tools, or anything useful.—33, Randall St., Blackburn. [X3699

MOTOR Cycles of any make taken in part payment for Rex-Jap 1915 models; good allowances for modern machines.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0625

WANTED, shop-soiled or nearly new 3½h.p. machine, with or without sidecar; take part exchange 1911 V.S. 6h.p. twin, recently enamelled and new tyres fitted, etc.—James, 103, Magdalen Rd., Norwich. [8824

EXCHANGE English Lever Watch, heavy 18ct. case, for magneto, with platform and sprockets, for 4h.p. J.A.P.; must be modern and good condition.—Box 6,929, *The Motor Cycle* Offices, Coventry. [X3581

EXCHANGE magnificent upright iron grand piano, full trichord check action, by eminent maker, only purchased recently, value £45 guaranteed perfect, for reliable motor cycle of equal value.—Apply, 92, Ecclesall Rd., Sheffield. [8664

WANTED, good 1913-14 motor cycle, state full particulars, in exchange for the following: His Master's Voice cabinet gramophone, 1914, cost £12/10, 70 His Master's Voice records, 1914, cost over £24, gent's Raleigh cycle, 1913, Sturmey-Archer 3-speed, metal gear case, cost £12, Goerz V.P. camera and 12 aluminium dark slides, 1914, cost £13; inspection invited.—Box 6,940, *The Motor Cycle* Offices, Coventry. [X3732

WANTED, late pattern 3-speed motor bike of good make; will give in exchange 25h.p. 5-seat. 4-cyl. open touring car, fitted hood, lamps, screen, spare wheel, engine just been overhauled and put in good condition, cost £550 four years ago, make grand commercial car or van or private use as it is; owner bought 35h.p.; can be seen and tried any time by appointment.—County Cricket Ground Hotel, Hove, Sussex. [9056

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MORGAN and Maxwell, Streatham, for cheap, quick, good repairs. [X3778

ALUMINIUM Crank Cases, gear boxes, etc., repaired neatly and promptly without distortion.

WELDING Broken Cylinders, pistons, flanges, lugs, frames, and a thousand other things repaired and guaranteed by Weldings, Ltd., 37, Holt St., Birmingham.

EVERY Repair is guaranteed; every repair is machined ready to fit; every repair has immediate attention; and everybody send to Weldings, Ltd., Holt St., Birmingham. [8031

CCCCCCCC Cylinders Re-bored, new pistons fitted, bear 13 stone on compression.—Gradior Machine Co., Compression Specialists, Stafford. Est. 21 years. [7314

TONGE Welding Works, 174, Oldham Rd., Middleton, Manchester.—Experts in broken cylinders, crack cases, etc. Welding aluminium a specialist. Nothing too difficult. Sound work at moderate charges. [9189

DO YOU KNOW

that in the early days of motor cycling it was necessary to take one end of its fastener off the belt in order to take the belt off the machine? To our Mr. Stanley Webb is the credit for introducing the hook fastener, which obviated this tiresome business, and set the lead to all detachable fasteners. Thus the

STANLEY FASTENER

was first, as it is still the best.

Another invention, promising equal relief to belt users, is the

STANLEY SPARE LINK.

Below it is shown used to lengthen an otherwise too short belt. It is an improvement on adjustable hooks, as it affords a gripping surface all round the pulley, thus conserving engine power and stopping belt slip. Accurately made with tough leather pads on toughened metal frame. Will last for years. Specially recommended for use with the "Philipson" Pulley.
Costs ONE SHILLING only.

Other Stanley Good Goods:
Stanley Fastener .. .. 9d.
Stanley "Shield" .. .. .. 8d.
Stanley Adjusting Hooks, 6d.
Stanley Belting from 1/3 pr. ft.
"LION" Fastener.. .. .. 6d.
Guaranteed 5,000 miles.

STANLEY MOTOR BE
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Inventors of the Origina
Hook Fastener
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BROMLEY, KEN

ECONOMY.

BRITISH MADE Red Tubes with Valve.

-GUARANTEED-

26 x 2	26 x 2¼	26 x 2½ or 650 x 65
4/9	5/3	6/-

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Car Tubes at equally low prices.

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An index to advertisements will be found on the page facing the back cover.

Patriotic Trading.

AFTER looking carefully through *The Motor Cycle* Buyers' Guide, more than one reader has drawn our attention to the considerable number of foreign magnetos adopted as standard on British made motor cycles. This fact is naturally distressing to patriotic Britishers; but that such is the case is not surprising to those closely in touch with the movement, since in this country the magneto has been neglected by our electrical experts, who have left its manufacture mainly to foreigners.

What is the result? We are, as usual, unprepared. It is, however, some consolation to know that several of our best known electrical firms are taking up the manufacture of magnetos with all speed, but such a delicate piece of mechanism cannot be turned out in a moment; special machinery has to be laid down, and workmen trained in this particular branch of electrical engineering have to be employed. All this means delay. British firms cannot deliver, the stock of German magnetos soon becomes exhausted, and the motor cycle manufacturers must go somewhere to get their magneto machines. The obvious outcome of this is that the makers have to look elsewhere than in England for this important part of the motor cycle, so that at the present time the trade is going to the United States. We have no one to blame but ourselves, as due warning was given to the industry by *The Autocar* and *The Motor Cycle* over a year ago—a warning which, we are sorry to say, was disregarded by those whom it concerned.

The British manufacturers who have set to work to turn out magnetos have an uphill task before them, and they have a good deal to learn, as even the most expert of them will find it none too easy to make successful articles at the outset, but doubtless we shall win in the end. Now it behoves us to bestir ourselves, and the sooner our motor cycle manufacturers give all the encouragement they can to the English magneto firms the better. We are told that England has much to gain from this terrible war by capturing Germany's trade, and undoubtedly this is so, but we must be careful that this capture does not take too long a time, since America is very much alive to her chances at the present epoch. It is a case for practical patriotism, and we trust our traders will never forget the remarks of our present King, "Wake up, England!"

The Sidecar and the Army.

THE valuable use of the motor bicycle in the war has naturally had its good effect, and now it is the turn of the sidecar to show its worth. That such a light and mobile vehicle as a motor cycle and sidecar would sooner or later be pressed into the services of the Government was plain to all who are acquainted with its reliability and speed.

We now know that every division of the Army is to have its motor machine gun battery, *i.e.*, sidecars carrying quickfiring guns. These batteries, moreover, are not a section which have been hurriedly decided upon for use in the present war, but we happen to know that the subject is one which has been under consideration for some considerable time, and the motor machine gun battery will become a permanent section of the Army. We sincerely hope, indeed we know, that the sidecar will acquit itself well, and we look forward to its uses being considerably extended in the near future. There are all sorts of conditions under which a light stable vehicle such as a sidecar would be of advantage, and there is no doubt that both the motor bicycle and the motor cycle and sidecar have not yet reached the limit of their practical uses even in the present war.

Coventry, the centre of the motor industry, has provided the *personnel* for the fifth motor machine gun battery, and we are glad to say that this battery includes the names of a number of well-known riders who can be relied upon to give a good account of themselves.

The Design of Drip-feed Lubricators.

A VARIETY of drip-feed lubricators is now on the market, and there is no question but that a properly designed sample in careful hands is an improvement on the old-fashioned pump, with its monotonous periods of "too much, sufficient, and too little" oil. At the same time, some of these devices are very crudely designed, and this year's riding suggests that the following points are essential to a satisfactory design.

(1.) A cut-off tap. Some patterns have a cut-off combined with the adjustment of the drip. There may be two grave defects in this design. On the one hand, whenever a machine is left in a garage or other public spot, the inquisitive loafer whom too many proprietors permit to roam about, is pretty certain to twiddle the dial index, and finally to operate the pump, with the result that the crank case is half-full of oil when the owner returns to take out his machine. This indicates that a secret cut-off is desirable, in the form of some unobtrusive tap concealed beneath the tank or frame tubing. Again, if the drip be shut, and the pump is left full of oil, with the heavy pressure of a strong spring behind it, a leak is bound to be forced somewhere, and such devices are, therefore, apt to cause ugly smears on the tank top. The faintest smear of greasiness on the tank will collect road dust in dry weather. It is, therefore, questionable whether there should be a cut-off in the drip itself.

A cut-off is most especially essential to those systems in which crank case suction pulls the oil through the drip, as opposed to others in which a spring pump pushes the oil through. Such a system may function admirably without any cut-off in ordinary undulating country; but when the machine is taken into hilly country, the engine sucks through lots of oil when coasting down long hills with the valve lifted, and this makes for a dirty engine and sparking plug troubles. We really want a cut-off that:

(*a*) Can be locked with a key, or

(*b*) Is so unobtrusive that loafers will not readily find it.

(*c*) Is not combined with the needle valve of the drip.

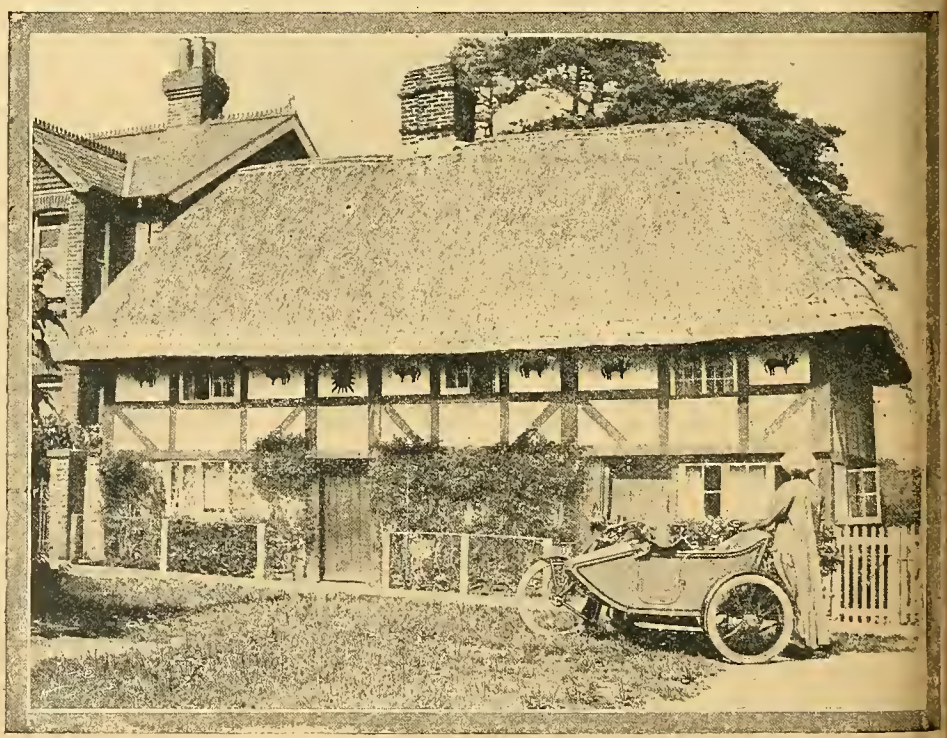
(*d*) Is set so low down on the oiling system that the higher portion of the system can accommodate any oil left in the pump when the machine is put away.

The pump itself should have a bayonet joint lock as well.

(2.) It should be possible to inject a whole pumpful of oil instantaneously in emergencies without disturbing the drip adjustment. Some patterns are intended to meet this want by the unscrewing of the drip-feed valve. There are two objections to such provision. One is that the pumpful is generally wanted in a hurry, and that the maximum orifice of the valve is very small; hence the hasty injection of a complete pumpful is likely to spring a leak at the weakest point of the drip device or its connections. The other is that we cannot always confine ourselves to one and the same oil; and that some precision is required in setting the drip. Not every rider can be trusted to restore the drip setting accurately after he has hurriedly opened it to inject extra oil on a bad hill.

(3.) As the joints of these devices are subject to heavy pressure even in careful use, the unions and joints should be of the most substantial character. As they are mostly bedded in the thin and rather bendable metal of the petrol tank, they need scrupulously good workmanship.

RUNABOUT.



"CAT COTTAGE," HENFIELD, SUSSEX

A former occupant of the cottage, a very eccentric old man, carved the cats which are seen on the walls. Each cat holds a bird in one of its front paws. He then ran a wire round the place, just underneath the thatched eaves, and on this he suspended strings of shells, connecting the whole lot up to another wire inside the cottage. This he pulled at night when his neighbours were in bed, and so annoyed them with the din that they pulled the whole contraption down. He then bored a hole through the end wall and placed an American flag through. The villagers stole it. This second act so exasperated the old man that he enlarged the hole, wrote ZULU HOLE just beneath, and sat through the night with a rifle pointing through the orifice ready to shoot anybody who got too close to his cottage.

Occasional Comments

"By Ixion"

A Hint to the Trade.

The other day I met a well-known competition der, whom increasing years and family responsibili- s are now limiting to the touring sphere of motor cling. "Well?" I asked, "What's your machine r next year? Another ——?" "Not much!" torted he; "I'm getting middle-aged, and I've mpled a baby two-stroke. I've done with tump- mp-tump, and I shall stick to b-r-r-r-r-r!" I don't y that his opinion is necessarily an index to public inion, but I've heard a good many sportsmen who e nearing the thirties talk in the same strain, and can quite believe that men whose skins and nerves d arteries are growing more sensitive will value the en, vibrationless two-stroke sensation more and ore highly with advancing years. If such a man is scontented with the comparatively tame paces of e 250 c.c. babies, there is no big two-stroke on the arket but the Scott. This looks as if 1916 and 1917 ght see many of the 500 c.c. firms launching out th 500 c.c. two-strokes. What say you, my masters? the way, I hear the big order for the new motor cle machine gun unit will keep the Scott works zling night and day for several months to come.

Rear Chain Cases.

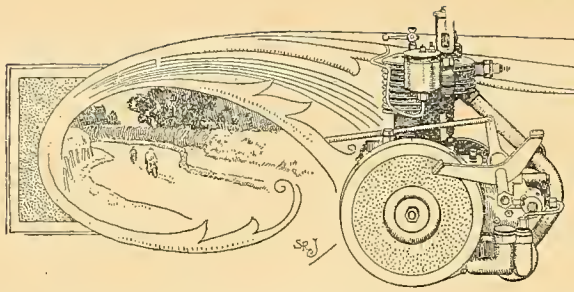
I see with some sympathy that the 1915 Indian still chews a rear chain case, for, if I may be frank, no tail of the modern machine has caused more uble and annoyance during 1914. The ideal is ty, and few there be that reach it. The chain case ust be absolutely rattleproof in all its details, and, ough its depth be shallow, there must be sufficient dding to prevent the securing studs and bolts from ring out, despite the frightful vibration which con- ntrates along the chain stays when the average V in is raced on a low gear, or run with the road wheels tionary. A panel should be provided to facilitate hing one end of a disjointed or broken chain out the dark and oily cavern. The cases must fit with solute dustproofness around the rear spindle. Pre- ably, the rear arc must be hinged and drop down t admit of rear wheel removals. The edges of these mplicated joints must be readily refitted without the e of sledge hammers, cold chisels, or profanity. No nder some makers become pessimistic, and prefer e common or garden naked rear chain, with or with- t a little rain cover. If the rear chain case is tained, I am all in favour of the horizontally split riety. With the vertically split type, rattles are ways lurking round the corner, the end of a loose ain requires much fishing for, and the back spindle nt is not lightly to be tackled with cold fingers in e dark. Moreover, when adjusting a chain thus cased, it is quite difficult to test its tension at any int except on the sprocket teeth. *Per contra*, the ar wheel cannot always be removed as swiftly as one nts in a split-second trial, if the horizontally split se is adopted.

Hurrah!

Whenever some earnest correspondent revives the old belt *v.* chain controversy, we receive appallingly contradictory evidence on the life of chains and their tendency to break. The cognoscenti grin, knowing that the man who gets a brief chain mileage and many fractures is simply giving himself away, and confessing—if not in so many words—that he runs his sprockets out of alignment and forgets to adjust his chains "by the tight place." At last a motor cycle firm have really and actually adopted a device which should prevent the wildest novice from setting his rear wheel out of alignment when he uses his draw-bolts. But by one of fate's cynical ironies the firm concerned is one that still adheres (wisely, in my prejudices) to the belt-cum-chain drive. Study the little notched plates on the back spindle of the new Rover on page 565 in our issue of November 19th last. If a similar safeguard were incorporated in all chain drivers, and if the toolbags of new machines contained a card describing the basic principle of chain adjustment, we should have precious little of chain troubles during next season. But when duffers are encouraged to set their back wheels out of truth, and are left to test chain adjustments at the saggiest spot in the chain run, what *can* we expect.

A Carburetter Suggestion.

I have often been puzzled by the extraordinary petrol economy attained by some of our very "clever" boys, and have long suspected that some secret existed which was beyond my ken; for, no matter how carefully I have executed the stereotyped wrinkles, I have never attained the miles per gallon which the cracks record in important tests. A correspondent sends me a suggestion which I publish for what it is worth—I have not had time to try it. He considers (as the result of his own experiments) that the *real wastage of fuel occurs at small throttle openings*, and that all tuning for economy should aim principally at reducing the amount of spirit used in slow running. Under these conditions the suction on the jet is extremely fierce. Attempts to reduce this suction by opening the extra air inlet fail because they over-weaken the suction. He is of opinion that the shape of the throttle valve is the crucial point, especially with the straight-through automatic type of carburetter. For example, a throttle piston might be 1½in. in diameter, in which case the engine suction would be wiredrawn through a long, narrow orifice, when the throttle was nearly shut. If, *per contra*, the throttle piston is but ½in. in diameter, and that side of it which faces the jet is chamfered upwards, the suction on the jet is reduced, though it is still fierce enough to draw out a sufficiently rich mixture. Whether there is anything in the notion, I cannot say without a test; but it certainly looks like it, for I confess that his average consumption is a long way better than my own ever is, with the standard throttle valve.



Detachable and Interchangeable Wheels.

ANCIENT AND MODERN.

FIRST INSTALMENT

By ERIC W. WALFORD.

THE English language requires the invention of a new adjective to describe the type of wheel which is meant by the above title. The usual term "detachable" as applied to wheels does not convey to the lay mind what is intended. All wheels are detachable, but they are not all detachable in the sense here meant. Motor car wheels are always detachable and always have been, but the so-called "detachable" wheel is a comparatively recent introduction. Such wheels are easily detachable without disturbing the bearings and driving mechanism. An additional point is that the detachable part can be fitted on any of the axles on the car.

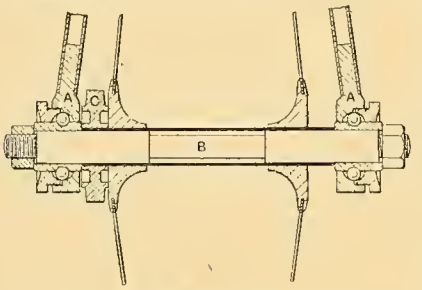


Fig. 1.—The construction outlined above, dated 1888, probably constitutes the first "detachable" wheel.

A motor cycle detachable wheel differs in that its bearings are removed with the wheel. The point that the wheel when removed can be fitted to the front or rear forks or to the sidecar is not the chief one, although it is, of course, becoming of very great importance. The chief advantage, to my mind, is that this ease of detachability facilitates tyre fitting and repair. The detachable and interchangeable motor cycle wheel will probably become universal, as it is on cars. Its good points have been proved, and the constructions adopted by certain motor cycle manufacturers have shown themselves to be quite satisfactory.

In view of the increasing adoption of this idea it is probable that a review of existing and proposed constructions for use on motor bicycles will be of interest, but, as the broad idea is by no means new, treatment of this subject cannot be complete without reference to constructions of a similar nature which have been proposed for pedal cycles. Many a supposedly new idea in the motor cycle world has been found to have been anticipated by "push" cycle inventors. In the early days of pedal cycling tyre troubles were so frequent that it is not astonishing that very many inventors gave their attention to schemes for enabling the tyre, and if necessary the wheel, to be removed without disturbing the chain. Some of these inventors even went so far as to suggest that the rear wheel might be interchangeable with the front.

Early Constructions.

Probably the first construction to be patented was that invented by Mr. J. G. Jelley, who is known to many motor cyclists as the inventor of the Three Spires and Double Clinch tyres, a new motor cycle saddle, etc. The arrangement, which is shown in fig. 1, differs in one important respect from modern constructions in that the bearings remained in place when the wheel was detached. The outer races A of the bearings were brazed into the fork ends. The spindle B revolved, but could be withdrawn either way, leaving the hub and chain sprocket C unsupported and removable. The chain could then be lifted off the sprocket, allowing another chain wheel to be fitted in order to alter the gear ratio.

Another early construction is shown in fig. 2, which is based upon the drawing appearing in a patent specification of the year 1897. The drawing is diagrammatic, and is reproduced in place of the patent drawing, as the latter shows a hydraulic driving system, which is of no interest. In this case each fork end supports a short spindle length A, one of which carries the driving member, which I have shown as a belt pulley. The other may,

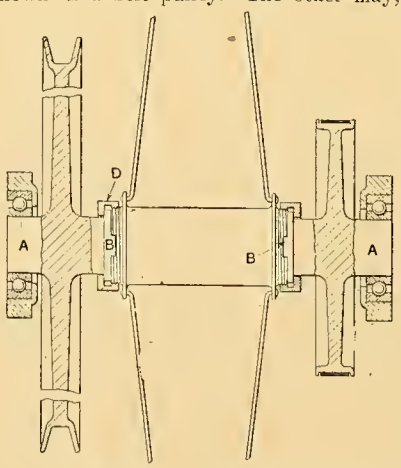


Fig. 2.—An interesting construction which possessed no spindle (produced in 1897).

obviously, carry a brake drum. Each these short spindles is provided wit flange B, and this flange carries a metrical key C, as the perspective v shows. In fact, this flange and resemble closely one member of an ham coupling. Each end of the hub is provided with a diametrical slot, the hub is slipped into place between two spindles, so that the keys C slide the slots and provide a driving connec between the spindles and the hub. spindle carries a screwed ring D, res bling closely the nut of a pipe un This screws on the hub shell so that spindles and the hub become practic

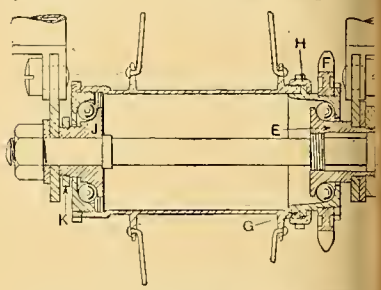


Fig. 3.—An early type with a complete spindle.

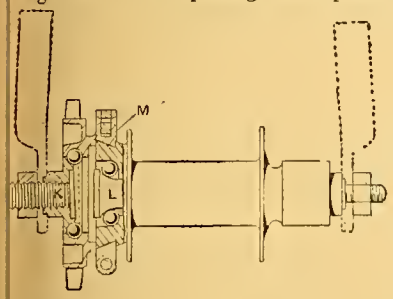
united. To remove the wheel the nuts D are slacked off and the wh pulled away, leaving the two spindles supported by their bearings. In this c it will be understood that there is spindle passing right through the shell, and that support is required fr the nuts D. Also the bearings are removed.

Device Incorporating a Complete Spin

The arrangement shown in fig. embodies the use of a spindle extend from one end of the hub to the oth This spindle unscrews and withdraws the right, leaving a short sleeve E, s ported by one rear fork end. This sle is formed with a cone on which is a b race carrying the pedalling chain sproc F. The chain sprocket is clutched by clutch teeth to the hub shell, and th is a kind of union nut H which clam the shell and the centre of the ch sprocket together. The left hand of hub shell runs on a cone J on the spind When the spindle is drawn out to right this cone is unsupported, so a K is provided, which can be screwed to the right when the wheel is to detached. To do this the nut K screwed up as described, the spindle screwed and withdrawn to the right, a the nut H unscrewed, allowing the hub be moved to the left slightly to disenga the driving teeth at G, which allows the h

tachable and Interchangeable Wheels.—

come away. When the hub is removed it ll be seen that the right-hand ball bear- g would be insufficiently supported, but ere seems to be no chance of the balls lling out. In replacing the spindle there would probably be some difficulty in threading it through the left-hand cone J. The hub shell is supported by both rows of ball bearings when the hub is in place, so that a substantial attachment of the hub shell to the chain sprocket is essential. This, therefore, does not seem a very attractive system.



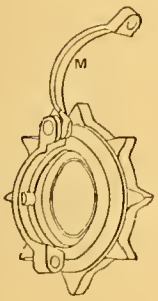


Fig. 4.—The vided spindle ea as evolved in 98.

Adoption of the Divided Spindle.

In fig. 4 appears for the first time (1898) the divided spindle idea, which is used in some of the modern constructions. Here the chain sprocket is carried by a self-contained ball bearing on a short spindle length K. The hub shell is mounted upon two bearings, one at each end of the major spindle part L, and the chain sprocket carries a split clamp M, which grips a coned part of the hub shell. To detach the wheel the split clamp is disconnected, the right-hand spindle nut slacked, and the hub shell drawn away. Here the rigidity depends upon the tightness of the clamp M, but there are only two parts to be unscrewed, the clamping screw and the spindle nut. There is, obviously, no mutual support between the two spindle parts.

The divided spindle idea is also shown in fig. 5, which, with the constructions shown in figs. 3 and 4, was patented in 1898. The chain sprocket runs upon a pair of ball bearings on the short spindle part N, and the hub shell ball races are formed on a bearing sleeve O, fitted on the major spindle part P. The driving connection is formed by diametrical key and slot at R, like that shown in fig. 2.

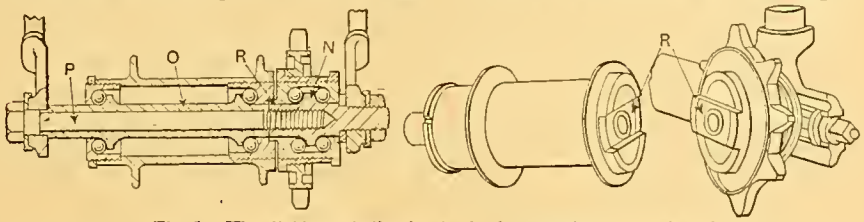


Fig. 5.—The divided spindle plan in the form used on motor bicycles.

To detach the wheel the main spindle part P is unscrewed and withdrawn to the left, and as the driving connection R is a diametrical one, the wheel can be moved radially out of position. This design shows the bearing sleeve O, which is commonly used in modern constructions, and which it closely resembles.

(To be concluded.)

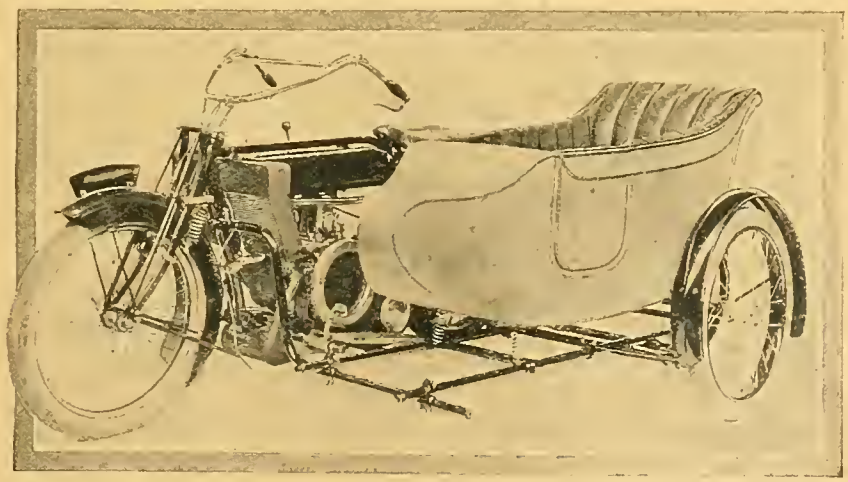
The C.A.V. Dynamo Lighting Set.

An Installation that may be Fitted to Solo Machines.

ONE of the earliest firms to study the problem of electric lighting on motor cycles was that of Messrs. C. A. Vandervell and Co., Warple ay, Acton Vale, W. The firm, which s always played a prominent part in e electrical equipment of motor vehicles, me into existence about eleven years o, and occupied itself in the manu- ture of accumulators for cars and motor cles. Soon afterwards Mr. D. Elyard own, one of its principals, began experi- nting with an electric lighting outfit his Ormonde motor bicycle. During e past few years, Messrs. Vandervell ve devoted themselves more especially the manufacture of dynamo lighting tallations for cars, but two years ago, en we suggested to them the desir- lity of adopting this principle to motor cles, they told us that they thought re was no reason why such should eventually be done. Hence, it is with tification that we are able to announce t they have brought out a most cellent outfit, which has passed its perimental stage, though at the present ment its manufacturers are not in a sition to give delivery. At the end of few months, however, when the essary jigs, etc., have been installed, e installation will be placed on the rket.

The set consists of a C.A.V. dynamo ached to the saddle tube of the motor cycle frame. It is of quite small dimen- ns, and, unlike the usual C.A.V. namo, has no free wheel device. The particular outfit which we inspected is fitted to a B.S.A. sidecar combination, the dynamo being driven off an auxiliary sprocket on the counter-shaft. The accumulator is carried in a pannier box about eight inches square and about two and three-quarter inches deep, which is attached to the luggage carrier, thus the set is absolutely self-contained on the motor cycle, so that if the latter is used solo, the equipment is in no way disturbed. Fitted to the accumulator box is a junction box, while on the top tube is an exceedingly neat little switchboard controlling the head lamp, side lamp, tail lamp, and dynamo.

At the present time we are unable to give further details, but we may say that the outfit shows great promise, and will be an inexpensive but truly worthy produce of the firm responsible for its introduction.



Threequarter view of the new 6 h.p. twin-cylinder Humber sidecar outfit, which has three speeds.

(Described and illustrated in issue of November 12th, pages 529-530.)

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Gear Slipping.

Q. My mount is a 1914 3½ h.p. Rudge, fitted with N.S.U. two-speed gear and free engine. The only trouble that I have experienced has been with the gear (engine trouble being nil), and lies in the fact that the bottom gear never grips properly, slipping slightly, though the handle is held firmly in position.—J.R.A.

The trouble you speak of is undoubtedly due to the clutch washer being worn. If after fitting the new washer the trouble still occurs we should recommend you to send the gear up to the company.

A Question of Weight.

Q. I have a four-point suspension coachbuilt sidecar which weighs about 100 lb. Is this too heavy for a 3½ h.p.? I do not want to go fast, but will the cycle frame stand this weight? I have a three-speed hub, and it is a great deal of trouble to take the wheel out every time I get a puncture, so I should like your opinion on butt-ended tubes. Are they reliable? If you think so, I will get two spare ones.—F.M.

We do not think the sidecar in question is too heavy for work in ordinary districts. The weight, however, might be excessive in hilly country. A good butt-ended tube, made by one of the best-known tyre firms, should be quite satisfactory and of great assistance to you.

A Noisy Engine.

Q. Some time ago I purchased a 1910 3½ motor cycle. Whilst out on a run I broke the connecting rod just below the small end. I had a new rod from the makers and had it fitted, but now the engine shows the following symptoms: When travelling with fully advanced spark a peculiar clatter proceeds from the engine—like a succession of small "knocks." This is quite distinct from the clatter of the tappets. The same sound is heard when going down a hill. On retarding the spark the sound disappears. Do you think the bushes on big or small ends are worn? I have not had engine down since repair, as I thought you might be able to locate the trouble for me.—H.B.S.

Without actually hearing the noise it is difficult to diagnose the trouble accurately, but it is probably due to the fact that the big end bushes are badly worn. We should advise you to have the engine down and examine the bearings.

A Question of Gearing.

Q. Can the Douglas 2¾ h.p. two-speed climb Kirkstone Pass? What highest average speed can be expected over give-and-take roads? Does the engine overheat if driven long on low gear uphill?—W.B.

The machine in question is quite capable of climbing the pass referred to, provided the gear is low enough and the engine in good condition. If the gear is too high, obtain an adjustable pulley. You should average between 30 and 35 m.p.h. on the best roads. The engine is not at all given to overheating.

Fixed v. Variable Ignition.

Q. I am greatly puzzled about magnetos with variable and fixed ignitions, and if you could explain the difference I should be greatly obliged. Would not a unit fitted with fixed ignition be more suitable for a novice, as I imagine it would be difficult to determine how far to advance the lever of the magneto, say, when getting up speed from ten to forty miles per hour? If a fixed ignition is reliable for any speed, why be bothered with a variable ignition, as they surely cannot both reach the same degree of efficiency? Finally, will you explain any advantage one may have over the other?—IGNITION.

We should strongly recommend you to read the chapter on Magneto Ignition in "Motor Cycles and How to Manage Them" (obtainable from these offices, price 1s. 2d. post free). To put it briefly, the difference between the two forms of magneto is this. The magneto used with variable ignition has a movable contact breaker, which allows the spark to be advanced or retarde The fixed magneto has a rigid cont breaker with the firing point set so to give the maximum efficiency, a this, of course, cannot be advanced retarded, and consequently a cert amount of flexibility is lost, and y cannot get quite the same results driving. The matter is merely one changing the contact breakers. Althou variable ignition sounds to be somewh of a complication it is really not so, a often a change of gear may be saved slightly retarding the spark when engine is labouring on a hill. Und nearly all conditions, except when sta ing, or sometimes on hills, the spark m be fully advanced. We do not at agree with a fixed ignition on any ki of motor vehicle. It is not a questi of fixed ignition being reliable, but t fact that variable ignition allows you get more out of the engine and great adds to the pleasure of driving.

NEXT THURSDAY!

THE MOTOR CYCLE

EQUIPMENT NUMBER.

Accessories of all kinds, as well as Tyres and Clothing of interest to motor cyclists, will be described and illustrated.

Stuck Piston Rings.

Q. A 1914 3½ h.p. machine whi I have persistently "glues" its rings every 300 to 500 mi so tightly into the piston th only about three hours' labo with paraffin and a knife will disiod them, and often these efforts end disaster to the rings. When this about to happen in running one hea an awful row from the cylinder's inn regions. A long day's work with t sidecar usually starts the complaint. have written to the makers who cann suggest anything. They have sent t two rings, and again two spiral on with fibre washer for lowering compre sion, but the latter has not made a preciable difference. When the machi was new it invariably ran rather hot. notice that although I use plenty of of all brands I cannot make it smo much, neither is there much carbon piston top or cylinder. The piston usually blackened down the valve sic and compression is very nearly nil. timing is correct, and cylinder n scored. As I have only done 5,0 miles or so, I do not want to have t cylinder rebored yet.—G.L.

Are you quite confident in the brand a quality of oil you are using? Use t very best lubricant only. You might t the effect of a mixture of Oild with your oil. This can be obtained fr any accessory dealer, and may he matters. There is no reason why t cylinder should be rebored, unless t cylinder, piston, and rings are ve badly worn.

An Unsatisfactory Beam of Light.

? Please tell me why my lamp gives such a poor light. There is a good mirror reflector at the back, but the front is only common glass. My trouble is that the light is not projected more than two or three yards in front of the machine.—W.S.

he trouble is most undoubtedly due to e burner being wrongly focussed. obably, if you look at the bottom of ur lamp you will find that the burner fixed in a slot and secured by a nut. you undo this nut, light the lamp and de the burner along gently until the st beam ahead is given, and then lock in position, you will then get the best sults from the lamp.

Details of Belt Drive.

? I intend fitting a belt drive from a 6-8 h.p. V twin engine as follows: Pulley 6in., rim 20in., belt 1⅛in., centres 24in., arc of contact on pulley 140°. Please let me know (*a*) if 24in. centres vill be too short for a reliable drive, (*b*) what is the shortest distance prac- icable, and (*c*) is 165° the smallest ractiacable angle as for flat belt drive? —K.O.M.

e length of the drive is rather on the rt side, but it should be possible to ain a fairly reliable drive provided t your pulley is not geared down to a great extent. The same applies to r arc of contact. A 160° arc is irable, but on many machines at sent on the market it is nothing like much as this. If you are using a ee-speed counter-shaft gear we fear t on the low gear you will be apt get a certain amount of slip, as the speed will be very low and will l have to transmit the maximum wer.

Starting on a Clutch.

? I have ridden a 300 c.c. single-cylinder, single gear, belt and hub clutch machine for a season and intend to have a sidecar outfit next year, and I would like to now how to avoid the faults I find in y present mount. My 2½ h.p. is by a rst-rate firm with a reputation on road d track. It was not by any means twenty-five guinea ultra-lightweight, d is still in new condition, but it will ot start on the clutch except on the vel. The engine roars off at the second ick (using pedal like a kick starter), ut no matter what care I take in let- ng in the clutch if there is the ightest gradient the engine stops in ree yards, yet if I come round a rner in a strange town at 5 to 10 .p.h. and find a single figure gradient efore me I open both throttle and air d sail up with neither falter nor nock. Please give me advice in the rchase of a sidecar. Economy both first cost and running expenses is portant, but not necessarily economy petrol. Makers talk as if a big ileage per gallon was important, yet the year's end petrol is one of the nall items in the bill. Speed is not anted at all. I like to see the country I go, though my 2½ h.p. is good for m.p.h. Sure climbing is important, matter how slow.—W.J.

here is any movement at all on the hine it is quite a different proposition from taking up the load from a stand till, as the tractive effort to be overcome even when the machine is just crawling is comparatively slight. Of course, the trouble is one which is likely to be found in all small machines fitted with a clutch and no two-speed gear. If the gear ratio were low enough to enable you to start from standstill on an upgrade it would be too low for ordinary work. What you had better make for is preferably a machine of 5-6 h.p. by the best makers. If, however, you cannot afford a 5-6 h.p. get a 3½-4 h.p. with at least three speeds and a fairly light but comfortable sidecar.

A Troublesome Clutch.

? The clutch of my Riley tricar has never engaged very sweetly, and dressings of castor oil have made it no better, and on one occasion caused slipping. Lately I think some engine oil must have worked into the clutch, as a new trouble has occurred, namely, difficulty in getting the clutch out. I have tried fairly copious applications of engine oil, and this improves things for a short time and, strangely, does not cause slipping as the castor oil did, but the sticking returns very quickly. The clutch is a cone one, leather lined, and as far as I can tell is in good condition and amply large enough—about 10in. diameter over cone. Can you say what will give sweet engagement and freedom from sticking in the cone?—V.P.

You should see that the leather on the clutch is in good condition, and try dressing it with collan instead of castor oil, which is rather better for this purpose. Also see that the spring is not too strong. It looks to us rather as if the clutch leather has been burnt. The sticking may be due to the clutch being over-dressed, or the bearing on which it slides may be full of grit. These points should, therefore, be examined. If the leather is worn or burnt, a new lining is not a big item.

Slow Running.

? I have recently purchased a 1913 2¾ h.p. single-cylinder. The machine runs very well on the open road. I am not, however, able, when in slow traffic, to keep it running on high gear, even when slipping the clutch, and usually have to stop the machine altogether and wheel it. I use it to go to business, and have a good deal of slow heavy traffic to contend with. I have bound up the joints of the inlet pipe with tape to avoid any leakage there. Under ordinary use, what consumption of petrol and oil should there be for this machine? Is boiled oil and red lead suitable for the screwed joints, or what should I use?—ALPHA.

It is unfortunate that several efficient motor cycle carburetters will not allow the engine to run slowly, but it is so. If you use an automatic carburetter you will lose slightly in efficiency, but the slow running will be greatly improved. A 1915 pattern carburetter with pilot jet device would effect an improvement. Also, a well-adjusted by-pass fitted to your present carburetter would be a considerable help. The machine should do about 100 miles to the gallon of petrol, and use oil at the rate of about half a pumpful every six miles. The best preparation for the joints is Rotary paste.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c o The Editor.

"A.D.P." (Cambridge).—2½ h.p. two-stroke, two-speed Clyno and 2¾ h.p. Levis. Power and reliability for touring.

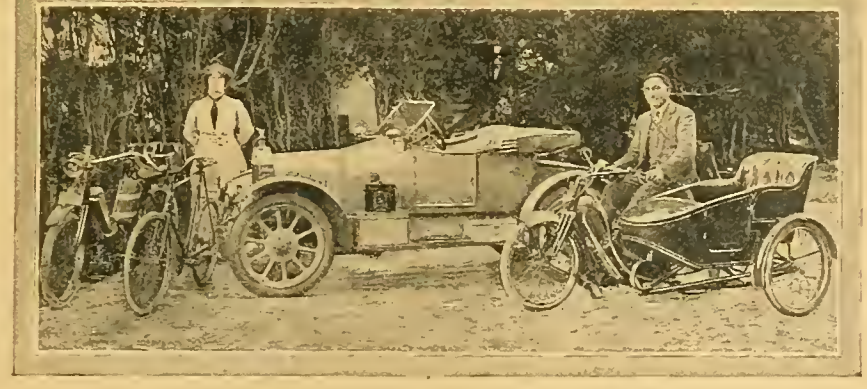
"J.P." (Somerset). — Grado multi pulley. Suitability for use with light-weight in hilly country.

"G.C.H." (Dublin). — Scott. Hill-climbing, consumption with petrol and petrol and paraffin, and general reliability.

"A.C.L." (Yorks).—Saxon light car. Reliability, accessibility, hill-climbing, speed, consumption, and whether magneto can be fitted.

"H.W.H." (Penketh).—Zenith disc clutch hub. Durability and efficiency.

"NOVICE" (Longford).—Big 4 h.p. Norton, 5-6 h.p. Coventry Excelsior, and 5-6 h.p. Rudge for general sidecar work. Power on top gear, accessibility, durability, and consumption, also comparison with twins of similar power.



THE STABLE OF OUR CAPE PENINSULA CORRESPONDENT, ARNOLD KEYZER

The photograph shows the first Scott motor bicycle imported to South Africa, a 1914 Singer light car, and a 1914 Scott motor bicycle and sidecar, the body of which was built to Mr Keyzer's design, with collapsible seat and suitable for carrying luggage.

1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

1915 NORTON MODELS.

IT is interesting to note that the 1915 Norton programme includes a countershaft chain driven model, which is not an entirely new one, but an old one resuscitated—with, of course, various improvements incorporated. It will be fitted with the Norton "Big Four" engine, which has been still further improved for the coming year. There are three speeds, and the transmission includes a cushioning device to absorb shock without loss of power.

The latest 3½ h.p. T.T. and 3½ h.p. Brooklands Special models will be built on somewhat smaller lines than previously; the former has a dropped top tube. The Brooklands Special will be supplied with a certificate to the effect that it has attained over 70 m.p.h. on the track.

A 90 m.p.h. Norton.

We have lately inspected a Norton "sprint" machine, from which great deeds are expected. Mr. J. L. Norton, who showed us the machine, was confident in his belief that it will attain a speed of ninety miles an hour over a short distance, and mentioned, incidentally, that the firm were anxious to perform such a feat in the near future, and thus gain for the Norton the credit of being the first 500 c.c. machine to attain such a high rate of speed. The bore and stroke are of 79 × 100 mm., and outwardly there is no change in the appearance of the engine from the standard Norton of these dimensions. Should Mr. Norton's anticipations be fulfilled, a bigger tank will be substituted for the torpedo tank fitted, and D. R. O'Donovan, who is to ride the machine, will then attempt long distance records. The usual gear on the Norton for track work is 3¹⁄₁₆ to 1, which, it is interesting to note, with 26in. wheels, will necessitate a speed of over 4,250 r.p.m., ignoring belt and wheel slip.

Each of the new touring models will be provided, as an integral part of the machine, with means for sidecar attachment.

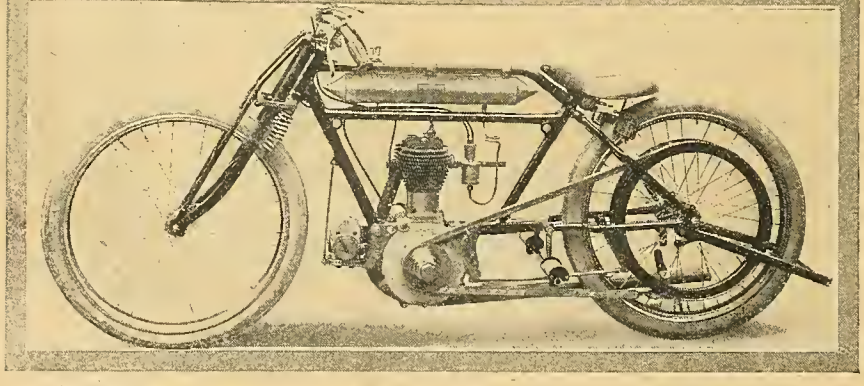
As showing the attention to detail given by the makers of the Norton machines, the filling cap for the tank on the dropped tube models is a good example. The filler cap, whilst screwed down to give a sealed joint, is hinged to prevent loss. Further, both caps are fitted on to a cone, which brings them well above the level of the tank, so facilitating filling and the avoidance of splashing.

The 1915 Nortons may be obtained with a straight or "dropped" top tube, and the makers incidentally point out that for those who desire large petrol and oil capacity the straight top tube is recommended. This is a point not generally appreciated.

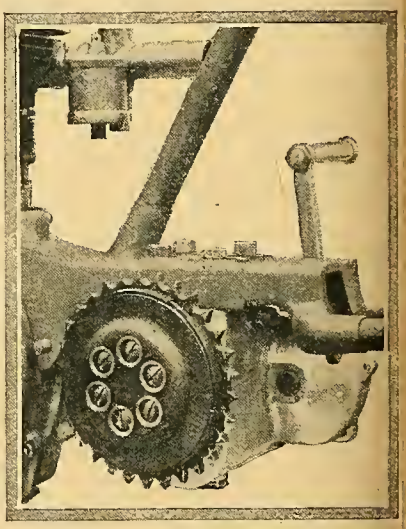
EDITORIAL NOTE.

ALREADY many full descriptions of 1915 models have appeared in these columns, and as a guide to readers we give below the dates upon which the different descriptions appeared:

Sept.	3rd.	Henderson and Levis Popular.
,,	24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct.	1st and also 29th.	Three-speed shaft-driven Rex.
,,	8th.	Radco and Abingdon.
,,	15th.	Ivy, Vindec, and 4 h.p. Brown.
,,	22nd.	J.A.P. engines, Calthorpe, Lucas dynamo.
,,	29th.	Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and two-stroke Ariel.
Nov.	5th.	Sparkbrook, Lady's Metro, 2½ h.p. and 6 h.p. Enfields, Omega, and 4 h.p. A.J.S.
,,	12th.	6 h.p. Humber, Sun Vitesse, and Levis.
,,	19th.	Diamond, B.S.A., 6 h.p. twin P. and M., Indian, Royal Ruby, Velocette, 6-7 h.p. Sunbeam, James, Rover, twin-cylinder two-stroke Premier, and New Hudson.
,,	26th.	Rudge, O.K. Junior, Wooler, New Imperial, J.H., Lady's Radco, Wulfruna, Bradbury, and Hazlewood.



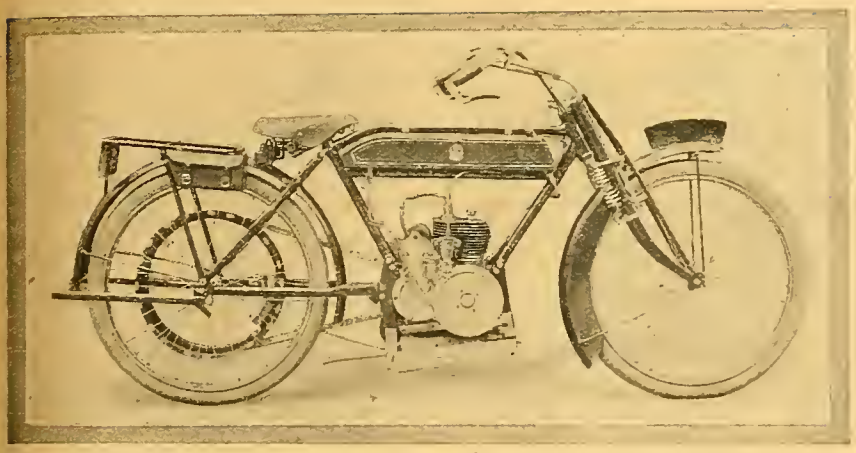
The T.T. "Sprint" Norton on which it is expected to attain a speed of ninety miles an hour.



Showing the method of fixing the Sturmey-Archer countershaft three-speed gear to the bottom bracket of the Norton.

2¼ h.p. GRANDEX-PUP.

AN exceedingly handy little lightweight is the 1915 Grandex-Pup, which we recently had an opportunity of inspecting at the Grandex Co.'s showrooms at 86, Gray's Inn Road, W.C. The machine is fitted with the new 2¼ h.p. Precision engine, the valves of which are mechanically operated and vertical instead of horizontal as formerly, while it may be remembered that the dog clutch two-speed gear is incorporated in the crank case, the change being operated by means of a pedal. The machine we saw was not the final model, and the next batch will be altered in various details; for example, instead of a U.H. magneto the Splitdorf will be fitted. The machine will be provided with aluminium footboards, and an improved heel-operated brake with transverse pedal will form part of the equipment. The sileneer is large, and fitted with a long exit pipe so that the little machine should be fairly silent. Either Druid or Saxon Spring forks may be had to order.



The Grandex "Pup," which is fitted with a 2 h.p. Precision engine with side by side valves.

The frame possesses a dropped top tube, while an excellent piece of work is the bottom bracket, which is in one piece and brazed directly on to the chain stays. A Bowden handle-bar is fitted complete with levers and wires, the latter running inside the bar and presenting a very neat appearance. The carburetter is the well-known B. and B. The machine, which is sold at quite a moderate figure, is well equipped and turned out with 2in. tyres, luggage carrier, and metal cased tool-bag.

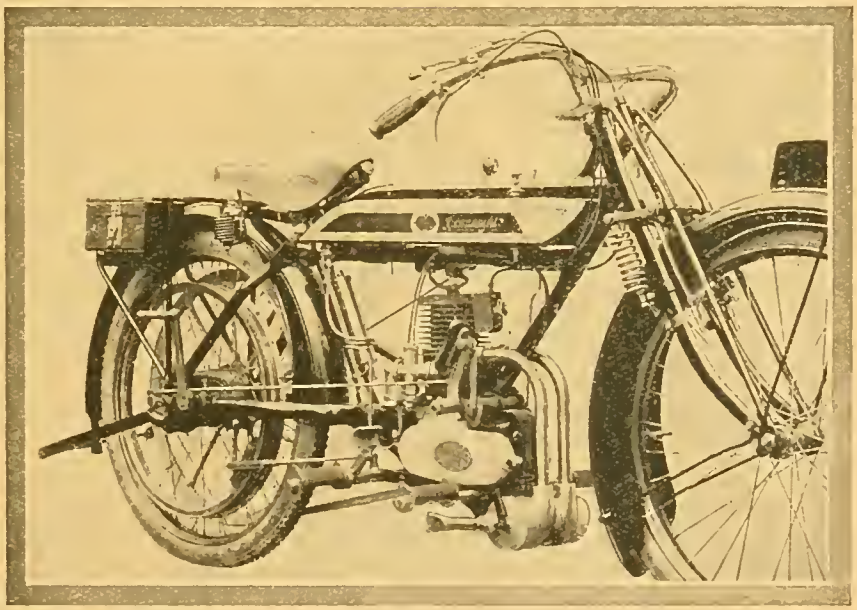
THE CONNAUGHT TWO-STROKE.

THE 1915 Connaught is very little changed in outward appearance, but many little improvements and refinements have been incorporated in the latest model. The front fork shackles and fixings have been much strengthened, and as regards the mud-guards a reinforced strip is used which renders them much stronger than formerly.

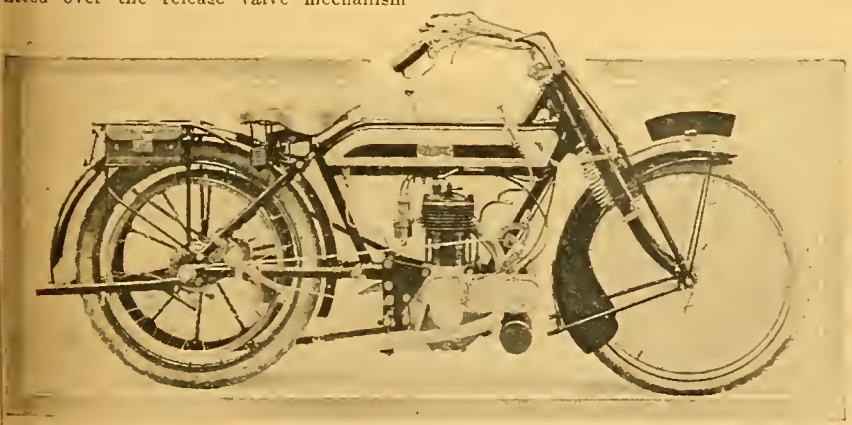
The engine is practically the same as in 1914, viz., bore and stroke 75 × 70 mm. respectively. The piston has three rings, but the crankshaft is now mounted on Hoffmann ball bearings, and a shield is fitted over the release valve mechanism to prevent oil being splashed over the rider's overalls.

Though the Connaught is extremely low, and has a double top tube (of which not all lightweights boast), the tank capacity has not been unduly restricted.

The Connaught is obtainable either with a two-speed counter-shaft gear or a three-speed hub gear, whilst the single-geared model is sold at the modest figure of £33 10s.



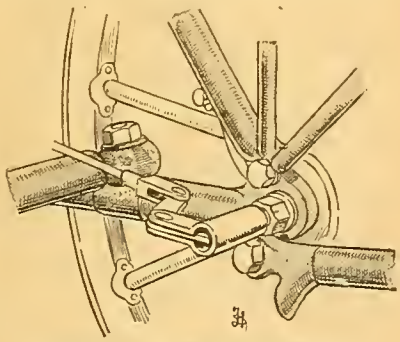
The latest two-stroke Connaught, showing double exhaust pipe and covered-in release valve.



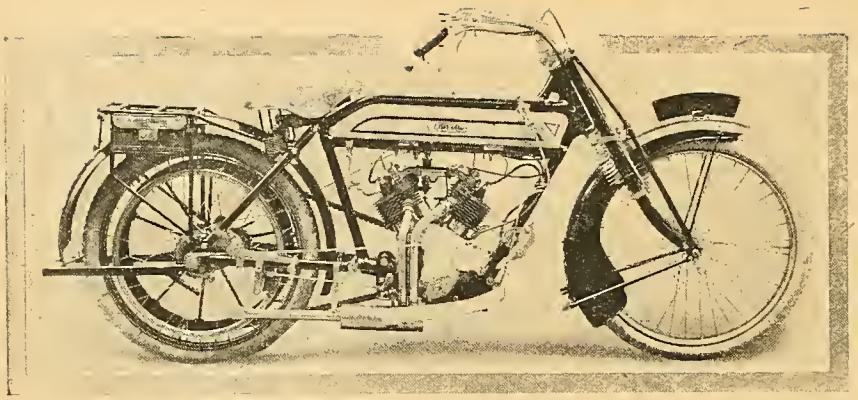
The 3½ h.p. Brown has been entirely re-designed, and one of the latest specimens for 1915 is shown above.

1915 BROWN MOTOR CYCLES.

IN our issue of October 15th (page 437) we dealt with the Vindec two-stroke and the interesting and beautifully-made little engine fitted to the 3½-4 h.p. twin-cylinder Vindec, sold by Messrs. Brown Bros., Ltd., Great Eastern Street, E.C. We have now been enabled to see one of these machines in its final form, and it must be admitted that it is an exceedingly handsome little mount. The gear supplied is the Armstrong three-speed, which in future models will be supplanted by the Sturmey-Archer. The twin-cylinder Vindec and the single-



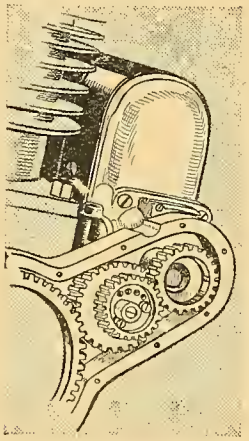
Pivoted sidecar fixing on Ixion machine.



The new 3½-4 h.p. twin-cylinder Vindec.

cylinder 3½ h.p. Brown have certain things in common; for example, the neat aluminium footboards, the excellent mudguarding, the glass-topped petrol filler cap, the substantial back stands, front stands, and luggage carriers. In both cases, also, adjustable pulleys and Best and Lloyd lubricators are supplied.

The 3½ h.p. single-cylinder model, 85 mm. × 85 mm., is an old favourite,



Timing gear on the 3½-4 h.p. Vindec. Observe the eccentric magneto drive

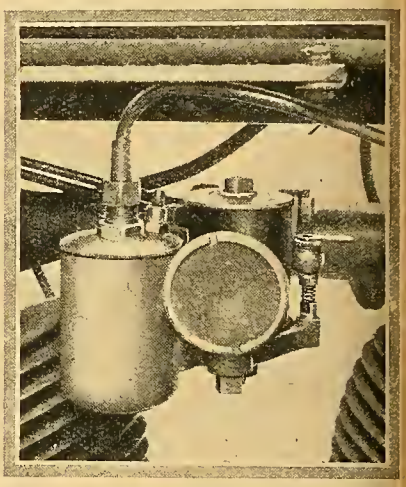
now brought thoroughly up to date, and for the first time equipped with a three-speed hub. Both models are fitted with comfortable Lycett saddles, and Brown and Barlow carburetters of the tapered needle type. Another point well worthy of comment is the low saddle position adopted on the two models.

THE CLYDE.

OUR older readers will remember the Clyde as being one of the first motor cycles to be fitted with a magneto. Two models are being manufactured for 1915, each with two different patterns of frame, the one having a straight top tube and low build for English roads, the other being the popular dropped frame type with 5½in. ground clearance for Colonial work. In all models the loop frame, an old feature of the Clyde, and a very excellent one, as it makes for great strength, is retained. The engines fitted are the 4 h.p. single-cylinder and 6 h.p. twin-cylinder J.A.P.'s, which are too well-known to require a detailed description. We illustrate the twin model on this page. It will be observed that the drive is by chain throughout, and that the gear box is fitted below the bottom bracket. This box contains the Jardine three-speed gear incorporating a kick-starter, and operated by a lever on the top bar, but a four-speed countershaft gear or three-speed hub gear and belt can be obtained to order. The carrier has been strengthened in view of the weights which this fitment is expected to carry in these days. Druid forks, XL'All saddle, B.T.H. magneto, B. and B. carburetter, and comfortable footboards are standard fittings. The clutch pedal is on the right and brake pedal on the left; the brake, however, operates on the outside of a dummy belt rim on the right side of the machine.

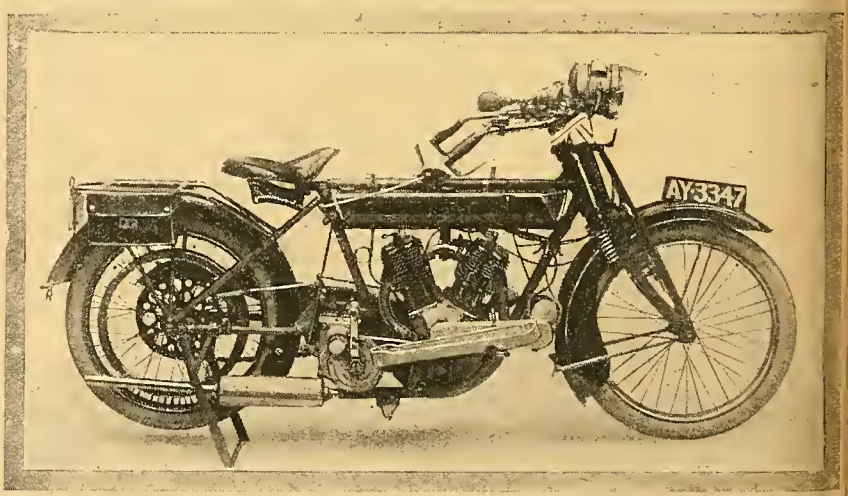
A PILOT JET SENSPRAY CARBURETTER.

ONE of the most interesting types of Senspray carburetter is that which is fitted with a pilot jet, so as to obtain the slowest possible running from any engine. In its main features, the new type closely resembles the already well-known standard Senspray carburetter, but it has one peculiar difference. This is immediately noticeable, for the axis on which the throttle and air slides rotate is vertical instead of horizontal. Between the body of the carburetter and the inlet pipe, and slightly to one side of the main pipe, lies a small chamber into which the pilot jet projects. The jet is fed from the main float chamber, and on its outer circumference a screw thread is formed. On this thread is mounted a small cone with a knurled edge for finger adjustment, a coil spring locking it in position when once set. This cone is, of course, an air adjustment,



The new Senspray carburetter fitted to a twin Rudge. Note the top feed to float chamber.

and when lowered allows a large amount of air to pass between it and the internal face of the afore-mentioned chamber. Thus, a very fine adjustment can be obtained, and we have seen a large twin-cylinder engine kept just ticking over for a considerable period without missing fire. This new Senspray carburetter has been tested for some time. It will be observed from the illustration that the petrol feed is to the top of the float chamber.

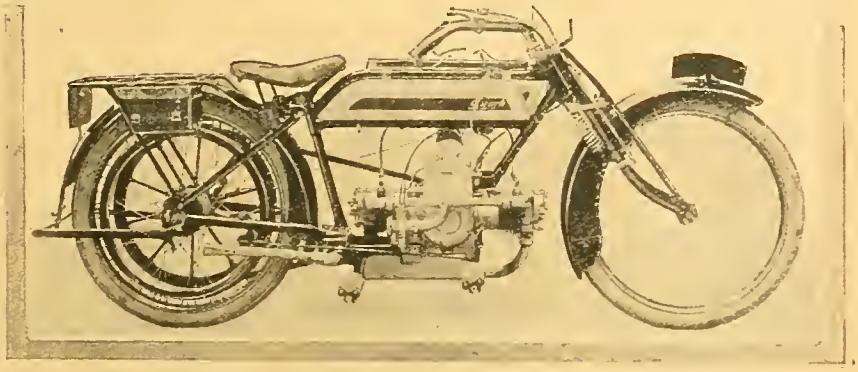


Latest 6 h.p. Clyde which is fitted with Jardine gear.

THE NEW BROUGH MODELS.

Horizontally Opposed Engines, Two or Three-speed Gear.

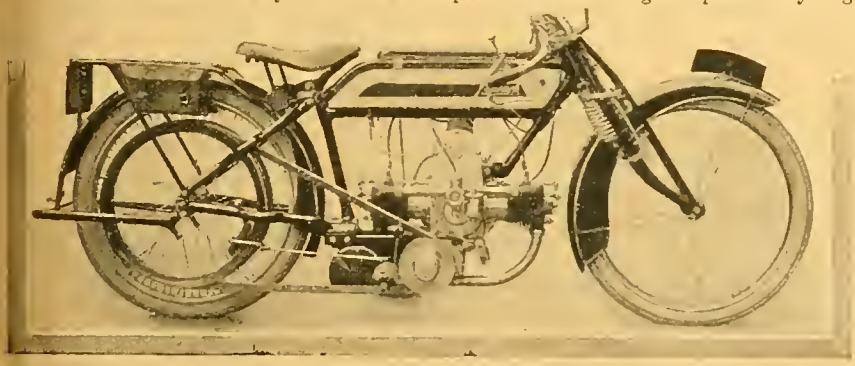
MESSRS. W. E. Brough and Co., of Basford, Nottingham, are for next year confining their attention to the horizontally-opposed twin engine of moderate power. Three models are made, which differ only in detail, each having the same power unit. The bore and stroke of the engine are 70 × 64.5 mm., 497 c.c. The valves have detachable ports, the exhaust ports being made with flanges for cooling the exhaust gases. The pistons are light and unbreakable, and fitted with three rings. The valves are placed overhead, provision being made to prevent them from falling into the cylinder in the case of breakage. The crankshaft is of high tensile steel, running on roller bearings, having balanced webs, and carrying an outside steel flywheel. The lubrication is by Best and Lloyd drip feed to the crank case, and a simple method of forcing oil at high pressure to the adjustable big end bearings is used. The engine is firmly fixed to the frame by three bolts.



The touring model fitted with three-speed hub gear.

It is readily removable, but the cylinders can be detached for cleaning purposes without removing the engine.

Model H S is fitted with a Brough two-speed counter-shaft gear operated by dog clutches fixed under the engine crank case, forming one unit with the engine, and giving ratios in the proportion of 3 to 2. The transmission is by chain from the engine to the counter-shaft, thence by John Bull rubber belt to the rear wheel over an adjustable pulley, which gives a top gear range of 4 to 6½ to 1. A large and efficient silencer is supplied, but no clutch or kick starter is fitted



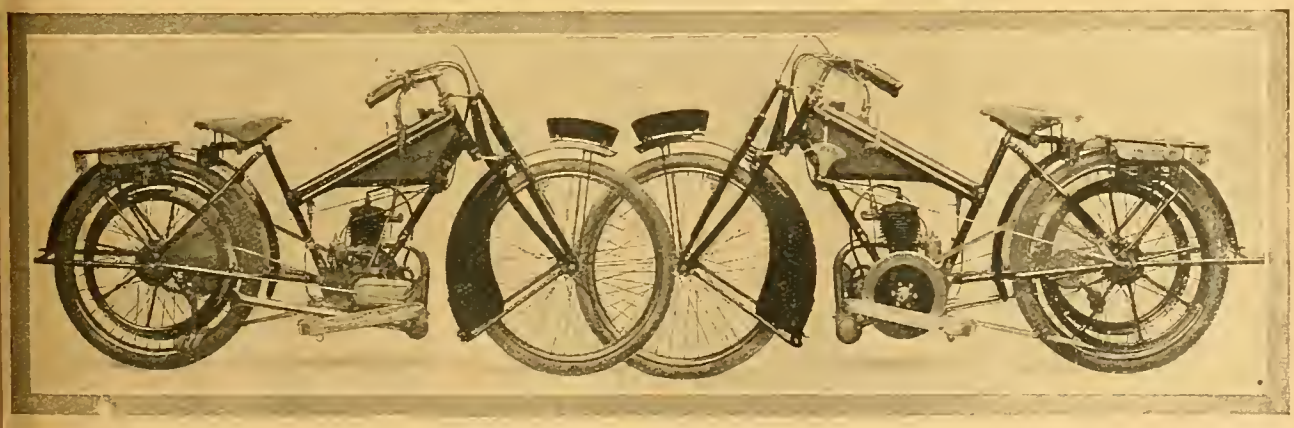
The new racing model horizontal engined Brough

Model H B is for the most part similar to that just described, but is fitted with a Sturmey-Archer three-speed hub, ratios 4, 6½, and 9¾ to 1, and handle starter. The tank capacity of both models is 1¾ gallons petrol and three pints of oil. This machine having a ground clearance of six inches is suitable for use Overseas.

Model H T T is practically identical with H S, but is fitted with a specially selected engine, having light steel pistons, high compression, and extra lubrication to the front cyliuder. A speed of sixty five miles per hour is guaranteed.

ANOTHER LADIES' MOTOR BICYCLE.

A RECENT adoption of the Ivy two-stroke is the neat open frame model depicted herewith. The engine is either the 70 × 70 mm. or 64 × 70 mm. two-stroke, and single-geared, two-speed hub, or two-speed counter-shaft geared models may be obtained. The framework is very neat and strong. A duplex top tube is employed, between which the tank is fitted in a manner which gives a most pleasing appearance The all-important question of comfort and cleanliness has been carefully studied, and the wide guards, the transparent celluloid dress-guards, and the substantial footboards all help this ideal without in any way detracting from the appearance. The Ivy two-stroke does not employ Petroil lubrication, but a Best and Lloyd sight feed drip supplies oil direct to the crankshaft bearings, so that there is but little chance of oily vapour blowing back through the carburetter.

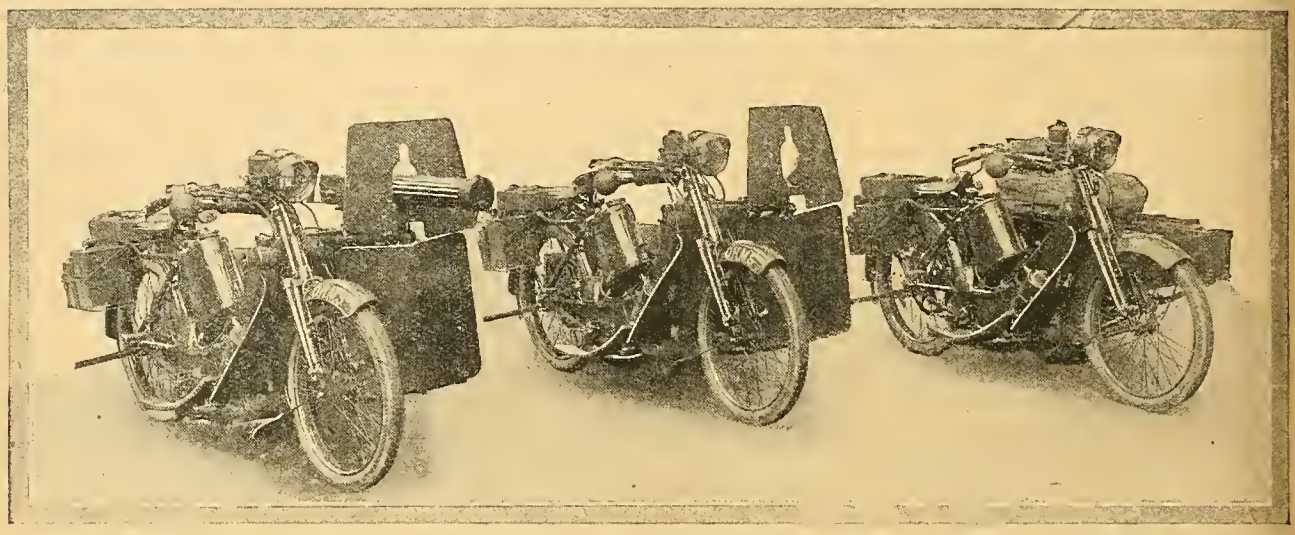


Both sides of the ladies open frame 2¼ h.p. Ivy.

SIDECAR MACHINE GUN BATTERIES.

FURTHER OFFICIAL RECOGNITION OF THE MOTOR CYCLE.

EVERY DIVISION OF THE ARMY TO HAVE ITS SIDECAR MACHINE GUNS.



The Scott sidecar machine gun battery. One sidecar carries a quick-firing gun; there is a spare machine ready fitted up for the gun, and still another carrying ammunition and baggage. (*Passed by the Censor.*)

A MACHINE gun mounted on a motor cycle is no new thing—one was shown attached to a Scott bicycle at the Olympia Show two years ago—but its merits are now being recognised more than ever before. Batteries are being formed, consisting of sixty-four non-commissioned officers and men, who will be equipped with quick-firing guns mounted on Scott and Enfield sidecar machines. Every division of the Army is to have one of these motor machine gun batteries.

The Times of November 24th contained some interesting notes on the employment of motor cycle machine guns. The writer states that he learnt some interesting details from an officer of the motor section. "In the opinion of my informant," he says, "the bicycle is superior in general utility to the car. A powerful armoured car fitted with a long range gun is seriously handicapped by its very qualities. To carry a weapon of calibre commensurate with its size, the car must be fast and powerful, and therefore bulky. It is undesirably visible, and it is unwieldy for the simple reason that, in the roads of Flanders, it takes a very appreciable time to turn round." . . .

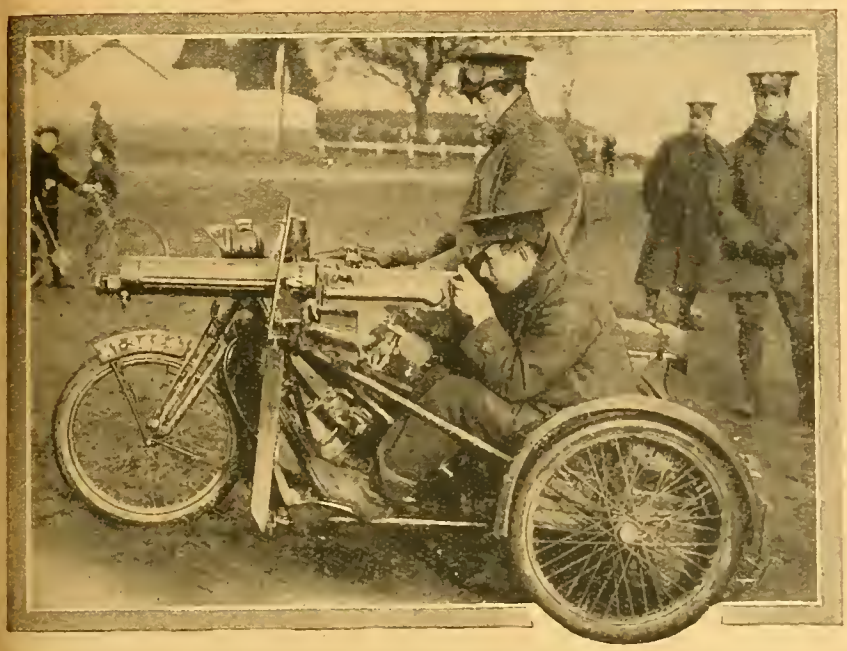
Advantages of the Mobile Motor Cycle.

"The motor bicycle, armed with a small quick-firing gun, such as is extensively used by the enemy, is a weapon of apparently much greater possibilities. It is very small, approaches invisibility as nearly as can be, and, taking advantage of the trees lining every road, can make long surprise rushes, deliver its attack, and return in safety." . . .

"A clever rider (and marksman) can do an immense amount of damage in a few minutes with one of these machines. As soon as he reaches his point of attack, he dismounts and tilts the machine slightly to the left, bringing the quick-firing gun into proper position for manipulation. A good man can sweep a patrol or a transport convoy, and be mounted and on his way back again at 50 m.p.h., almost before the attacked party are aware of his existence." . .

The writer concludes as follows: "Great Britain builds the best motor bicycles in the world, and numbers most of the best riders. A well-trained corps of experienced men, taught to handle a light machine gun, might well prove an invaluable addition to our arms."

Practising firing at full speed on the road.



Frank Cody (son of the late Colonel Cody), who is driving one of the Scott sidecar machine guns, and his gunner. (*Photograph passed by Censor.*)

The New Motor Cycle and Sidecar Battery.

Such a corps, as we have said, is now in training at Bisley, but the guns will not be mounted on motor bicycles as *The Times* writer appears to imagine, but on the chassis of sidecars attached to motor cycles. One man will look after the gun and fire it either from the sidecar or quickly dismount the tripod and gun and convey them over ploughed fields or such like should necessity arise. The batteries will be attached to the Royal Horse Artillery and Royal Field Artillery, the pay being the same as in these units. A quick-firing gun on the handle-bar of a bicycle would be a very unstable arrangement, and render steering difficult, especially on greasy and damaged roads. The sidecar is almost, if not quite, as mobile and as easily turned in a narrow roadway; the gun would be ready at a moment's notice without any preparation, and a much greater quantity of ammunition could be carried.

A Coventry Battery.

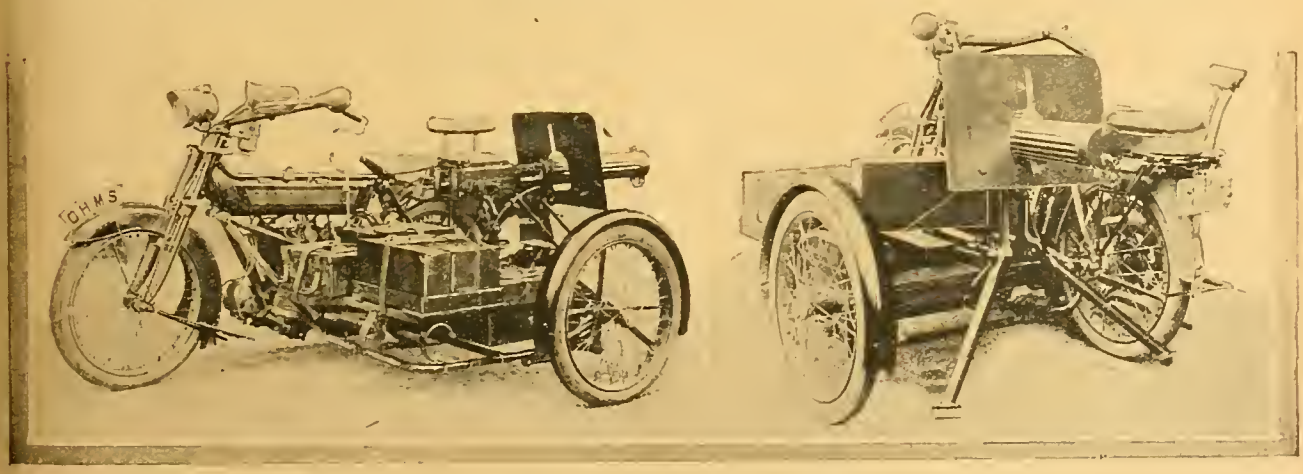
The idea of a sidecar machine gun battery appeals to many sporting motor cyclists, who have readily offered their services. Recruiting has been assisted, too, by the authorities permitting sections of friends to work together. The idea of a Coventry battery occurred to Captain J. E. Alkin, who hails from Atherstone, and has been appointed commanding officer of one of the new batteries, and he approached Mr. Geoffrey Smith (the Editor of *The Motor Cycle* and the honorary secretary of the Coventry and Warwickshire Motor Club), through Mr. Victor Riley, and a splendid response has been received to the local club's appeal for recruits. There were thirty-four vacancies, and over seventy applied. One member, too old to be accepted, afterwards sent a cheque for £9 to the hon. sec. to be spent in comforts for the men selected. Among the first accepted were J. Cocker (Singer and Triumph rider), W. A. Davenport (Lea-Francis rider), C. Allison (Colmore depot), and J. H. Pountney (Rover). On Monday the Coventry battery (which is to be known as the 5th Motor Machine Gun Battery) left for Bisley, marching through the streets of Coventry headed by a band. They were given an enthusiastic send off. After becoming proficient in the handling of a machine gun at Bisley—it is said that a mechanically-minded man can become an expert shot in a month—the men will be sent over to France, and can be relied upon to give a good account of themselves.

Some Particulars of the Machines.

A large number of Scott and Enfield sidecars, to which the quick-firing guns are attached, are now being delivered. Their design is well-known to our readers. The principal features are as follow: Both machines are fitted with chain drive, two-speed gears, and twin-cylinder engines, the Scott engine being a two-stroke of 532 c.c.; the Enfield is fitted with a 6 h.p. J.A.P. 770 c.c. engine. That both are well-tried and reliable machines goes without saying, otherwise they would not have been selected for this very important work.

Each motor machine gun battery consists of sixty-four men, though six extra men are kept in touch. There are six gun teams, each team having three motor cycles and sidecars—one carrying a gun, another gun mountings (but without a gun) to take the place of the former in case of necessity, and the third carrying ammunition and other necessary impedimenta. There are six riders of solo machines in close attendance, who act mainly as scouts, three mechanics, and nine car drivers with ammunition, etc., making up the total.

We regret to announce that Leonard A. Filleul, of Monkton Combe School, has been killed in action.



Two aspects of the 6 h.p. Enfield sidecar machine gun which is arranged to fire rearwards.

Bristol M.C.C. Open Eighteen Hour Trial.

RAIN, MUD, HILLS, AND FOG.

OF the twenty-five entrants for this strenuous event, which took place on Friday and Saturday last, only three failed to face the starter at the Queen's Hotel, Clifton, and these were P. Grout, F. C. Wasley, and L. Martin. The first man was sent away at 9 p.m. to make his way to Porlock, *viâ* Cross, Bridgwater, and Williton at his own gait. Muddy roads were the order of the night, but a clear sky compensated somewhat for the adverse surface.

W. H. Rudge (3½ Wolf) and H. W. Walker (2¾ Douglas) were among the absentees at the Ship Inn, and A. Stevens (3½ Zenith) broke a belt on the hill and retired; but, with these exceptions, almost everyone arrived safely at the top of Lynton Hill. Both Porlock and Lynton had long stretches of loose stones, which caused a few dismounts. A time check had been arranged at the top of the latter hill, but as the checker found trouble on the way to his post it was abandoned in favour of a "control."

The Rain Begins.

The road from Lynton to Launceston produced no very important incident save that the weather began to break and heavy rain fell. Eight competitors were missing at the Launceston time check, though of these D. Hawkes (8 Victor c.c.), H. Greaves (8 Enfield sc.), H. Petty (3½ Brough), W. McVeggie (3½ Brough), and G. E. Radley (3½ Burford) appeared once more at Exeter. The arrival of Hawkes was particularly welcome, and both his Victor and Clayden's A.C. had been running well and made fine ascents of Porlock and Lynton. Unfortunately, however, the fact that Hawkes lost his way put him out of the running. The weather conditions were by now awful, and Dartmoor was crossed in fog and rain. Speed became a matter of impossibility, and with the exception of George Brough (3½ Brough) and L. Clayden (A.C.) everyone met his Waterloo, for at Exeter these two alone checked in within the maximum time limit. Of these Brough was within the necessary five minutes and thus still qualified for a gold medal, but Clayden exceeded the time by two minutes, and had to be content with his chances of a "silver."

Welcome Daylight.

After 189 miles in the dark and rain, a breakfast halt of one and a half hours at the Bude Hotel, Exeter, formed a welcome rest. After this the two once more set out, followed, after a long interval, by a few of the keenest competitors, who continued in spite of having lost all chance of awards. The weather had improved considerably, and it was a great relief to see daylight once again. There were still serious hills to be encountered at Sidford and Lyme Regis, but for those who had safely overcome the difficulties of the night there was but little fear of failure. Both checked in on time at Lyme Regis, and after that there was little of interest in the long and rather dull route back to Bristol *viâ* Dorchester, Blandford, Shaftesbury, Frome, and Bath. Competitors were obliged to sign on at Blandford and Frome, and finally at the Queen's Hotel once again. Both Brough and Clayden arrived safely at the finish, and were followed by some nine or ten enthusiasts, who straggled in at intervals.

Hard-earned Awards.

The highest praise is due to both the medal winners. Brough's performance is little short of miraculous, for the darkness, hills, and road surfaces, which were in places almost a foot deep in grease, were enough to deter the boldest solo rider and spoil his 20 m.p.h. average. Only a hardened rider such as George Brough on a really first-class machine could have accomplished such a task. Ludlow Clayden's performance is almost equally meritorious, for, though he had the advantage of the comfortable little four-wheeled A.C., it is no child's play to bring a light car

W. H. Egginton, H. Greaves, and C. Norrington, all on Enfield sidecars, passing through Lyme Regis.

Bristol M.C.C. Open Eighteen Hours Trial.—

through, under such circumstances, at an average speed of 20 m.p.h. The driver is a member of the staff of *The Light Car*, and, though his experience of automobile engineering is a comprehensive one, he is a newcomer to competition driving, which renders his performance all the more meritorious.

NOTES ON THE TRIAL.

Many eventually lost any chance of an award through missing the way between Bideford and Exeter. To average 20 m.p.h. up Porlock, down Countisbury, and up Lynton was asking too much, especially for solo riders. The road between the top of Porlock and Countisbury was very treacherous, large patches of unrolled stones being suddenly encountered without any warning red lights. The greater part of Countisbury was covered with unrolled stones continuously.

The new three-speed 4 h.p. Douglas with sidecar attached made its *début* in this event but unluckily went astray.

Heath and Dudley were riding 1915 Sunbeams, the former a 6 h.p. and sidecar, and the latter a 3½ h.p. solo. Although Heath's machine, which was fitted with the new leg guards, appeared to be geared rather low, it had quite a good turn of speed, the engine being able to "rev." for miles on end, without overheating.

During the first part of the route we noticed that the signposts were in course of being repainted, and when we passed them they were all white. However, this part of the course was over main roads, so that it did not trouble the competitors very much.

Creak Davies (Chater-Lea sc.) had a puncture in his sidecar tyre soon after Lynton Hill, and then one of his generators burst.

P. Matthews had the misfortune to split the pulley of his Norton, which, of course, caused his retirement.

We passed Harold Petty (3½ h.p. Brough) stopped just round the first corner on Porlock and did not see him again. His machine was fitted with a hand-controlled clutch.

Both Egginton and Greaves were riding 1915 Enfield sidecar combinations complete with Lucas lighting outfits and 8 h.p. J.A.P. engines.

The trial accounted for at least one broken frame, to which a sidecar was attached.

Radley's Burford, which looked very smart, being a brand new machine, was fitted with handle-bar controlled clutch, and climbed both Porlock and Lynton non-stop. This speaks well for the engine as it had no running in whatever. Unfortunately Radley was misdirected by the police in Bideford together with four or five other riders, which caused them all to miss the Launceston check.

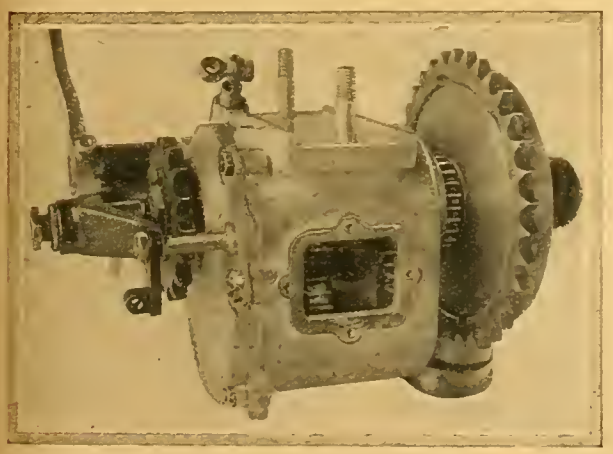
Phillips and Ball were mounted on three-speed Douglases, but, unfortunately, lost their way on Dartmoor in the fog.

The trial was undoubtedly a very sporting one, but the average of 20 m.p.h. was rather too high for safety in some places, and a gold medal was considered a 60 to 1 chance from the outset.

A. Ludlow Clayden's sporting model A.C. looked very smart indeed. The driver relied solely on his Avon combinations on the hills, not using Parsons chains, as might have been expected.

SURVIVOR OF THE ALL-NIGHT TRIAL IN THE WEST COUNTRY.

G. Brough (3½ h.p. Brough), who was the only competitor to arrive at Exeter to time.



The 1915 Sunbeam gear box, which is much stronger than formerly.

AN OPEN TRIAL IN IRELAND.

The committee of the Dublin and District Motor Cycle Club, at its meeting last week, decided to hold an open reliability non-stop trial from Dublin to Roundwood, Co. Wicklow, on Boxing Day. The committee had also before it the question of next year's competitive programme, and after a full discussion of the subject it was decided that it should be carried out as usual. The committee was influenced in its decision by the fact that the complete stoppage of competitions would cause an injury to a big national industry. The annual dinner of the club will be held on the 19th inst

Accessories and Equipment Issue.

A Special Issue of "THE MOTOR CYCLE" will be published on Thursday next, 10th inst., devoted to Accessories, Tyres, Clothing, and Equipment generally.

SOME NOTES ON GEARING.

Interesting Contrasts between the Power of Humans and Motors.

IT is customary to speak of a motor cycle as being geared 4 or 5 to 1. This method of stating the gear ratio is simple and easily understood, but it is open to one or two objections; for instance, if it is required to know the speed which can be attained, we must also know the number of r.p.m. at which the engine is running and the diameter of the driving wheel. These facts having been ascertained, the speed can easily be calculated from the formula

$$\text{m.p.h.} = \frac{D'' \times (\text{r.p.m.}) \times 3}{1000 \times \text{gear}}$$

This formula can also be stated in the following forms for the purpose of finding the gear or r.p.m.:

$$\text{gear} = \frac{D'' \times (\text{r.p.m.}) \times 3}{1000 \times (\text{m.p.h.})}$$

$$\text{r.p.m.} = \frac{1000 \times (\text{m.p.h.}) \times \text{gear}}{D'' \times 3}$$

D'' = diameter of driving wheel in inches.

Example:

$$\text{m.p.h.} = \frac{26 \times 2000 \times 3}{1000 \times 4\frac{1}{3}} = 36$$

when the gear is 4⅓ to 1, the wheels 26in., and the engine turning at 2,000 r.p.m.

In my opinion a better plan would have been to state the gears in m.p.h. either at the normal speed of the engine in question or at a fixed speed of, say, 1,600 r.p.m.; but we have become accustomed to the other plan now, and probably a change is neither possible nor desirable.

In many variable gears the reduction is stated to be so much per cent.; this usually means a percentage reduction in speed thus:

High gear × 100 = low gear × (100—x), x being the reduction in question, or, low gear = $\frac{\text{high gear} \times 100}{100-x}$

for example, if the reduction be 50% and the high gear 4 to 1, low gear = $\frac{4 \times 100}{100-50} = 8$, but a 50% difference might be taken to mean gears of 4 and 6 to 1, which is an addition of 50% to the high gear ratio. This, however, is not the usual method of reckoning.

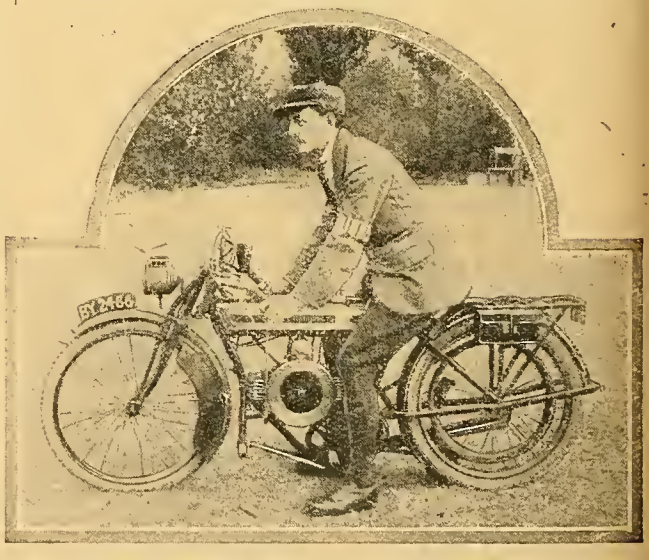
The Case of the Pedal Cycle.

To find the gear of a chain or shaft-driven machine, multiply the number of teeth in the driven members together and divide the result by the product of the teeth in the driving members. In the case of a belt-driven machine it is best to mark the pulley and turn the driving wheel through one revolution and count the revolutions of the pulley (the gear will be very slightly lower than this figure, as the belt will bed lower in the pulley when the engine is running).

In pedal bicycle practice quite a different, but in some respects superior, method is adopted. It is customary to speak of a bicycle being geared, say, to 72, which means that it will travel as far at every complete turn of the pedals as a 72in. wheel will in one revolution (nearly 19ft.); during this time two power strokes are applied, one with each foot. If motor cycle gearing were quoted in the same terms, we should find that a machine with a 4⅓ to 1 gear ratio and 26in. wheels would be geared to 6, which, in comparison with a pedal cycle, seems ridiculously low, but a few moments' consideration will show that the difference is not quite so marked as it sounds at first. The cycle travels 72π inches at each complete revolution of the motor (in this case the rider's feet), and the motor cycle 6π inches, but, as before mentioned, the cycle receives two power strokes per revolution and the motor bicycle one power stroke per two revolutions; therefore, the cycle travels 36π inches per stroke and the motor cycle 12π inches. One stroke of the foot, then, carries the machine three times as far as one stroke of the motor, provided that a single-cylinder engine be used.

Human and Mechanical Motors Contrasted.

It may be interesting to carry the comparison a little further. Not many riders are capable of more than 20 m.p.h. (at any rate for more than short periods under favourable conditions); to accomplish this speed the feet must make 92 r.p.m. with a machine geared, as in our example, to 72, whereas the motor cycle (gear 4⅓ to 1) will attain the same speed at 1,100 r.p.m.—less than half of what the engine is easily capable. From this we see that a cyclist is essentially a low speed motor and a motor cycle engine a high speed one, and that it is owing to its speed that the motor cycle engine is able to develop the remarkable horse-power of which it is capable. A cyclist, weighing 12 stone, riding a 32 lb. machine up a hill of 1 in 10 at 6 m.p.h. exerts .32 h.p., wind resistance, which is practically nil at so slow a speed, being ignored; and if the speed be 10 m.p.h. the required horse-power will be .53, and a man must be a good rider to keep this up for long, but a 500 c.c. engine is capable of exerting about ten times this h.p. for extended periods. AURIGA.



Cecil Friend-Smith, of the Croydon Special Constabulary, who finds his Douglas very useful for police work in that district. The armlet denotes he is on duty.

π is the ratio of the circumference of a circle to the diameter and is equal to 3.1416 approximately.

THE MOTOR CYCLE AND THE WAR.

A Wounded Despatch Rider.

R. S. Douglas, a despatch rider, whose mount is a Rudge, has just returned invalided from the Front. This rider was awarded the Médaille Militaire for valour before leaving France, and the medal was pinned on his breast by General Dorrien on behalf of the French Government.

The Canadian Motor Cyclist Corps.

It will be remembered that the first Canadian contingent was accompanied by a section of thirty-two motor cyclists, but so useful have riders proved themselves that the next contingent, though not quite half the strength of the first, will have no fewer than 200 riders. The commander of the motor cycle division will be Major Denison, and he will direct operations from a sidecar. A special uniform consisting of sheepskin-lined Norfolk jackets has been adopted. The riders are at present practising over ploughed fields, etc., and snow-covered roads will form another test as soon as the cold weather sets in.

Official Praise for Despatch Riders.

In Sir John French's latest despatch the following paragraph appears, and though "cyclists" are referred to, it would seem likely from the description of the work performed that the remarks really apply to the motor cyclist despatch riders:

"I am anxious in this despatch to bring to Your Lordship's special notice the splendid work which has been done throughout the campaign by the Cyclists of the Signal Corps.

"Carrying despatches and messages at all hours of the day and night in every kind of weather, and often traversing bad roads blocked with transport, they have been conspicuously successful in maintaining an extraordinary degree of efficiency in the service of communications.

"Many casualties have occurred in their ranks, but no amount of difficulty or danger has ever checked the energy and ardour which has distinguished their Corps throughout the operations."

Croix Rouge Francaise.

The total amount received in subscriptions by the British Ambulance Committee to the French Red Cross Society is now considerably over £16,000. From all parts of the Kingdom contributions and offers of cars continue to be received. Lest the object for which the fund was organised should be forgotten, it is perhaps as well to point out that it is to make up the deficiency in the number of cars available for ambulance work in France. By this means it is hoped to obviate the delay in transport from the front which has resulted in much suffering to the wounded. The fact, moreover, must not be overlooked that the line held by the French is of such extreme length and the roads in such bad condition at this time of the year, that the efforts of those engaged upon the humane work of removing the wounded are extremely great, and it has in many cases temporarily broken down. All cars offered to the Committee must, of course satisfy certain standards in point of size and equipment. The Committee's appeal is for both cars and money to run them. For days past the honorary secretaries to the Committee, Mrs. G. Cecil Baker and Mr. B. Peyman, have been besieged at Wimborne House, Arlington Street, Piccadilly, by a large number of generous persons only too anxious to help.

An Adventurous Night.

A soldier writes from France: "A scout attached to our convoy yesterday had a most adventurous time. Captured one night—escaped—then stole a German's motor bike—and hopped it. The cylinder blew out and blew him up. The scout then walked seven miles to the English lines. What a picnic!"

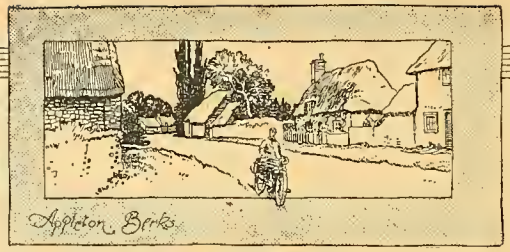
Success of the Motor Cycle.

The Standard says the motor cycle is dependent on good roads. No one can say that the roads in the military area in France are good at the present time. It would be more correct, therefore, to say that the motor cycle is, rather, dependent on hard ground, as under certain conditions it may be even used across country. There is no doubt however, that the motor cycle has, in the words of our correspondent, "come into its own," as far as its use in warfare is concerned.

A SCOTT SIDECAR MACHINE GUN IN ACTION.

An article on the subject of the new motor machine gun batteries is published in this issue. Every division of the Army is to have its sidecar machine guns.

CURRENT CHAT



SPECIAL FEATURES

SIDECAR MACHINE GUN BATTERIES.
DETACHABLE WHEELS:
Ancient and Modern.
WEST COUNTRY ALL-NIGHT TRIAL.

TIMES TO LIGHT LAMPS.

Dec. 3 ...	... ...	4.52 p.m.
,, 5 ...	... ...	4.51 ,,
,, 7 ...	... ...	4.50 ,,
,, 9 ...	... ...	4.50 ,,

Overall Suits Wanted.

Any readers who have serviceable khaki-coloured motor cycle waterproof suits to spare are requested to send them to Miss Elizabeth Schofield, Shoebury Cottage, Shoeburyness, Essex, who will forward them to the Motor Transport Army Service Corps.

Concert in Aid of Belgian Fund.

The M.C.C. smoking concert in aid of the Belgian Relief Fund proved a great success. The large hall at the Café Monico, London, W., was well filled with members and friends, who seemed thoroughly to enjoy the pictures provided. Lantern slides embodying advertisements resulted in £21 extra for this worthy fund. The M.C.C. bore the expenses. A further concert is to be held by the same body on December 11th. Tickets, 1s. each, may be obtained from Mr. W. H. Wells, 366, Euston Road, N.W.

How the War Funds Stand.

The totals of the principal war funds, as enumerated below, stood as under on Tuesday last:

	£	s.	d.
H.R.H. Prince of Wales's National Relief Fund	3,983,000	0	0
H.R.H. Princess Mary's Fund to provide Christmas Gifts for Soldiers and Sailors	107,404	0	0
The Queen's Work for Women Fund	93,428	0	0
The Times Fund for Sick and Wounded	684,017	8	6
Daily Telegraph Belgian Relief Fund	75,324	1	11

The Grand Prix of Australia.

The Grand Prix of Australia, organised by the M.C.C. of Melbourne, proved a thrilling event. It was held on October 5th over a winding course of fifteen and a half miles per lap, and nine laps had to be completed. The road surface was good, but punctures were frequent, and tyre trouble was responsible for almost all the delays. The race was an open event, but the course slightly favoured light machines, which equalised matters considerably. E. Meller, the winner, rode a 2¾ h.p. Douglas, and put up an excellent average of 41.3 m.p.h. D. McFarland came home second, winning the trophy presented by Milledge Bros. N. Suiden finished third (Bennett Barkell trophy), and J. Meller fourth. The course is known as the Yetholme-Sunny Corner course.

Directors' Report.

The statement of accounts of the Bowden Brake Co., Ltd., Tyseley, Birmingham, shows the net profits for the year ended August 31st to be £2,458 1s. 11d. as against £1,198 1s. 5d. for last year. From these profits the directors propose to pay dividends on the 6% preference shares, and to place £1,000 on the reserve fund to cover possible losses caused by the war.

Military Motor Cyclist's Wedding.

A S.E. motor cyclist, who rides a Triumph, and is at present serving in the Home Forces, is to be married shortly to a young lady rider, who owns a two-speed Douglas. It will be a military motor cyclist's wedding. The motor cyclist, who hopes to obtain extended leave, will drive to the church in uniform. The bride elect will be attended by another lady rider, and several motor cyclists will be amongst the invited guests. The wedding—a quiet one—will take place at a church in South London, where the banns have been read for the first time.

Canadian Motor Cycle Firms.

Despite wartime activities and confusion, the members of the Canadian motor cycle trade are sticking to business. Recent issues of the *Canada Gazette*, the official newspaper of the Government, contain the announcement of the incorporation of two companies, which have been organised for the purpose of manufacturing motor cycles or accessories and supplies. The one is the Essex Motor Cycle and Machine Co., Ltd., of Essex, Ontario; the other concern is the Superior Tube and Accessories, Ltd., Toronto. The latter firm is to make accessories, tyres, and parts.

The Essex Co. is one of the first, if not the first concern to be incorporated in the Dominion for the express purpose of turning out motor cycles.

Canadian Motor Cycle Shows.

The motor trades of Canada are facing a predicament in respect to the holding of the annual shows in the various cities early in 1915. The armories and various public buildings formerly used for the motor exhibitions are occupied by Canadian soldiers in training for the European War, and no structures are available for show purposes in many places. On this account the long-established annual Toronto show fixture has already been called off for 1915, but preliminary arrangements are being made by the motor cycle dealers of Toronto to stage a co-operative and exclusive motor cycle display in a convenient office building or warehouse. The Montreal show is to be held as usual, starting January 23rd, but it is to be placed in a large dock warehouse on the river front.

French Roads Impassable for Cars

We have received a postcard from Vernon Taylor, on which he says: "Many thanks for sending out *The Motor Cycle*. I may say it is greatly appreciated. You cannot understand what the roads are like here; some impassable for cars even now."

A Chain-driven Rudge.

In addition to the Rudge models for 1915, described on pages 593-4 of our last issue, a 7-9 h.p. chain-driven machine with three-speed countershaft gear is to be added to the range. This newest design Rudge will not, however, be ready for delivery until February.

Exports from America.

That the United States motor cycle industry is feeling the effects of the great war is shown by the August export figures. These indicate that, whereas in August, 1913, 238 motor cycles were exported, only 186 were exported in August of this year. This inclines one to modify one's views on the proposed capture of British Overseas trade by our friends across the Atlantic about which we have heard so much of late

Horizontal Twins.

Is there anything in the air of the west country that affects the horizontal twin? The most famous producers of that type of engine have their works near Bristol, and now George Brough, on his 3½ h.p. horizontally opposed twin Brough, is the only solo rider to survive the Bristol M.C.C. trial. In truth, this must have been something to do with the rider whose feats are already well known, but much must be said for the machine, with its even impulse and consequent steadiness and excellent torque. The horizontal twin proved itself some time ago by the success of the little Douglas, but as time goes on we find more and more manufacturers adopting the design which has so satisfactorily proved its worth.

Rear Lights.

Yet another fatal accident has been caused by the absence of properly placed rear lights on a dray. At the inquest on the victims, C. Hirst and G. E. Gray, the Coroner made some valuable remarks upon the advisability of having all slow-moving vehicles lighted with an independent red light *in the rear*, as the lamp placed in the front of a waggon might easily be invisible from behind. We have, as our readers know, often urged this in our columns. The verdict was one of "Accidental death," though the Coroner had observed "My own idea is that these carters had had far too much to drink." *The Wakefield Express*, commenting on this, says: "How many more lives must be sacrificed before the authorities will move it is impossible for us to estimate."

The Latest in Milestones.

A unique milestone has been set up outside a Barnes garage. The distances marked on this are Berlin 743 miles, Tipperary 323¾ miles, and a finger post above directs the way to Potsdam.

Why an Engine Konks.

The discussion on the subject of engine konking is being continued with vigour in our Correspondence columns, and many and varied are the opinions of the true cause of the noise which emanates from the engine.

1915 Models.

We continue our descriptions of 1915 model motor cycles in this issue, and more will be ready in time for our special Equipment Number to be published on Thursday next. Two or three entirely new designs by prominent makers have still to make their appearance.

The Trade in Motor Cycles.

The very fact that practically every motor cycle manufacturer has produced a 1915 model motor cycle embodying improvements as experience dictated proves to some extent the amount of life in the industry. From several quarters lately we have heard of an increase in the demand for motor cycles.

All-British Christmas Shopping.

The Union Jack Industries League, the originators of All-British shopping weeks, announces a national All-British Christmas shopping campaign, commencing on Monday, December 7th. This seems to us more desirable than usual at the present time. Shopkeepers wishing to take part should communicate with the organising secretary, 79, Fetter Lane, Holborn, E.C.

Motor Cycle Manufacturers and the War.

Those enterprising manufacturers who have devoted their energies to the application of their motor vehicles to warlike uses are now reaping their rewards. An article urging manufacturers to pay attention to the possibilities of adapting their vehicles to special uses appeared in this journal on the outbreak of war—there is still room for improvements and further extension of the scheme.

The Bristol M.C.C. 18 Hour Trial.

The Bristol Motor Cycle Club's open eighteen hour trial, which is described in this issue, was a most strenuous affair. Apart from the appalling surfaces and weather, the route and nature of the trial were sufficiently arduous to cause many casualties. All this makes the performances of Brough and Clayden the more meritorious, and it is a curious point that neither of these successful competitors was a local man, though local knowledge should have been a great advantage.

Cycle and Motor Trades Benevolent Fund.

The monthly meeting of the Executive Committee was held on the 26th ult., Mr. F. S. Bennett in the chair. The treasurer's report showed a balance at the bank and in hand of £1,517 0s. 8d. It was felt to be a matter of congratulation that in spite of the very numerous and heavy demands on the fund during the last few months all claims were met without its being necessary to disturb investments.

The Institution of Automobile Engineers.

The next meeting will be held on the 9th inst. at Storey's Gate, St. James's Park, S.W., at 8 p.m., when a paper will be read entitled "Benzol, Alcohol, and Mixtures of these Liquids with Petrol as Fuels for Internal Combustion Engines," by Prof. W. Watson, D.Sc., F.R.S. The paper is the result of some very interesting experiments with mixed fuels recently carried out by Dr. Watson and his assistants, and a card of invitation to the meeting may be obtained by those interested in the subject on application to the secretary of the Institution of Automobile Engineers, 28, Victoria Street, Westminster, London, S.W.

A.A. and M.U. Notes.

ROAD SIGNS FOR SCOTLAND.—The Scottish offices of the A.A. have recently arranged for the erection of two much-needed caution signs on the Strathdon Road, and also two signs for Roughpark village, in the same neighbourhood. Three direction signs have also been erected in Perth at the junction of the Crieff and Dunkeld roads, which should be of great assistance to motorists. Four school signs have been supplied at the request of the Glasgow Town Council, and two school signs have been supplied at the request of the Town Council of Rothes.

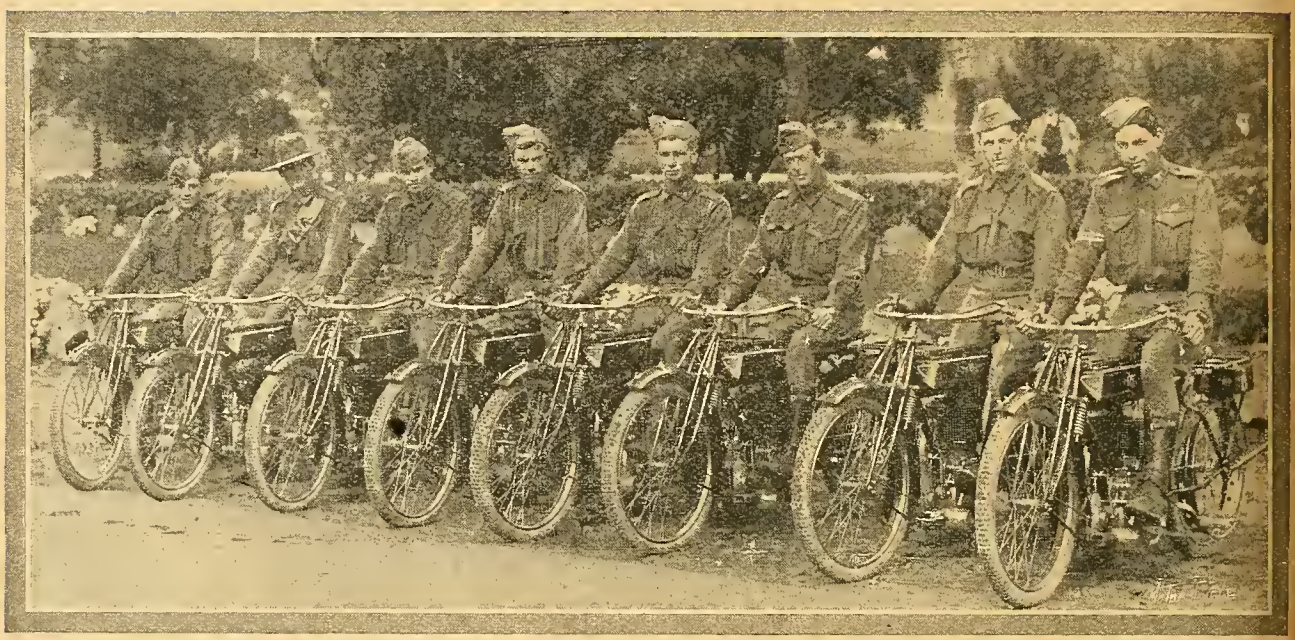
PROPERTY LOST BY MOTORISTS.—The A.A. receives every week a number of articles, such as accessories, tools, lamps, etc., found on the roads. During the past two or three weeks a noticeable increase has taken place with regard to the number of articles found, and although every effort is made to discover the owners, several still await identification by owners. Much of this "treasure trove" has evidently been lost by motor cyclists, several tool kits and belts having been sent in by the A.A. road patrols. If any motorist has during the past two or three months lost property of this description, the head offices of the Automobile Association should be communicated with. The particulars given should in every case cover a description, also the road, and date on which the loss probably occurred. The Association also invites all motorists, whether members or not, to notify such losses as soon as they happen, in case the articles lost have been found by the patrols and sent to the A.A Lost Property Department.

Trials and Despatch Riders.

There has been a certain amount of discontent regarding the choice of motor cyclists for military purposes, as it is said that the services of many experts have been refused, while certain comparative novices have been accepted. If this be the case, would it not be possible to hold some kind of eliminating test? For instance, any competitor who survives such a trial as the Bristol M.C.C. event should surely make a suitable despatch rider. Eighteen hours of rain and wind, combined with a long stretch of darkness, deep mud, exposed country, and 1 in 4 gradients, are surely as severe conditions as can be obtained in this country, and Devonshire roads are not celebrated for excellence of surface in winter time.

THE BRISTOL M.C.C. EIGHTEEN HOUR TRIAL.
P. B. Phillips and F. G. Ball on Trow Hill. The machines are Douglases.

MILITARY NOTES.



Our Overseas dominions, which are playing such an important part in the great war, recognise, as we at home do, the utility of the motor cycle in warfare. The eight Precision machines seen in this illustration are in the service of the Australian Defence Department.

Overseas Military Motor Cyclists.

A PATRIOTIC firm of Melbourne, Messrs. A. G. Healing and Company, presented the Defence Department of Australia with three of the eight Precision "Big Four" motor cycles shown in the accompanying illustration, together with an additional machine as an emergency mount, so that in the event of any machine being put out of action a duplicate is available. Frames, wheels, and tanks are of specially heavy construction. It is interesting to note that all the machines are single-geared. The firm also supplied spares, tyres, and workshop equipment to the valne of £100, in order to render the corps as far as possible independent and self-contained. Three of the riders chosen are expert motor cycle mechanics, and all put in several hours in the factory before joining, making themselves conversant with every detail.

News from the Front.

The following are some extracts from a letter written home by B. Alan Hill, a leading competition rider, now in the 4th Motor Ambulance Convoy, driving an Argyll Red Cross ambulance:

"We are having quite typical November weather—cold, misty mornings and generally bright days. In a general way we have to be up at 5.30 and wash and shave at the pump, but now that things have slackened up a bit we are able to get to bed at 9 p.m. and up at 6 a.m. I have been lucky the last few days in having a bed to sleep in. The town is packed with soldiers, and just at the moment the chief excitement is watching for aeroplanes coming over. As soon as a Taube is sighted the soldiers bang away at it for all they are worth. They have also brought a Maxim gun to play on them, but so far I have not been lucky enough to see one brought down. On Wednesday I went a journey of about twenty miles out and twenty back with several others of our convoy to get stores. It was a very interesting ride, though tricky; the roads are very highly cambered and were covered with the thickest and slimiest mud I have ever come across. It was very early when we started, and in the thick, cold mist we passed hundreds of poor devils of refugees wandering along, apparently having been out all night. The roads were simply packed with troops on the march, hundreds of transport waggons, etc., and we had a rare job to keep out of the ditches when passing them. On our return at one very bad corner a motor cyclist had a bad moment trying to avoid running into us, and as he passed I saw it was North, the Ariel rider. Curiously enough, on this same day I was hailed by a passing motor lorry in the town where we are stationed, and found C. Q. Roberts on board. He told me he was stationed at a town about twenty miles away, and that he had that day seen *The Motor Cycle* with G. T. Gray's portrait in it, and heard that I was out here. Not half an hour afterwards who should come walking up the street but the two Burneys. They only came here three days ago and may be stationed here for some time, so I hope to see them again. They seem to have had a very exciting time since they came out. I have also met Clarke, the Rudge rider. The Argyll is a splendid car, but I have had a lot of tyre trouble and have been unable to get new tyres. I saw a Humber ambulance out here. It looked very nice and quite suitable for the work. Our chaps were called out a few nights back to a town some miles distant which was being shelled by the Germans, and had the ghastly job of bringing back some poor little kids from a convent into which some of the shells had fallen. Some of the kiddies had been killed outright and some had legs and arms shattered. I am in tip-top condition myself."

The Awful Pave.

A motor cyclist writing from the Front says: "The *pavé* here is awful. One does a skating-rink touch most of the time. We are all dreading the winter. I shall have to start canvassing for woolly garments to keep myself from perishing."

Club Roll of Honour.

E. B. Howe Bruce, A. C. Carlow, P. Grosset, Wm. Walker, and Peter Cameron, all members of the Leven and Port of Fife Motor Cycling Club, are now serving as despatch riders with H.M. Forces. Mr. Cameron, who joined the R.E., left for France last week, while the others are members of the Motor Cyclist Section of the Highland Cyclist Battalion. Mr. Bruce (who is a son of Sir Charles Bruce, Bart., and a descendant of Robert the Bruce) and Mr. Walker have been promoted to lieutenancies.

O. M. Baldwin, who has raced on numerous occasions on Brooklands Track on Bat and Matchless machines, has joined the Army Service Corps Motor Transport Section as a driver, and holds the rank of corporal.

A. B. Wade, the well-known Zenith competition rider, is in France, driving a 25 h.p. Vauxhall car used by officers in the A.S.C.

TALES FROM THE FRONT.

THESE little adventures of despatch riders—D.R.'s, as they are called in military language—occurred between the dates of August 14th and September 11th, covering the period up to the triumphant battle of the Marne.

During the march from Havre to the Rest Camp in the heavy rain, one of the participants relates that "motor cyclists strewed the ditches and hedges with spanners, sparking plugs, and their own persons, but from three o'clock till eight there flowed a damp, muddy, but still hopeful, stream into the camp, only to find a marsh with tents on it and not a dry spot anywhere."

At Landrecies news of the first casualties came to hand, which included two despatch riders shot in mistake by French patrols. Another motor cyclist was hurt through coming into violent contact with a gun.

A Tale from Belgium.

This evening crowds of refugees began to arrive in a straggling stream, presenting one of the most pathetic sights imaginable. They had many extraordinary tales to tell, and, among other things, related with great gusto a tale of two despatch riders who turned and rode for safety through a squadron of hostile cavalry.

During the first taste of rain the evolutions of lorries and D.R.'s on the slimy *pavé* were most amusing to those not directly concerned. Later on, a D.R. arrived with a bullet hole neatly drilled through his haversack and another along the front of his overcoat. It turned out to be only the friendly attentions of the English sentries, but it had the effect of making one D.R. at least say "Friend" to every bush he saw for some time to come.

Experientia Docet.

Once a group of D.R.'s enlivened the somewhat gloomy proceedings by wounding four of themselves with one shot in attempting to see how a rifle worked. Experience so gained should be valuable, though the cost was rather high.

A signal office was opened in the post office, which had a back garden, with apples ripe and a stream ready to wash and shave in.

An Alarm.

Great excitement was raised by a despatch rider reporting the proximity of a body of Uhlans. All the signal office turned out with rifles, and some of the clerks formed an outpost west of the town. Great amusement was caused by the triumphant look on the faces of two Tommies who emerged from a house with two bottles of furniture polish under each arm in mistake for wine. On this day one of our corporals was sent out with a despatch and has not since been heard of.

The Major has a Narrow Escape.

Here Major —— had a narrow escape through a motor cycle stand becoming hooked up in a tree off the roof of a lorry and catching the wind screen of his car as he passed under it. However, beyond broken glass, no damage was done.

The morning was made noteworthy for the D.R.'s by a parade before General ——, who thanked them and complimented them on their services during the trying days of the retirement.

IN THE WAR ZONE.

WE recently had an interesting letter from a rider now holding the rank of second lieutenant in the Army Service Corps, who has had considerable motor cycle experience both in this country and on the Continent. He says, "We want stronger front forks, mudproof brakes, paddle off starting, a perfect clutch, engines which run more coolly at slow speeds, and no hub gears." He uses a T.T. Douglas, as it is the only machine which can be paddled off from cold, will travel five miles an hour, and yet is capable of a good speed. He also says, "It takes some good rider to patrol a convoy *en marche* on some of the roads and to come out alive. Roads and weather ——! Censor would not pass my language. Awful. Most of the machines out here have practically free exhausts, which, I think, is a great mistake, and then we have Klaxons fitted on our machines as well!"

ANOTHER LETTER FROM THE FRONT.

WE give below a couple of extracts from a letter written by Lance-Corporal S. A. Rowlandson to Mr. Pugh, of Rudge-Whitworth, Ltd.:

"Early this morning my bicycle did double service on important duty. I had a despatch for headquarters, twenty miles away. On the way I met a despatch rider with three very important messages for various divisions. The roads were swilling with mud, and it was raining hard; his magneto had given out. I took over his messages with my own despatch, left him to his troubles, and delivered all despatches. On the way back gave him his receipts and returned to the camp in two hours with my reply, and was thanked by the captain. . . .

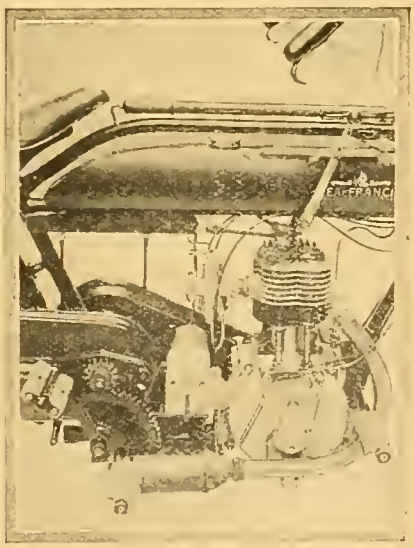
"On Thursday last I saw Lord Roberts. He died at a village, but was no doubt happy, because, at the parts he had visited, our troops were doing well, and putting the Germans to the run. The news in our quarter is very good, and a few days will see a change in the Front from what we see and hear.

"We have been quartered in some curious places—by the roadside, in parks, woods, and are now at a châlet, which is a very old building, with a distillery attached; we sleep in a loft. The convoy is very complete, and the workshops, with a very competent staff, undertake almost any job that comes along. Our officers are a fine lot.—SIDNEY A. ROWLANDSON."

CAVALRY OR MOTOR CYCLISTS.

ONLY a couple of weeks ago a well-known motor cyclist, who is now serving his country at the front, and who, by the way, was recently mentioned in despatches, wrote to us and said: "The motor cycle has now come into its own." It has truly done so with a vengeance. Daily newspapers, which a few years ago either ignored or reviled the motor cycle, now give a considerable portion of their space to the doings of our gallant riders at the front, and write in glowing terms of the utility of the machines in carrying out the duties allotted to them. In *The Evening Standard* the other night we read the following words: "A French cavalry officer returned from the front has been expressing his doubts as to the use of cavalry. He thinks it will die out as a fighting force and be replaced by motor cyclists!"

At the present stage of the movement it is not so surprising that a daily paper should condescend even to mention the motor cycle in its ordinary columns, as that a French military officer should go to the length of praising that vehicle. France was undoubtedly the pioneer country in all things automobile, but until the last few years she has practically forgotten the motor cycle, which owed so much to her in its early days. Even as late as this summer France did not take the motor cycle seriously, and that she has done so now is, without doubt, due to "our contemptible little army" and its equipment. It is hard for a mere civilian to comment on military matters, but, keen as we are on the motor cycle, we cannot see how this handy little vehicle is going to replace cavalry. Intelligence and despatch work can well be carried out by motor cycle, but we fail to see how the cavalry charge can be supplanted by its means, and it seems that this form of attack is not yet out of date. However, the French officer just referred to is delightfully enthusiastic. "Motor cyclists," he says, "will be substitutes (for cavalry) to a great extent in European warfare, and their value is not yet appreciated. Before the end of the war in the French army, and the British, too, there will be ten times the number there are at present, and I am not exaggerating a bit in this."



Operating levers of the new Lea-Francis three-speed gear.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Silent Machine.

Sir,—In your excellent journal I take delight. Never do I every Thursday fail to purchase one copy, and I think Mr. Davies, in his recent article, hit the nail on the head in many things. To me it seems there have been improve- in one regard there is much to be said. I mean that I wish for an engine quite silent, if possible. In this so beautiful country where I ride, in May and June the birds sing divinely, and all of Nature is one big heavenly choir; but always I have to stop the machine to listen. To go so noisily—bang, bang, pop, pop—through scenes so entrancing, it is not nice—it is desecrating. Often have I wished for an electric cycle, and my little friend I do not think it is more noisy at all than those whom I meet. I hope some day to find an engine more silent. LOUIS HALCET.

Sir,—I have read in *The Motor Cycle* the excellent letter to the trade, written by Mr. B. H. Davies, but I notice that the writer has missed out something of great importance, and something which I, as a rider of a motor cycle, have long wished for—a silent machine.

I am sure that I am not the only motor cyclist who pictures in his mind a powerful yet quiet engine. The village in which I live is a quiet place (or rather it was until I bought my motor bicycle), and if I am out late at night suddenly the villagers are awakened by what sounds like a 60 h.p. aeroplane descending in the middle of the village. But no—it is only me attempting to sneak quietly home on my fussy little lightweight L.W.L.

Removing Flywheels.

Sir,—In your issue of November 26th I saw a request from "H.A.C." for a tip for removing the flywheel of a Douglas motor cycle. This is a very simple matter for two people. First remove the nut, then let the operator take a *heavy* hammer in his right hand and with his left hand pull the edge of the flywheel towards himself, getting his friend to pull the other side of the flywheel in the same direction, *i.e.*, as though they were both trying to pull the flywheel off the crankshaft; with his free hand his friend must steady the machine. The operator must then hit the end of the crankshaft with a blow that may best be described as a steady pushing bump; the flywheel should come off immediately, and the machine tend to topple over away from the operator.

The points to notice are, as the end of the shaft is rounded, if the blow is hit perfectly square and the hammer used is of the right weight (I personally use the back of an axe with the head about 3 lb. weight), no damage can be done to the crankshaft; if a light hammer is used the end of the crankshaft will be riveted up, but if a hammer of the proper weight is used it will push the crankshaft right out of the flywheel, and, of course, it is obvious that the hammer must be heavy enough to shift the whole machine a little. The operator will be surprised how light a blow is really necessary, provided the blow is of the right character and delivered perfectly square against the pressure of the two hands tending to pull the flywheel off.

H. P. FISHER.

What are Ideal Handle-bars?

Sir,—I note with interest the discussion on the above question in your columns. Unfortunately, I think a good deal of misunderstanding exists on this point. The rider who adopts a pair of handle-bars in any way resembling T.T. pattern is at once put down by bigoted people as a dangerous person whose sole object is to dash blindly and wildly round corners, to the danger of himself and everybody else, with the desire to be taken for a Brooklands crack! That this may be the fact in certain cases is no reason why the type of bars should be condemned, but rather the rider. I have personally progressed from the type of bars that almost poke into the middle of one's anatomy, through various shapes, to a pair of short bars having a width of 28in. and a fairly forward position, and I can emphatically say they are much more comfortable and give a greater feeling of security than any I have had previously.

For ordinary touring work I should favour a pair of bars about 28in. wide, with grips about the height of the top of the saddle, and fairly short in length; but this latter point depends entirely on the design of frame of machine and the stature of the rider. It is of interest to note that, year by year, the standard touring bars as fitted by makers are getting shorter and wider. With a forward position and using rear footrests, on a long ride the freedom from backache is most marked. One never hears of a rider with T.T. or semi-T.T bars clamouring for a back rest, as he never feels the need for one. Without doubt, the wide bars tend to a feeling of much better control and consequent security. On some machines where handle-bar vibration is much felt this may be considerably reduced by the use of ⅞in. diameter bars.

I think that "Sure and Steady" is taking a somewhat narrow-minded view of the question, his opinion appearing to be largely founded on prejudice. It is not improbable that the reckless speed-burst maniac—much as we regret him—with T.T. bars is safer in an emergency at forty miles an hour than the man with long, narrow bars at twenty-five miles an hour.

The same prejudice exists in the case of the "racing helmet," so called! This type of headgear is neat, extremely comfortable, warm, and, above all, keeps the head clean from dust and dirt, and yet, for some reason or other, it is supposed to savour of excessive speed, and is thus banned! W.M.

Why an Engine Konks.

Sir,—I have noted with much interest the resurrection of this question. Konking, I feel sure, is caused by a loose piston only. This is very easily proved, and is not the difficult or abstruse problem which some people imagine. With a motor cycle engine which has a loose piston, on half throttle a tapping is heard, and as the throttle is opened on a hill, so that the full load comes on the engine, it will be heard that this tap *gradually changes* into a konk or "pink," or whatever one wishes to term it. It is so easy to hear the *gradual* change from the knock to the konk that there can be no mistake about it, and, moreover, if very thick oil is used and plenty of it, and while the engine is cold, there will be no konk; but the moment the oil has been reduced to the consistency of paraffin from heat, konking begins, as the surface between the piston and the cylinder is then to a certain extent unlubricated.

The water knock, which one of your contributors mentions, has nothing to do with the subject, water being incompressible, and cannot be compared with the action of gas. The big end or the small end also has no bearing on the konk: it is simply a matter of the piston and the cylinder, and if a piston is made sufficiently tight, really too tight for hard work, it will be impossible to make it konk.

A simple proof is to take a twin with one piston a loose fit, the other one tight; it will then be only possible to make one cylinder konk, which I think should prove beyond all doubt as to the cause, and this is the test that I have made. OSBORNE DE LISSA.

Sir,—I should like to be allowed to criticise the article which appeared in *The Motor Cycle* on November 5th.

In the first place, as you point out in an editorial on the subject, the writer's arguments largely lose weight because the vast majority of motor cycle engines have the valves at the side and not back or front. Consequently, angularity of the connecting rod would not put all the piston clearance on the side opposite the sparking plug.

But, apart from this, it is surely a rather far-fetched idea to think that the rise in pressure emanating from one side of the combustion chamber can put any side thrust on the piston! We learn that "action and reaction are equal and opposite": consequently, wherever the high pressure gases come in contact with the restraining walls there is an equal and opposite restraining force, and the direction of this force is perpendicular to the surface under consideration. So I maintain that, no matter where the plug is, the direction of the pressure on the piston is perpendicular to the surface exposed to it. If the piston over-ran the port there certainly would be a side thrust set up, but this is never the case in a properly designed petrol engine.

Again, he says, "if the piston is too high up in the cylinder when the gas is fired, either through the ignition being too far advanced or pre-ignition," etc. Now, surely, if the ignition were too far advanced the piston would be too *low* in the cylinder?

I am quite open to admit that too much piston clearance gives rise to a noise—known as "piston tap"—and that this is due to the piston being rocked by the angularity of the connecting rod. But the explosion has nothing to do with it, except in so far as it causes the connecting rod to push the piston against the opposite cylinder wall. Yet this is not a "konk." Indeed, one can rarely hear it except on an otherwise quiet engine. Also, I do not see that this theory accounts for a dirty engine's greater liability to make the noise. The word "pre-ignition" is, I think, very much abused. It surely is intended to apply to ignition which is spontaneous and takes place before the spark occurs. If this is the sole cause of konking, why does retarding the spark stop it at once?

I think the writer is on the wrong track altogether. I have known an engine konk violently when hot, and yet the piston was as tight as it dare be fitted. My theory of konking is that it is due to the suddenness of the rise of pressure. The cylinder walls, even when clean, and even in a water-cooled engine, may be at a dull red heat, just skin deep, when konking starts, and the combustion, once started by the plug, is so assisted by these hot walls, that it ceases to be a "combustion" and becomes a "detonation." Then, the spark being advanced, means that the piston is still rising when this occurs, and "meets" the detonation, causing the konk. Retarding the spark mitigates it because the piston is then running away from the source of pressure. Also closing the air lever stops the noise because the enriched charge burns more slowly and the detonating effect ceases.

Also, in my opinion, pocketed plugs help konking, because then the combustion is started by a spurt of flame from the pocket into the main charge, causing detonation.

There has been a good deal of correspondence in the motor papers lately about the Knight engine's freedom from "pinking." This may be partly due to the hemispherical shape of the combustion chambers; but, in my opinion, it is to be attributed chiefly to a low compression ratio, and also to leakage past the sleeves lowering the compression still further.

NORMAN H. WALKER.

Sir,—I should like, if I may, to offer a few points of criticism on the interesting article by your contributor, Mr. C. Watchorn, in your issue of the 5th inst. Opinions as to the exact cause of the phenomena differ widely, and your correspondent's boldness in asserting that it is due to the abnormal pressure produced in the cylinder by pre-ignition, causing the piston to rock to the extent of the clearance space between it and the cylinder, is commendable.

Small two-stroke marine engines, known as outboard motors, are designed to reverse by over-advancing the point of ignition, this causing them to fire early, kick back, and continue to run in the opposite direction of rotation. These engines invariably give one severe konk when the spark occurs just before the end of the compression stroke on which they reverse. Now, this konk cannot be due to the piston moving across the cylinder, as the crank pin during the time of firing back has not passed the dead centre, or, in other words, the connecting rod has not reversed its angularity, and, consequently, the piston is still pressed against the same side of the cylinder wall. This is illustrated by the diagram fig. 1.

It will, however, perhaps be of interest to see what effect an increase of pressure, which it is agreed accompanies pre-ignition, has on the reaction of the piston against the cylinder wall. For this purpose let us take the case of a cylinder 85 mm. bore and a normal maximum explosion pressure of 200 lb. per square inch, which is a fair average (maximum). We will also assume a maximum pressure caused by pre-ignition, stated by your contributor to be 300 lb. per square inch.

Now, the angle of the connecting rod at which the piston changes over from fig. 1 to fig. 2 we will take as 5°. The value of this angle is probably an excessive figure, but this will over rather than under estimate our difference in piston pressure on the cylinder wall. Taking the area of the piston, 85 mm. = 8.79 square inches, which, multiplied by a normal maximum explosion pressure of 200 lb. per square inch = 1,758 lb. pressure acting vertically downwards on the piston as in fig. 2. With a pre-ignition, or abnormal pressure, of 300 lb. per square inch, the total downward pressure on the piston will be 8.79 square inches multiplied by 300 = 2,637 lb., as also shown in fig. 2. The angle of the connecting rod being

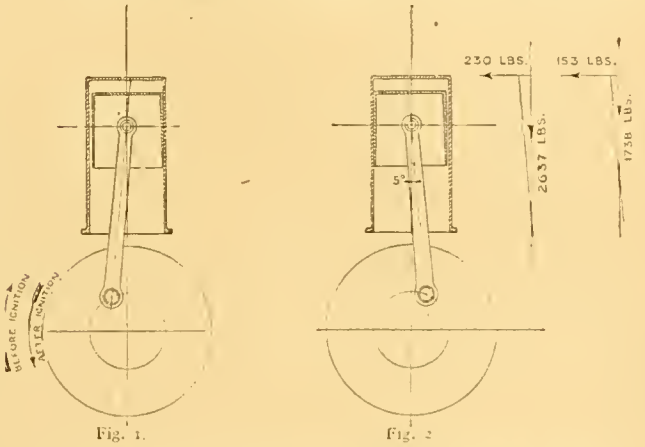


Fig. 1. Fig. 2.

Fig. 1.—Illustrates the positions of the connecting rod and piston when reversing a two-stroke engine by intentional pre-ignition, this being also the position in which the engine konks.

Fig. 2.—Shows the increase of the pressure of the piston against the cylinder wall caused by an increase of explosion pressure due to pre-ignition.

5°, then the resultant pressure on the cylinder wall with the normal explosion will be tan 5° × 1,758 = 153 lb., acting outwardly on the cylinder wall. With the abnormal pre-ignition pressure the resultant pressure on the cylinder wall will be tan 5° × 2,637 = 230 lb. Now, the question arises, is the extra 77 lb. acting through the distance of the piston clearance (usually about four thousandths of an inch, but varying with different engines) sufficient to account for the familiar violent konking when a normal pressure of 153 lb. causes no appreciable noise at all? I think not. To sum up.

(1.) Konking does not appear to take place after the piston has reached the end of the stroke, and, therefore, cannot be due to the piston crossing over the cylinder.

(2.) An engine will konk or pink with a piston rigidly fixed (transversely) as in some types of large gas engines.

(3.) Konking occurs in reversing a small two-stroke engine by pre-ignition when the piston does not reach the end of the stroke.

(4.) Pre-ignition does not appear to increase the pressure on the cylinder wall sufficiently over the normal to account for the noise of konking.

Of course, these notes are not intended to give a settlement to the problem, and are open to criticism, but they are penned in the hope that they may give interesting points for thought on what is undoubtedly an interesting subject.

HORACE H. SMITH.

[Lack of space has compelled us to cut out certain portions of this letter, but the points deleted have been already dealt with by other correspondents.—ED.]

Sir,—In reading through Mr. Watchorn's article on "Why an Engine Konks" (November 5th, 1914), probably the explanation which he gives may seem very good, but it would be just as well to go rather further into the matter.

Taking figs. 1 and 2, the direction of rotation of the engine and position of the valve pockets, and consequently the sparking plug, are quite right for the average 20 h.p. car engine, and in such a case no doubt some slight amount of noise *may* be caused as described. In the average air-cooled motor cycle engine, however, the relative position is different, and the thrust of the connecting rod does not help to throw the piston over in the same direction as it would be thrown by the explosive force. From this point it could be argued that a motor cycle engine should not konk or pink as soon as a car engine, which is hardly the exact case, I am afraid

Further, following this line of argument, if the sparking plug is moved to the centre of the cylinder in either the T or F-headed type the konking should be diminished, but from some trials made in 1906 with an 80×90 mm. four-cylinder White and Poppe engine no difference could be found in this respect.

Taking the matter still further, and considering an engine with valves and plug on the opposite side to that shown in figs. 1 and 2 (page 503), then the explosive force, if it has any action at all on the movement of the piston, would tend to reduce the konking, as it would act against the side thrust of the connecting rod and bring about better conditions than those given for the cylinder with hemispherical head.

I am afraid that, in view of the conclusion to which Mr. Watchorn's argument has now been brought, it will hardly satisfy one who really wishes to know what causes the konking. A favourite question among motorists a few years ago was, When an engine knocks, what knocks? Up to the present I have never heard a really satisfactory answer.

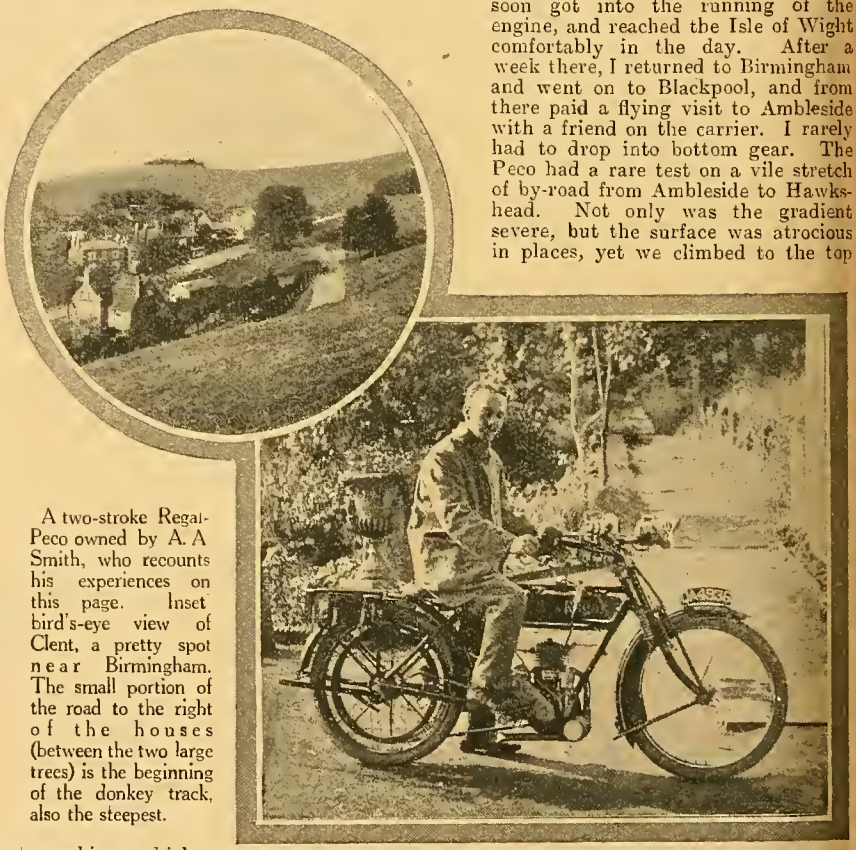
J. MILNE, JUN.

Running Costs.

Sir,—In *The Motor Cycle* of 22nd October I observed a letter giving a rider's experience of the cost of running a Douglas motor cycle over a distance of 5,400 miles. As I have used a Douglas 2¾ h.p almost since the introduction of this machine I found the letter very interesting, but my experience as to running expenses does not coincide with that of your correspondent. Perhaps the fact that I am Scotch accounts for some part of the economy; but, probably, my knowledge of the Douglas machine is a more potent factor than nationality. Let me give you my experience of my present machine, which I obtained in June, 1912.

In 1912 I covered 1,500 miles, in 1913 2,500 miles, this year 1,200 miles, making an aggregate of 5,200 miles. I also use a car, which keeps down my mileage with the motor cycle. Petrol works out at almost exactly 100 miles to the gallon. It has cost me £4 for the distance traversed. Of lubricant I have used four gallons, costing 8s. (*i.e.*, 2s. per gallon). After 4,000 miles the chain to counter-shaft broke, and a new chain cost 3s. 6d. After 1,000 miles the back tyre sustained a severe cut. I obtained a new Hutchinson cover at a cost of 25s. and vulcanised the cut one. The Hutchinson cover is still going strong, and I have the repaired cover in reserve. I am still using the original belt, but it is getting a bit decadent now, and I always carry a spare when I go off on a long journey. Renewals consist of a fork spring, 1s., and a hub bearing cone, 1s. I had a fall and smashed a footboard; renewal cost 4s. Altogether, my expenses, exclusive of licences, have been: Petrol, £4; lubricant, 8s.; cover, £1 5s.; chain, 3s. 6d.; renewals, 6s.; total, £6 2s. 6d.; which, divided by 5,200, works out at .28 of a penny, or something over a farthing per mile. Of course, if one adds licences and depreciation, the cost goes up materially, but the above is my actual outlay on locomotion. I found that by keeping down to about 25 m.p.h. I lessened the petrol bill materially; but the main economy lies in the fact that I look after the machine myself and that, though I use, I do not abuse it. I have been sufficiently long at the job to know something of what metal and other materials will stand, and, to save myself trouble and expense, I handle the machine, as far as possible, as if it were a living thing and had feelings. The machine is still practically as good as new, and, indeed, it should be after such a small mileage as 5,200.

GEORGE A. MACKAY.



A two-stroke Regal-Peco owned by A. A Smith, who recounts his experiences on this page. Inset bird's-eye view of Clent, a pretty spot near Birmingham. The small portion of the road to the right of the houses (between the two large trees) is the beginning of the donkey track, also the steepest.

A Powerful Two-stroke.

Sir,—Several motorists lately have been writing on the "Power of Two-strokes," and their remarks have been interesting reading.

I invested in a Regal-Peco only two days before my holiday in July, and wondered how I should fare, but I soon got into the running of the engine, and reached the Isle of Wight comfortably in the day. After a week there, I returned to Birmingham and went on to Blackpool, and from there paid a flying visit to Ambleside with a friend on the carrier. I rarely had to drop into bottom gear. The Peco had a rare test on a vile stretch of by-road from Ambleside to Hawkshead. Not only was the gradient severe, but the surface was atrocious in places, yet we climbed to the top without a hitch, the engine showing no sign of overheating. I covered 800 miles in my fortnight—not bad for a novice.

Three months ago I purchased a sidecar cheap, but it is not a light one. On this I have brought four (three adults and a boy of eleven) up Mucklow Hill, Halesowen. I dropped into bottom gear (about 12 to 1) for this climb, and the roaring burr r-r of the engine was good to hear. The load would be at least 35 stone. I have also climbed Weatheroak Hill with a 10 stone passenger, and this hill is steeper than Mucklow.

Reading a little while ago of an A.J.S. rider climbing solo the donkey track up Clent Hills on his 2¾ h.p., I decided to have a go with the sidecar and passenger; and although the donkey road was greasy, owing to rain, we got up on bottom gear, despite the wheels slipping a good deal.

Of course, when out solo, it is only rarely I have to drop into middle gear. Mucklow Hill, for instance, I climb easily on top.

A. A. SMITH.

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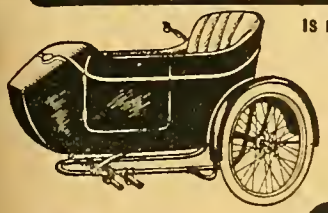

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Ariel.

ARIEL 3½h.p. Countershaft Combination, 1914 lamps, horn, speedometer, and spares; cost £86/10 accept £70; only run 2,585 miles, 3 months old.—Baker Salisbury Rd., Shaftesbury. [9217

Auto-Wheels.

AUTO-WHEEL and Hercules cycle, new September used once; £17.—36, King David Lane, Shadwell E. [9301

THREE Auto-wheels, second-hand, for sale; prices from £10 each.—Taylor, The Garage, Westerham. [9312

AUTO-WHEEL, in splendid condition, been very little used; £10, bargain.—Buckingham, Tindal St., Chelmsford. [9291

1914 Auto-Wheel, perfect condition, guarantee holds good until May, 1915; £10/10.—Walton, Elmet Av., Roundhay, Leeds. [X4179

AUTO-WHEELS, 1915 models, now ready; immediate delivery; £14/14 and £15/15. Trade supplied.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [8851

Bat.

4h.p. Bat, 2 speeds, Bosch, reliable; £11; must sell.—4, Cedar Rd., Tottenham. [9263

BAT-J.A.P., 1910, 8h.p., a.o.i.v., sidecar, good condition; £20.—Hawley, 28, West St., Leicester. [X3896

BAT, 1914, 4½h.p., 2-speed, No. 1 model; catalogue price £57/10, brand new, cash price £47/10.—Layton's, Bicester, Oxon. [X4217

BAT, 1912, 3½h.p., spring frame, in very good condition; £22.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0603

1913 8h.p. Bat and Racing Sidecar, with overhead valves, just overhauled, in perfect condition; 38 gns., great bargain.—Julian, Broad St., Reading. 43 years' reputation. [X3722

Bradbury.

1913 (June) Bradbury, 4h.p., 2-speed, perfect condition C.B. sidecar, lamps, etc.; £40.—Pollitt, Greenholme, Worsley. [X3900

BRADBURY, 4h.p., 1912, and sidecar, 2 speeds, free engine, all on; £35.—Hansford, 41, St. Stephen's Terrace, South Lambeth, S.W. [X4119

BRADBURY, 3½h.p., 1911 model, 1913, 3-speed gear, 26×2¼ plated rims, B. and B. carburetter, excellent order, all accessories, £23/10; coachbuilt nearly new sidecar, £5/5, bargain.—Club, 17, The Square, Bedford St., Commercial Rd., E. [X4276

BRADBURY, late 1913, 4h.p., 3-speed Sturmey gear and clutch, Turner coachbuilt sidecar, wind screen, head lamps, tail and sidecar lamps, splendid order; genuine bargain, £39/10.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0598

BRADBURY, 1912-13, standard 4h.p., handsome machine, appearance and condition as new, new belt and tyres, lamp, horn, tools, etc., free engine clutch, variable pulley; a real nice lot, and very cheap, £24, or lightweight and cash.—136, Dalmally Rd., Croydon. [9281

Brough.

BROUGH, marvellous motor cycle, nothing else like it.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [0581

Brown.

2½h.p. Brown-Precision, 1912, good condition; £16.—Browne, 90, Park St., London, N.W. [9259

BROWN, 1912, 2½h.p., variable gear and free engine, in splendid condition; £17, great bargain.—Howes, 2, Prospect St., Caversham, Reading. [9233

B.S.A.

B.S.A., 1912, 2-speed, lamp, horn, spares, tools, good condition throughout; £27/10.—Below.

B.S.A., 1912, free engine, complete as above, £22/10; sidecar to fit either machine, torpedo front, side door, £3/5; approval.—Young and Herbert, Evesham. [X4225

B.S.A., 1915, 4¼h.p., model K, for immediate delivery —B.S.A. Agents, The Morris Garages, Oxford. [8746

B.S.A., 1915, 4¼h.p., model H, for immediate delivery £63; exchanges.—Maude's, 136, Gt. Portland St., London, W. [0628

1914 T.T B.S.A., special racing engine, handle-bars, 4 gn. Watford, horn; £40.—Holden, Kenmare, Burnley. [9308

MOTOR CYCLES FOR SALE.

Kerry.

3½h.p. Kerry, 1912, 2-speed, good sidecar machine; bargain, £26.—The Exeter Motor Cycle and Light Car Co., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0605

King.

3½h.p. King, coachbuilt sidecar, Bosch mag., B. and B., good condition; bargain, 13 gns.—45, Westbury Rd., Forest Gate. [X4222

Lea-Francis.

LEA-FRANCIS, 1915, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt. Titchfield St., W. Regent 4999 [0448

Levis.

LEVIS Popular Models in stock at £25; excellent value.—Lamb's, 151, High St., Walthamstow. [9336

LEVIS.—Harry Walker's official agency. Note new address: 734, Holloway Rd., N. Prompt supplies; smart repairs. [9326

Lincoln Elk.

LINCOLN-ELK, 1913, 4¼h.p., 2-speed, kick start, Comfy sidecar; £35, offers.—Box L6,542, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9385

L.M.C.

L.M.C., 3½h.p., 2-speed gear, free engine, kick starter; 18 gns.—Chilton, High St., Watford. [X4301

Matchless.

1912 3½h.p. Matchless, just overhauled, fast and reliable; £20.—Parker and Son, St. Ives, Hunts. [9372

1913 8h.p. Matchless, 2 speeds, chain drive, overhauled, re-enamelled and plated; cheap at £55.—Colmore Depot, Colmore Row, Birmingham. [X4124

MATCHLESS, 1912, 8h.p., Canoelet sidecar, Senspray, Whittle, thorough condition and running order; price £35.—L.P., 28, Elmwood Rd., West Croydon. [9236

MATCHLESS 1915 Models; earliest deliveries; cash, exchange, or easy payments.—Best terms from Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0597

MATCHLESS, 1913, 8h.p., chain drive, counter-shaft 2 speeds, Gloria sidecar, F.R.S. lamp, perfect order; cost £108, best cash offer accepted.—P. W. Hobbs, Blandford, Dorset. [9285

1914 (June) 8h.p. Matchless-Jap, 2-speed, chain drive, underslung £13 torpedo cane sidecar, lamps, and electric hooter, insured £90; must sell, sacrifice £58/10.—1b, Oxford Rd., Kilburn, London. [9283

MATCHLESS, T.T., specially built, 7-9h.p., overhead valves, delivered new June last, actual mileage 1,121, Watford combined speedometer and watch, Lucas best lighting set, Klaxonet horn, aeroplane mascot, knee-grips, mag. cut-out, enamelled red, perfect; cost about £98, accept £58.—31a, Broomfield Rd., Chelmsford. [X2910

Minerva.

MINERVA, 3½h.p., mag., 2-speed; bargain, £12.—Letts, Bardfield, Braintree. [X4128

MINERVA, 2h.p., old type, only wants belt; 35/- for quick sale.—Bond, East Dereham. [X4314

MINERVA 8h.p. Twin, enclosed Bosch mag., m.o. valves; bargain, £16/10.—104, Ravenshury Rd., Earlsfield. [X4295

MINERVA, 2½h.p., good tyres, wants coil; first P.O. for £3/15 secures.—J. Webb, 18a, Vicarage St., Leominster, Herefordshire [X4160

MINERVA, 3½h.p., single-cyl., 1909, Senspray carburetter, torpedo tank, semi-T.T. bars; any trial; £16, or nearest offer.—140a, Camden Rd., N.W. [9328

Motosacoche.

MOTOSACOCHE, 1912, jockey pulley, 2¼h.p., perfect; £15, or nearest.—Woodall's, Gladstone Rd., Scarborough. [X4198

M.M.C.

M.M.C., 3½h.p., B.B. carburetter, mag. ignition, Michelin tyres, thorough good order; 14 gns.—Lamb's, 151, High St., Walthamstow. [9334

New Hudson

NEW Hudson, 1914, 6h.p., and sidecar, fine turnout; owner enlisted; all spares; £60.—Fereday, Cannock. [X4268

NEW Hudson, big 6, 3-speed combination, new; 70 gns., listed 80 gns.—Tunbridge, Vale Rd., Tunbridge Wells. [9352

NEW HUDSON VII. Combination, 1914, 3½h.p., absolutely new, scarcely soiled; £70 only.—Colmore Depot, Colmore Row, Birmingham. [X4123

NEW Hudson Brand New 6h.p. Combination, 3 speeds, kick starter; list £84, accept £70.—J. Evans, John Bright St., Birmingham. [9364

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed 3. No extra for easy payments.—Mills Motor, Ltd., Good Side Parade, North Finchley. 1745 Finchley. [0572

Something for Nothing.

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1914 6 h.p. **ENFIELD**, combination, speedometer, etc. £58
1913 3½ h.p. 3-speed **HUMBER** combination £35
2-3 h.p. Twin **MOTO-REVE**, magneto ignition. Druids £11
3½ h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb. .. £15
3½ h.p. **N.S.U., 2 speeds and free engine**, Bosch magneto £17
3½ h.p. **PREMIER, Bowden 2-speed gear**, Bosch £18
5 h.p. **VINDEC, 2 speeds**, kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds**, handle starting .. £19
3½ h.p. **TRIUMPH**, ball bearing engine, M.O.V. £19
5 h.p. 1908 **REX** de Luxe, **2 speeds**, handle starting £19
5 h.p. 1908 **REX, 2 speeds**, kick starter, Bosch, Amac £19
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All in good running order.

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FARLOW, 1914, reed cane, underslung, demonstration model, condition like new £6
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Norton.

3½h.p. 3-speed Norton, new; £55.—Parker and Son, St. Ives, Hunts. [9376

N.S.U.

3½h.p. N.S.U., Senspray, clutch; nearest £10/10.—Hastie, Queen's Av., Blackhall. [9240

1914 N.S.U. Lightweight, 2-speed, new; accept £31.—Parker and Son, St. Ives, Hunts. [9374

1914 3½h.p. N.S.U. T.T. Twin, 2-speed; list £57, take £50.—Parker and Son, St. Ives, Hunts. [9375

N.U.T.

N.U.T., 3h.p. twin, overhead valves, T.T., in new condition, very fast; approval; £38; 1914 machine.—Young and Herbert, Evesham. [X4226

1914 4½ N.U.T., 6h.p., 3 speeds, clutch, kick starter, with sporting coachbuilt sidecar, Blériot head lamp, Cowey, etc.; cost £90; exchange Douglas and cash, or sell £52, bargain.—4, Queen's Row, Camberwell Gate, S.E. [9287

N.U.T., 1914, 3½h.p., 3-speed, fitted with Lucas lamp, generator, speedometer, horn, in excellent condition, only run about 900 miles; sole reason for selling, owner wishes to enlist; price £43.—Box L6,543, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9386

Paragon.

2h.p. 2-stroke Paragon Motor Cycle, 2-speed countershaft gear, recently enamelled French grey, and machine thoroughly overhauled, tyres as new, in perfect order, and a real bargain, price £20.—Apply, 26, St. Peter's Rd., Stockton-on-Tees. [X3686

P. and M.

PHELON and Moore, touring model, brand new, unused; £58, bargain.—Moss, Wem. [X4274

1912 P. and M. and Forward sidecar, complete, lamps, etc.; £40.—Cross, Jeweller, Rotherham. [X4248

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

Peugeot.

6h.p. Twin Peugeot and Sidecar, perfect condition, £20; 3½h.p. solo wanted, part exchange.—49, Woodfield Rd., Ealing. [9273

5-6h.p. Twin Peugeot, Saxon forks, Bosch mag., good tyres and belt, low position, splendid condition throughout; £12, or offer.—Clark, 32, Eglinton Rd., Bow, E. [9347

Precision.

1913 Precision, 3½h.p., in first-class order; £25, or nearest offer.—Box L6,545, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9389

Premier.

1912 3-speed Premier and sidecar; £30, or exchange lightweight and cash.—F. Wardle, 75, Commercial St., Rothwell. [X4257

3½h.p. Premier, 1912, single gear, in thorough good order, tyres splendid; £22.—Buckingham, Tindal St., Chelmsford. [9294

PREMIER, 1914, 3½h.p., 3-speed counter-shaft, and sidecar; cost over £70, war bargain, £45.—Bond, Crosbie, Coulsdon, Surrey. [X4269

PREMIER 1914 3½h.p. 3-speed Coachbuilt Combination, countershaft gear; £45.—P. J. Evans, John Bright St., Birmingham. [9361

PREMIER, 1910, 3½h.p., single-gear model, with Millford spring wheel, cane sidecar, complete with lamp, horn, etc.; £22.—The Morris Garages, Oxford. [9270

PREMIER, 1912½, 3½h.p., 2-speed, Dunlops and Hutchinson, accessories, very powerful; £35, if with coach sidecar £39/10.—Lamb's, 151, High St., Walthamstow. [9335

PREMIER, 1913, air cooled, 8-10h.p., cycle chassis, Dunlops, 2 speeds, reverse, part of damaged body, never been on the road; sell, or exchange sidecar outfit.—Apply before 8 p.m., after by letter, 918, High Rd., Tottenham. [9203

1912 3½h.p. Premier, Armstrong gear, requires new axle, but gears work correctly, 2⅝ heaviest Kempshall back, 2⅝ heaviest Dunlop front, both nearly new, new Dunlop belt, run 3,000 miles; £25.—Jarmain, West St., Harwich. [X4153

Quadrant.

QUADRANT, 2h.p., good condition; £5, or exchange counter-shaft gear.—Dunn, Avenue Rd., Ashby-de-la-Zouch. [X4252

QUADRANT Combination, 1912, 3-speed, 4½h.p., lamp, whistle, valve, and extras, perfect order; £40. 'Phone: Chiswick 1037.—Creswell Lodge, Grove Park, Chiswick, W. [9210

Rex.

1910 3½h.p. Rex, 1914 cylinder and piston, fine order; £20, bargain.—C. F. Lumbard, Ashbourne. [9288

REX Combination, 1912, lamps, horn, speedometer, spare cover; £34.—224, Wood St., Walthamstow. [X4237

1909 Rex, 5-6h.p., 2-speed combination, perfect order, Avon, Rom, accessories; £20.—14, Boro' Rd., S.E. [9282

MOTOR CYCLES FOR SALE.

Rex.

REX, 3½h.p., 1910 T.T. model, good working order; £11 cash for quick sale.—A. Holland, Clarendon St., Coventry. [X4293

NEW Rex 1914 Sidette, belt drive, 2 speeds, coachbuilt body; genuine bargain, £62.—228, Pentonville Rd., King's Cross, N. [9277

REX, 1908, 5h.p., twin-cyl., Bosch mag., B. and B. carburetter; £15.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9400

REX, brand new, 6h.p., 2-speed twin, and new Perfection coachbuilt sidecar; £59/10; exchange considered.—Colliers, Westgate, Halifax. [0388

6h.p. Rex, 1913, sidecar, wind screen, Cowey speedometer, lamps, good order, very powerful; £40.—Bromwich, Preston House, Saltisford, Warwick. [X4241

REX, 4½h.p., 1912, Bosch mag., free engine pulley, just overhauled and in perfect running order, £16/10; also Moto-Reve, 2½h.p., £7.—S. Sawyer, High St., Wrentham, Suffolk. [9279

REX 1914 6h.p. 3-speed Sidette, chain drive, complete with lamp, generator, Cowey speedometer, clock, and all fittings, not ridden 400 miles; must sell; accept £50.—Box 6,936, *The Motor Cycle* Offices, Coventry. [X3712

Rex-Jap.

REX-J.A.P.. 8h.p., shop-soiled combination; cash buyer, or exchange wanted.—Motories, 16, Westgate, Halifax. [0390

REX-J.A.P., 1914, 8h.p., 3 speeds, brand new; accept £70, or near offer.—Harold Petty, 32, King St., Leicester. [8956

REX-J.A.P. 1912 6h.p. Coachbuilt Combination, 2 speeds, excellent condition; £45.—P. J. Evans, John Bright St., Birmingham. [9363

REX-J.A.P., 1913, 8h.p., de luxe model, 2 speeds, free engine, 650×65 Kempshall tyres, coachbuilt sidecar; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9397

REX-J.A.P., 1914, 8h.p., 3 speeds, chain drive, perfect condition, fitted with 1915 gear box, Lucas No. 460 lamp, horn, tail lamp; £55.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9401

Roc.

3½h.p. Roc and sidecar, 2-speed gear, Bosch mag.; £12 the lot.—Buckingham, Tindal St., Chelmsford. [9292

Rover.

ROVER, 1913¾, F.E., Sturmey 3-speed and coachbuilt sidecar, excellent condition; £45.—G. Wesley, East St., Wimborne, Dorset. [9280

ROVER, late 1913, S.A. 3-speed, clutch, Sensprav, Cancelet coachbuilt sidecar, in perfect order; £44.—Waddelow, Waterbeach, Cambs. [X4238

ROVER 1911 3½hp. Clutch Model, with good wicker sidecar, all accessories; £28.—P. J. Evans, John Bright St., Birmingham. [9366

ROVER 1915 Models; earliest deliveries; cash, exchange, or easy payments.—Best terms from Elce and Co., 15, Bishopsgate Av., Camomile St., London, E.C. [0481

ROVER Complete Combination, S.A. 3-speed, with lamps, accessories, and spares, new June, 1913, splendid condition; £50.—Reynolds, Sparrow Hill, Loughborough. [X4266

1912 3½h.p. Rover, free engine, engine lately overhauled, tyres in good condition, front one only done 500 miles, plating and enamelling good; 22 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3725

Roval Ruby.

ROYAL Ruby, brand new, 1914; what cash offers, must sell.—155, Goldhawk Rd., Shepherd's Bush. [9317

Rudge.

3½h.p. Rudge Multi, 1913¾, lamp and spares; £40.—Adams, Estate Agent, Swindon. [X4249

RUDGE and Sidecar, 3½h.p., free engine, perfect condition; £28.—12, Camden Passage, Islington. [9254

RUDGE, free engine, perfect condition; £30, cash or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X4152

3½h.p. Rudge Multi, 1913, in splendid order; £35.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth.

RUDGE, 1912, April, free engine, Lucas lamp, Jones speedometer, 1914 Sensprav, perfect condition; £25.—Box 6,964, *The Motor Cycle* Offices, Coventry. [X4143

3½h.p. Rudge Multi, 1913½, and underslung sidecar, fine condition, overalls, spare parts and tools; £40.—Bennett, 44, Brandlehow Rd., Putney Bridge Rd., Putney. [9262

3½h.p. Rudge-Multi, 1913, clutch, perfect condition, very little used, tyres and belt nearly new, good lamp, horn, etc.; sacrifice £34.—Williams, 22, Newman St., London, W. [9298

GENUINE Bargain.—5-6h.p. Rudge Multi, late 1913, with 1914 engine and improvements, new Rudge coachbuilt sidecar, new light car tyres, lamp, horn, tools etc.; £55, complete.—5, Mayflower Rd., Clapham, S.W. [X4145

NEW 1914 MODELS AT CLEARANCE PRICES.

WILLIAMSON 8 h.p. Sidecar Combination ..	£89
ENFIELD 6 h.p. 2-speed Combination	£75
REX 6 h.p. 2-speed Combination	£66
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NEW HUDSON, 6 h.p., 3-speed, twin	£59
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ALL OVERHAULED AND GUARANTEED.

SCOTT, 1914, 3¾ h.p., with Sidecar	£60
REX 1914 6 h.p. 2-speed Combination	£53
DOUGLAS, 1914, Model V. Used for trials ..	£40
INDIAN, 1913, 7-9 h.p., 2 speeds, in red. Offers	
N.S.U. 1913 3½ h.p. 2-speed Combination	£30
HUMBERETTE, 1913, 8h.p., 3-sp., hood, screen	£64
CLYNO 1912 6 h.p. Combination	£38
PREMIER, 1912, 3½ h.p., twin, 2-sp., Sidecar	£32
HUMBER 1912 2 h.p. lady's 3-speed model ..	£20
BAT-J.A.P., 1912, 8h.p., free eng., spring frame	£24
REX Sidette, 1912, 6 h.p., 2-sp., cane Sidecar	£34
ENFIELD 1912 6 h.p. 2-speed Combination..	£50
REX, 1912, 6 h.p., 2 speeds, coach Sidecar ..	£40
TRIUMPH, 1912, 3½ h.p., Philipson pulley ..	£40
N.S.U., 1912, 6 h.p., 2 speeds, take sidecar ..	£25
FORWARD, 1912, 2¾ h.p. twin, excellent lightweight	£16
HUMBER 1911 3½ h.p. 2-speed Combination	£29
TRIUMPH, 1911, 3½ h.p., 2 speeds, footboards	£25
N.S.U., 1911, 3½ h.p., 2 speeds, and Sidecar ..	£28
HOBART, 1911, 2 h.p., 3 speeds, open frame	£28
ENFIELD, 2¼ h.p., lightweight, khaki finish..	£15
BRADBURY, 3 h.p., vert. eng., good condition	£7
ARIEL, 3 h.p., m.o.v., magneto, spring forks	£10
BROWN, 3½ h.p., magneto, spring forks	£15
PEUGEOT, 7-9 h.p., finished red, Sidecar, mag.	£21
HUMBER, 3½ h.p., 2 speeds, magneto	£22
BROWN, 3½ h.p., magneto, vertical engine ..	£12

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MOTOR CYCLES FOR SALE.

Rudge.

RUDGE Multi, 1912½, practically new, tyres perfect, new back complete, spares, lamp, horn, back seat and footrests, and decompressor; £35; seen by appointment; might exchange for Sociable.—M.A., 52, Palmerston Rd., Bowes Park. [9381

RUDGE Multi, 1912¾, 3½h.p., with 1913 Bramble coachbuilt sidecar, tyres and belt nearly new, complete with lamp, horn, tools, etc., outfit in splendid condition; buying big twin; £40, or offer; would separate.—Strathmore, Dartmouth Rd., Paignton. [X4305

Scott.

1912-1913 Scott, perfect condition; trial with pleasure; £30 cash.—West End Garage, Blackburn. [0611

1914 Scott and coachbuilt sidecar, very good condition; what offers?—Marshall, Cadeby, Cowfold, Sussex. [X4204

1912 Scott, drip feed lubricator, 1914 tank, tonring and T.T. bars, F.R.S., Stewart, chain shields, excellent running order; £32, or nearest.—53, Kimberley Rd., Cambridge. [9329

SCOTT Motor Cycle for sale, property of gentleman in Flying Corps now at the front, in absolutely perfect order; price £25 for quick sale.—Apply, No. 9, Mapesbury Rd., Brondesbury, N.W. [9266 [0569

Singer.

2½h.p. Singer Ladies' Motor Cycle, good engine; bargain, £2.—H. Thorpe, Cross-in-Hand, Sussex. [9209

1912 3½h.p. Singer Roadster, excellent condition; £20.—Parker and Son, St. Ives, Hunts. [9371

1911 Singer Lightweight, like new, perfect condition, mag., Druids; £10.—Clayson, 27, Bridge St., Northampton. [X4188

1913 Singer, 4½h.p., 2-speed, excellent condition; trial: £34.—Griffith, Aldon, Milford Rd., Newtown, Montgomery. [X4262

1912¼ Singer, 3½h.p., clutch model, recently overhauled, excellent condition; bargain, £22.—Kingsholm Garage, Gloucester. [X4255

4½h.p. Singer, counter-shaft 2-speed, 1914, Cancelet sidecar, lamps, horn, electric head light and dynamo, spare tubes, and accessories complete; any trial £60.—22, Raugemore St., Burton-on-Trent. [X4187

Sun.

SUN-VILLIERS, 2½h.p. lightweight, 1914 pattern, 2-speed gear, as per specification, not ridden 50 miles; special price to clear, £28/10.—Robinson's, Green St., Cambridge. [6867

SUN-VILLIERS, 1914, 2¼h.p., 2-stroke, new Sept., faultless condition, Miller lamp, horn, Brookes, Dunlops studded; £24, offers; buying higher power.—Marsden, Stonewell, Lancaster. [X4017

Sunbeam.

1914 3½h.p. Sunbeam, slightly shop-soiled; £63.—Cross, Agent, Rotherham. [X4245

1914 3½h.p. Sunbeam, all accessories, new October, not done 500; £58.—Ross, 36, Glenhurst Av., Kentish Town. [9305

SUNBEAM T.T. 3½h.p., 1914, only done 1,000 miles, lamp, horn, Cowey speedometer, etc., just the thing for despatch riding.—Moxon, South Elmsall, near Pontefract. [X4264

SUNBEAM, 3½h.p., new September, 1914, 3 speeds, Lucas lamps, accessories, with Mills-Fulford sidecar; £60, quick sale, or would exchange for scrap bruss or copper.—Box L6,521, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9235

Torpedo.

2½h.p. Torpedo Lightweight, 1912, recently renovated, accept £17.—Buckingham, Tindal St., Chelmsford. [9290

Triumph.

1906 Triumph, excellent condition; £15.—Parker and Son, St. Ives, Hunts. [9373

TRIUMPH, 1910, 3½h.p., perfect condition, accessories; £17/10.—69, Hambury St., Spitalfield. [9384

TRIUMPH, £14/10, 3h.p., perfect order throughout; £14/10.—Speechley, 45, Church Rd., Acton. [X4302

1914 Triumph, 4h.p., 3-speed, in first-class condition, £42.—Harris, 10, Gt. Chapel St., Oxford St., W. [9394

1915 Triumphs.—Try us. Exchanges, easy payments, quick deliveries.—Clifford Motories, Eastwood, Notts. [X3792

1913 3-speed 3½h.p. Triumph, Lucas lamp, horn, £38/10, no offers.—Leach, 121, Wentworth Rd., Harborne. [X4211

3½h.p. 1912 Free Engine Triumph, been very little used; £33, bargain.—Buckingham, Tindal St., Chelmsford. [9293

TRIUMPH, 1913½, 3½h.p., 3-speed, capital wicker sidecar, all accessories, perfect; £38.—Black, Stane St., Sevenoaks. [9296

TRIUMPH, 1914, 3-speed, new late delivery, £55. Gloria sidecar to fit, £13/10.—Tunbridge, Vale Rd., Tunbridge Wells. [9351

1912 3½h.p. Semi T.T. Triumph, clutch, excellent condition; what offers?—A.W.S.J., Bryn Rd., Brecon Rd., Ystradgynlais. [9251

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Triumph.

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TRIUMPH, 1914, 4h.p., 3-speed, in perfect condition. Lucas lamp, horn, accessories; £46.—Edwards, 42, Union St., Bridgtown, Staffs. [X4261

TRIUMPH, 1908 standard, in very good condition, been thoroughly overhauled; £20.—Colmore Depot, Colmore Row, Birmingham. [X4121

TRIUMPH, 1914, 4h.p., 3-speed, T.T. bars, Lucas lamp and horn, Cowey, as new; £49/10.—2, Albion Rd., Fallowfield, Manchester. [X3895

TRIUMPH, 1911-12, 3½h.p., N.S.U. gear, and cane sidecar, splendid condition; £32/10.—Woodall's, Gladstone Rd., Scarborough. [X4197

LATE 1913 Triumph, T.T., free engine, tyres, enamel, and plating perfect, very little used; £33.—Fox, Barracks Golf Club, Lichfield. [X4230

SEVERAL Triumphs, various years, singles and 3 speeds; very cheap to clear.—Call, Morgan and Maxwell, 80, High Rd., Streatham. [X4193

3h.p. Triumph, mag., 1913 Amac, Dunlop, Avon tyres, good running order, spares; £10.—Green, 15, Kenyon Lane, Middleton, Manchester. [X4207

1911 Triumph, free engine, Bates tyres, Bates belt, lamp and horn, condition guaranteed; £25.—Robinson's, Green St., Cambridge. [0613

1912 Free Engine Triumph, enamelling, plating splendid condition, new tyres; bargain, £25, no offers.—472, Archway Rd., London, N. [9348

TRIUMPH, 3½h.p., perfect condition, very fast, new tyres and belt, speedometer; owner enlisting; £25.—George, 3, Norwood Rd., Southall. [9207

TRIUMPH 1913 Clutch Model, in new condition, with accessories; a sacrifice, £30.—Pyefinch, 212, Brownhill Rd., Catford, S.E. [9319

TRIUMPH, 1912½, free engine model, perfect condition, spare tyres, belt, and accessories; £37.—Hewens, St Annes, Hayes, Middlesex. [9234

TRIUMPH, 1911, 3½h.p., free engine, excellent condition, fitted with lamp, horn, spares; £25.—Hitches, Carisbrooke, Church Rd., Erith. [X4184

TRIUMPH, 1912, 3½h.p., clutch and 2 speeds, coachbuilt sidecar, all accessories; £37.—P. J. Evans, John Bright St., Birmingham. [9353

1912 3½h.p. Triumph, free engine, 1914 silencer, enamel and plating as new; £30.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9398

1914 4h.p. 3-speed Triumph and sidecar, complete, accessories, guaranteed perfect; cost £85, what offers?—Preston, 35, Auckland Rd., Ilford, E. [X4205

3½h.p. Fixed Engine Triumph, in splendid condition throughout, including belt and tyres; £20, rare bargain.—Buckingham, Tindal St., Chelmsford. [9289

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1911 Fixed Engine Triumph, roadster model, in good order; owner on active service.—Particulars from E. A. Borlose, 9, Adamson Rd., S. Hampstead. [9224

TRIUMPH, 1914, 4h.p., 3-speed model, in splendid condition throughout, complete with lamp, horn, and spares; £45.—The Morris Garages, Oxford. [9272

1913 Triumph, T.T., 3½h.p., F.E., clutch, with sidecar, cyclometer, and all accessories; £30; owner joining army.—J.F., 14, Alexandra Rd., Finsbury Park. [9403

1914 4h.p. 3-speed T.T. Roadster Triumph, lamp, horn, speedometer, Harcourt radiators, and sidecar; £47/10.—J. E. Cardell, Paxton Manor, St. Neot's, Hunts. [9353

TRIUMPH T.T., 1913, brand new tyres, speedometer, full equipment, spares, reliable, fast; low price for quick sale.—Bentley, Glenholme, Park Rd., Shenfield, Essex. [9223

TRIUMPH, 1908, N.S.U. 2-speed gear, in good order; £20.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0571

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TRIUMPH, 1914, 4h.p., 3-speed gear, condition throughout guaranteed, lamp, horn, tools; approval willingly; £47.—Brooksbank, 188, Pontefract Rd., Cudworth, Barnsley. [X4022

1911 3½h.p. Triumph, Mabon gear, recently overhauled, £28/10; also 1910 3½h.p. Triumph, splendid condition, £20/10.—Potter, Springfield Rd., Shepshed, Loughborough. [9295

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TRIUMPH, 3½h.p., 1913, 3-speed, Philipson pulley, good condition, little used; wanted, A.J.S., 6h.p., 1914; state cash adjustment, shop-soiled or new.—Box 6,963, *The Motor Cycle* Offices, Coventry. [X4154

TRIUMPHS at Bargain Prices, overhauled and guaranteed: 1911, free engine, £20; 1912, free engine, £30; 1913 3-speed, T.T. roadster, new tyres, £38.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9402

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TRIUMPH, 4h.p., new August, Philipson pulley, speedometer, lamp, horn, and a sporty low-built sidecar, the lot costing £76, only done 500 miles, and is as new; reason for selling, owner gone to front.—Submit your offer to W. G. Bridges, Ltd., Cirencester. [9232

TRIUMPHS, 1914 T.T., clutch model, new, £50; 1913¾ T.T., 3-speed, 1914 improvements, speedometer, all accessories, as new, done 700 miles, £42; 1913 clutch model, all accessories, £31.—Geo. Norton and Co., Sparkhill Motor Depot, 358, Stratford Rd., Birmingham. [X4223

Velocette.

VELOCETTE, 2-stroke, 1915 models in stock; 25 gns. and 30 gns.—The Exeter Motor Cycle and Light Car Co., Ltd., 7 Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

VELOCETTE, new June, 1914, almost like new, only ridden meal times, very low, as easy to ride and control as a push bike, lamp, horn, pump and tools, Maxlite rear light, extra tool case, plug, belt, etc., ready to ride away; accept £18/10 quick sale; seen and tried.—Moss, c/o Wray, motor engineer, Virginia St., Southport. [X4127

Williamson.

WILLIAMSON, shop-soiled sidecar combination; special exchange allowances.—Motories, 16, Westgate, Halifax. [0445

WILLIAMSON 1914 8h.p. Water-cooled Coachbuilt Combination, new condition, all accessories; £65.—P. J. Evans, John Bright St., Birmingham. [9360

WILLIAMSON Water-cooled Sidecar Combination; list price £98/10; not run 400 miles, would pass for new, perfect in every way; nearest offer to £70 secures.—Alexander's, 115, Lothian Rd., Edinburgh. [9238

WILLIAMSON, Mills-Fulford sidecar, engine 8h.p. W.C., new this season, enamel, plating fine order, fine running order, fully equipped, spares, etc.; £55 cash; bought car.—Dr. Ede, Wolsey Rd., E. Molesey. [9211

Wolf.

1914 Wolf, 2½h.p., overhead valve (new); nearest £24.—All the above at Woodall's Motor Depot, Gladstone Rd., Scarborough. [X4199

Zenith.

ZENITH Bargains.—3½h.p., 6h.p., 8h.p.; reasonable offers will secure; cash or exchange.—Timmons, Mansfield. [X3764

ZENITH, 1913, 6h.p., Gradua gear, clutch and kick starter, thoroughly sound throughout; £35.—P. J. Evans, John Bright St., Birmingham. [9367

ZENITH-GRADUA, 3½h.p., 1912, with Middleton wicker sidecar; £35, or exchange lightweight and cash.—Write, 180, Broadhurst Gardens, West Hampstead. [9345

ZENITH, 1914, 5h.p., countershaft, coachbuilt sidecar, and accessories, only done 500; cost £78 few weeks ago, take £56; absolutely as new.—79, Priolo Rd., Charlton, S.E. [9322

ZENITH-GRADUA, 1912½, 3½h.p., Palmer and extra heavy Dunlops, Jones speedometer; £37/10, or £15 down and 9 monthly instalments.—Lamb's, 151, High St., Walthamstow. [9333

ZENITH-GRADUA 1914 Countershaft Model, soiled only, 90×77½ J.A.P. side valve engine, Best and Lloyd lubricator, 3in. rear tyre, special finished machine, fully guaranteed; list price with extras £78/10, reduced to £52, a real bargain.—Seen at Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0492

Miscellaneous.

3½h.p. Clyde, £5; 2h.p. Regent, £8; both magnetos.—41, Church Rd., Brixton. [9186

3h.p. Motor Cycle, mag., new tyres, good running order; £7/10.—3, Victoria Rd., Norbiton, Surrey. [9357

£16.—3½h.p. motor bike and sidecar, Mabon clutch, lamps, horn, speedometer, spares, good going order.—Chatelu, Bridgeman Rd., Teddington. [9255

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ONE 7h.p. 1914 Indian Motor Cycle, speed model, exceptionally fast, splendid condition; £40.

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ZENITH, 1912, 6h.p., Gradua gear, T.T. bars, Fulford sidecar, £38, nearest; Wall Auto-Wheel, perfect order, new tyre, £9.—Boughton, Upton-on-Severn. [X4158

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1915 Douglas, Triumphs, B.S.A., Ivy, Calthorpe, Scott, Enfield, Zenith, Rover, New Hudson, Bradbury, Indian, A.J.S.—Clifford Motories, Eastwood, Notts. [X3704

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WICKER, side door, girder underslung chassis, new; cost £8/8, take £5/10; buying coachbuilt.—Motorist, 26, Mostyn Gardens, Willesden. [X4270

JAMES Canoelet Coachbuilt Sidecar, 1914, with storm apron and luggage grid, cost £15, Matchless grey, genuinely as new; £9/10.—Robinson's, Green St., Cambridge. [6866

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COACH Bodies, fit any chassis, any colour; cheap; repairs, exchanges.—Crowe, 740, Seven Sisters Rd., Tottenham. [X4309

CYCLE CARS.

MORGAN, 1914, hood, screen, speedometer, lamps; offers.—Black, 55, Balby Rd., Doncaster. [9222

PHŒNIX Car, 2-cyl., 8-10h.p., 2-seat., grey, good order, Simms mag.; £45.—Surridge, Ongar. [X4149

A.C. Pattern Sociable, 4½h.p. De Dion; offers wanted.—Morgan and Maxwell, 80, High Rd., Streatham. [X4192

CYCLE Car, nearly completed, Fitall gear, 6h.p. engine, single-seater; £20, or offer.—Page, Acre Lane, Brixton. [9307

1912 Morgan, engine just overhauled, very good condition, complete with speedometer, horn, lamp, and tools; £59/10.—King, Stapleford, Cambs. [X4201

STUDEBAKER (Flanders), 1912, 4-cyl., 20h.p., gate change, 4-seat. torpedo body, excellent condition; £95; exchanges.—66, Florence Rd., Maidstone. [9216

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THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

SIX HUNDRED AND ELEVENTH CONSECUTIVE ISSUE.

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An index to advertisements will be found on the page facing the back cover.

Sidecars for Despatch Riders.

OBSERVANT readers will have noticed, when perusing the various experiences related by despatch riders at the Front, that the road conditions are often almost indescribable. One can comprehend, to some extent, the state of the roads when the weather is considered, and also the fact that many times daily strings of heavy motor lorries pass over the same ground. It is not merely mud that causes the trouble, but the whole width of the road being churned up into a surface resembling a ploughed field, and pits made by shells are numerous. Again, the duties of the unbiquitous rider frequently take him along by-paths and side tracks off the road, and when these have become rain-sodden and churned up by dint of the amount of traffic passing over them, it requires all the resources and skill of an experienced motor cyclist to keep his single-track machine upright. Here is an opportunity for the uses of the motor cycle to be extended by adopting sidecars for despatch carrying. We have seen it suggested from time to time that during this bad weather the movements of the motor bicyclist are governed to some extent by the state of the road; but it would appear that no one in authority has considered the possibility of using the motor bicycle and sidecar for the work of despatch riders.

In view of the success of motor cycles, the expedient of attaching a sidecar would commend itself to one immediately. We are at the moment referring to the sidecar attachment as a means of rendering the motor bicycle absolutely stable under all conditions, but the fact that it will also convey two people is a point in its favour which cannot be overlooked. The motor bicycle has received praise on all hands for its splendid work. The up-to-date sidecar is no less reliable. It certainly requires more room on the road—a most important consideration in warfare—but, nevertheless, it requires considerably less room than a small car. The speed of a good sidecar outfit over muddy surfaces would be at least as great as that of a motor bicycle. It consumes very little extra petrol, and, considering the subject from all its aspects, the sidecar undoubtedly makes a strong claim on the Government in the exceptionally severe winter campaign of the despatch rider. We wonder if makers have approached the Government on the subject. Such a proposal would, we feel sure, commend itself to the consideration of the War Office experts, who know only too well that every type of motor vehicle has its limitations. The addition of a sidecar does not affect the valuable qualities of a motor bicycle to any appreciable extent, and the fact that sidecars are now being largely used for the conveyance of quick-firing guns is proof that the authorities are well aware of their reliability and general excellence. Already we are well into the winter campaign, and rain-soaked roads will be the rule for some time to come, so that prompt action is necessary.

The Indispensable Motor Cycle.

ALL motor cyclists and motorists will regard with pride the excellent doings of the motor cyclist despatch riders on active service at the Front. On all hands they are receiving official recognition of their valuable services rendered under arduous conditions. From the first, the names of motor cyclists have been mentioned in despatches, and since that time other riders have been specially honoured and decorated for special service both by His Majesty's Government and by the French authorities.

That motor cyclists are able to perform such useful work must be a particular pleasure to every patriotic Britisher, seeing that more motor cyclists are employed in our Army than in any other, and, moreover, that the British-made motor cycle which has rendered such difficult work possible is second to none in the world.

Thick and Thin Electrodes.

The correspondence elicited by my paragraph of November 26th has brought out one new point. A Scott rider asserts that very cheap and shoddy plugs, fitted with flimsy electrodes, stand up better in his engine than first class plugs with solid single-point electrodes. He believes that the single-point plugs keep too cool in "wet" engines, with the result that oil thrown on the plugs is not immediately burnt off, but slowly charred into a short-circuiting bridge; on the other hand, a plug with several comparatively spidery electrodes gets so hot that the oil deposits are burnt up as soon as they touch the points. He suggests that the need of water-cooling on two-stroke engines exceeding 350 c.c. is intimately connected with this question, as follows:

1. Such engines oil their plugs freely.
2. A thick electrode plug soots up in any case, because it keeps too cool.
3. A thin electrode plug would cause pre-ignition if the engine were air-cooled.
4. Therefore a thin electrode plug in conjunction with water-cooling is the sole solution.

The argument is interesting, but other factors obviously enter into the matter.

Carbonisation.

The radical weakness of the hand pump system consists in the rapidity with which it carbonises an engine. The pumpful of oil, injected every five, ten, or fifteen miles, may certainly chill an over-stressed bush, but it also drowns the cylinder wall with excessive lubricant; a large percentage of this lubricant is flashed into carbon, and deposited on the piston head, in the piston ring grooves, around the valve heads, and on the head of the cylinder. Within 750 miles, as a rule, the presence of these deposits is perniciously felt, and at about 1,000 miles no fastidious owner can ride the machine further without removing the cylinder and scraping them away. Even if there were no practicable alternative, such swift carbonisation would be a genuine nuisance, and it is so regarded by the majority of motor cyclists—those mute people who never write to the papers, or join in our organised life, but who are nevertheless the base and backbone of the industry. But there are plenty of satisfactory alternatives. During this very season I have ridden an air-cooled twin-cylinder motor bicycle 4,000 miles without decarbonisation, and at the conclusion of that distance it was running really well. I have further covered 5,000 miles on a small four-cylinder cycle car without cleaning out the engine, and it is still pulling like a Trojan. It is unnecessary to say that neither of them had the crude hand pump oiling. The air-cooled cycle had a drip-feed oiler, combined with a bearing duct system; the light car had a mechanically driven pump, and a large crank case sump reserve. In both cases the engine bearings were devoid of perceptible wear after the distances named. Now that variable gears are thoroughly established, it is comparatively unimportant whether or not a motor cycle engine develops the last ounce of power which can be extracted from its engine dimensions, be they 350 c.c., 500 c.c., 750 c.c., or 1,000 c.c.; for the presence of a true emergency gear will more than compensate for the sacrifice of the sheer maximum of efficiency. But, in view of the number of buyers who loathe tinkering, it is tremendously important that an engine should run at least a full season without perceptible wear, and without calling for laborious and filthy attentions at short intervals.

A PRETTY SCENE ON THE HYTHE CANAL, KENT.

This canal was constructed by the military authorities about the time of the Peninsular War, and was used for bringing supplies of ammunition from Lydd to Shorncliffe Camp. It is now used for boating and fishing.

About Oil and Grease.

Men talk about the little things that make for comfort. I distribute my custom round the trade in rotation, and a month or two ago it fell to the fortune of the Vacuum Co. to receive my lubrication orders. With a five-gallon drum of T.T. they sent down a most excellent tap, ready fitted with a cutter reminiscent of Wills's cigarette tins; one twirl of the cutter and the drum was ready tapped. The grease for my cycle car was packed in a cartridge with a screw squeegee—just the thing for packing grease cups without waste. But alas! when the cartridge was half empty, there came a very cold morning, and the grease solidified in the canister. I turned on full finger power, and stripped a thread somewhere in the mechanism, so that the lift revolved idly. Nothing daunted, I got a hacksaw, and cut the bottom off the tin and the top off my thumb! The cartridges are excellent, but those containing hard grease would be better with a stronger fixture inside.

Metal Sidecar Bodies.

Has any reader noticed that sidecar bodies composed of unlined sheet metal panels are frightfully chilly in bad weather? I rashly concluded that a metal sidecar, being windproof, would keep its occupant deliciously warm in winter, and scrapped a well-lined wicker body in consequence. To my disgust, the metal body was far the colder of the two, presumably because the light panels were excellent conductors of cold, and soon fell to a temperature below freezing point under the impact of wind and sleet. I cannot claim a wide experience of modern types of sidecars, but, so far as my slight experience goes, wooden bodies are emphatically the warmest. Not long ago I was shown some multi-ply wood, used for constructing packing cases for Antarctic work; I should imagine some such material would be ideal for sidecars *de luxe*, combining the warmth of woodwork with the lightness of thin metal panels. What do the expert sidecar manufacturers say?

Small Bushes and Drip-oiling.

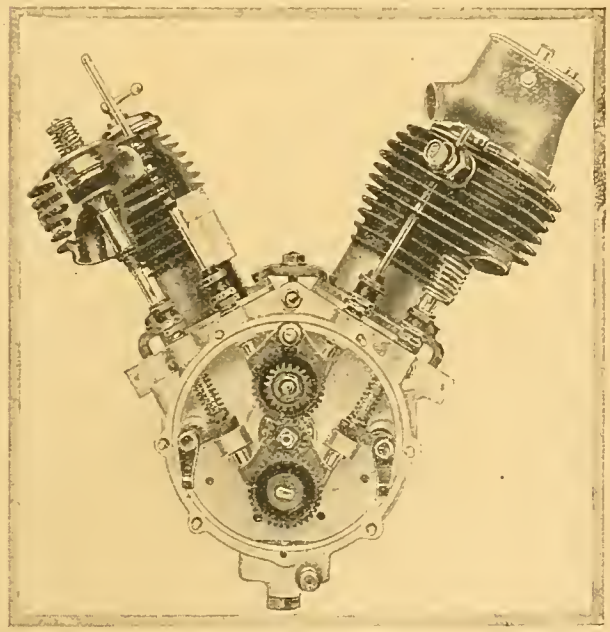
My recent comment on the above subject evidently touched several readers in a tender spot, and I have received a number of approving letters. I learn that at least one big firm has definitely instructed its customers to open the drip valve fully, and use the pump as if no drip were fitted. Super-efficient engines and long strokes have emphasised the trouble, and not a few users have used up two or three sets of connecting rod bearings within a single year. It would be a thousand pities if these unhappy experiences were allowed to create a prejudice against drip-feed oilers, which are probably intrinsically superior to the crude hand-pump systems. The fact is that our connecting rod bearings have always been on the small side, and dangerously near the limit of safety and durability. As soon as we deprive them of a lubrication system which practically acts as a periodic cold shower bath, their weakness is thrown into high relief. The moral is not that we should abandon drip oiling, but that we should redesign our bearings.

I Want to Know

What happens to second-hand machines in America? I received the usual exchanges of the principal American motor cycling journals, and it is quite the exception for an issue to contain more than a couple of dozen advertisements of last season's mounts. Perhaps the huge distances between townships render postal purchases somewhat dangerous, but, even then——! A friend of mine in the boot trade once told me there was no boot repairing trade in America, for, when a pair wanted resoling, the average man threw them away and bought a new pair. Perhaps they do the same with motor cycles. Just fancy finding a 1914 Hendee Special in a dust bin—yours for the carting home! I had previously thought of emigrating to South Africa where a friend of mine tells me he always *raffles* his last year's machine in the spring; last spring he got £84 in £1 tickets for a 1912 Triumph. But, pending reliable information from the States, I will stay in England till the German raid is over.

A Record?

I have just completed 1,000 miles on a new engine, which will ever occupy a niche of honour in my recollections because it has not oozed one single spot of oil from any joint; believe me or not, as you like, but nowhere on its exterior surfaces is there the least suggestion of a green film, though it has been smoking slightly from the exhaust over the entire distance. I am sorry to disappoint readers, but the engine is a four-cylinder water-cooled pattern on my latest cycle car. When I can say as much for an air-cooled cycle engine, I will not fail to record the fact. Up to date, I think a 1911 3½ h.p. Rudge ranks as the cleanest motor cycle engine I have ever had. Those designers who manage to perfect their crank case joints are generally routed by the valve tappets. But my last cycle car engine! Ye gods, it once sopped up 3½ gallons of oil on a 750 mile trip; and the cause, as usual, was leakage past the valve tappets. Let those who complain of leakage past one or two tappets figure what it means to have eight of them all spewing forth plenteous green fountains!



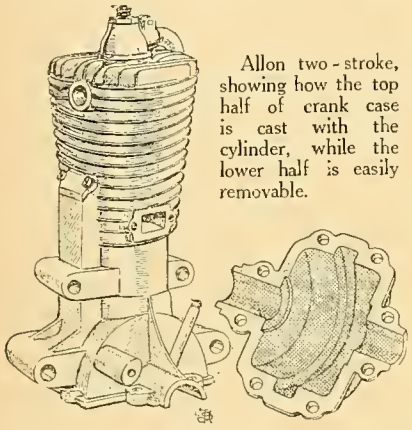
The 3 h.p. Enfield power unit, showing the simple timing gear exposed and the enclosed inlet valve mechanism. One cylinder is shown in section.

ALLON TWO-STROKE.

A LIGHTWEIGHT OF STRIKINGLY ORIGINAL DESIGN.

ONE of the most original designs of two-stroke lightweights we have yet inspected is the new Alldays, which, by the way, will be known as the Allon.

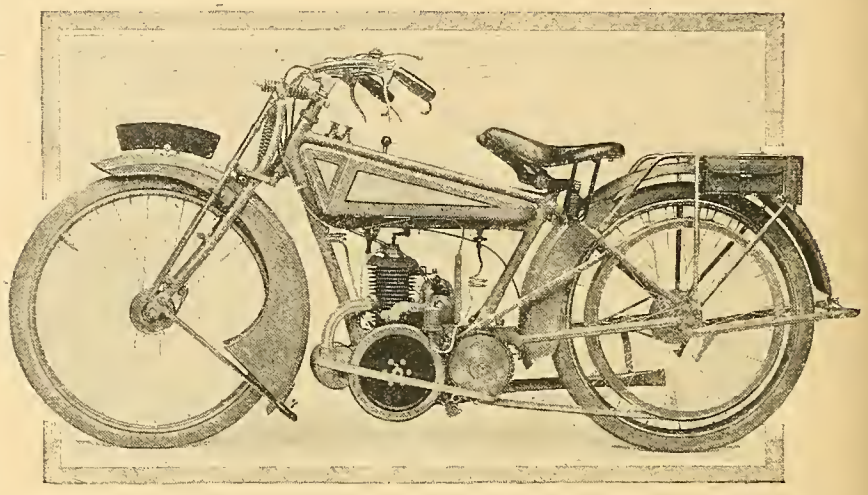
The frame construction is the first point that strikes the observer. It is excellently designed, and has a particularly good feature of straight tubes everywhere. Instead of the top dropped tube a sloping tube is employed, which gives it a distinctive appearance. It will be remembered that Messrs. Alldays and Onions were one of the first firms to adopt this type of frame, and the machine ridden by W. H. Longton (who by the way is now with the Colours) in the Isle of Man attracted considerable attention on this account.



Allon two-stroke, showing how the top half of crank case is cast with the cylinder, while the lower half is easily removable.

All the fittings are excellent everywhere, and stoutly carried out, a large and comfortable saddle being fitted, which, with Brampton forks and aluminium footboards, should render the machine extremely comfortable on the road.

The 26in. wheels are another important item. Both brakes are distinctly unusual, as on each hub is mounted a phosphor bronze drum, round which is wound a heavy spring steel wire. The wire is arranged so as to clear the drum comfortably when not in action, but to give a very powerful braking action when applied. The mudguards are fitted with deep side wings, and a combined chain and belt drive is employed.

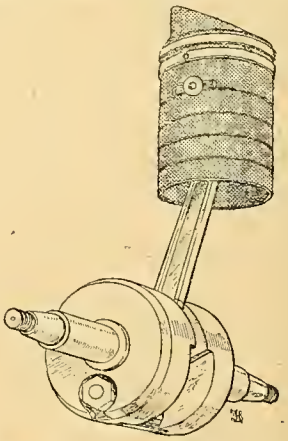


Left hand side of the 2¾ h.p. Allon two-stroke two-speeder.

Features of the Engine.

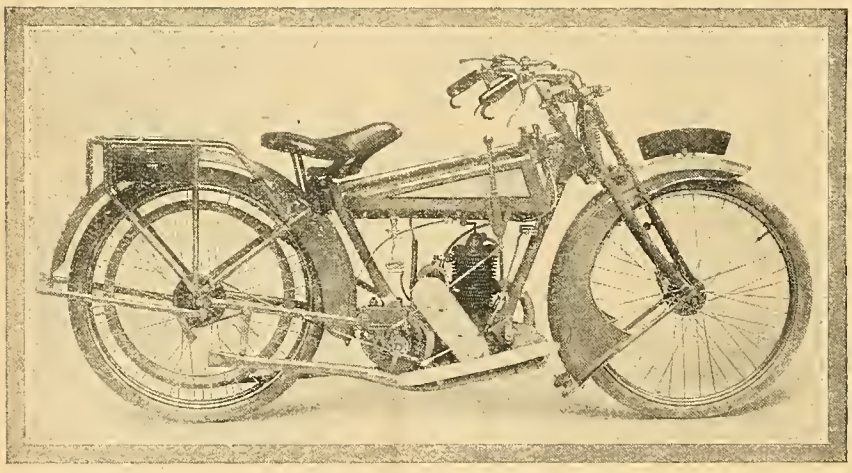
The 2¾ h.p. engine itself is striking in many respects. It has a bore and stroke of 70×76 mm. respectively, giving a capacity of 292 c.c. The cylinder is cast with the top half of the crank case, the crank case being split horizontally as in modern car engines; thus it is possible by simply removing the lower half of the crank case to drop out the crankshaft, connecting rod and piston, and cleaning is thereby rendered extremely easy. The transfer pipe is cast with the cylinder, and the release valve is connected direct to the exhaust port by a small pipe.

The magneto is mounted directly behind the cylinder, and the magneto chain case is so constructed that it does not in any way interfere with the removal of the crankshaft. The driving chain is covered in, and a belt drive of reasonable length is arranged. The engine fixing is particularly stout, and there is no fear of rattle or looseness developing at this point. Lubrication is by drip feed, and the tank fittings are all excellent, while the change-speed gate is of substantial proportions. The gear box is separate from the engine and is of the double dog type, having a cork insert clutch of ample dimensions carried within the driven sprocket. It is handle-bar controlled, and the gear box is so mounted that the holding down bolts are quickly accessible for chain adjustment.



Piston, crankshaft, and connecting rod of Allon two-stroke, which may be withdrawn after removing the lower half of crank case.

The price, as described, will be £38; without clutch, £36 10s.; and single-geared model will be listed with a countershaft at £28.



The new 292 c.c. two-stroke Allon, which is conspicuous for its sloping top tube and low saddle position.

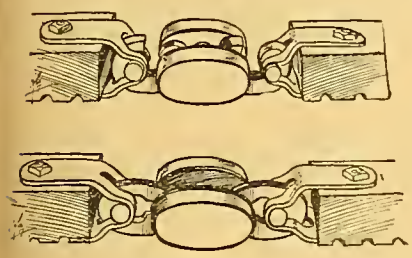
General Accessories

In the following pages we deal exhaustively with a variety of accessories and equipment specialities which help to render the lot of the motor cyclist easier and more pleasurable. Many a rider who is already in possession of a mount will be attracted by one or other of the handy fittings dealt with, whilst others on the point of ordering a new machine will find the review of great convenience in selecting the most suitable equipment for himself and his mount. The review does not profess to be complete—indeed that would be impossible in the space at our disposal. For ease of reference the items dealt with are subdivided under the following headings :

(1) General Accessories. (2) Tyres and Clothing. (3) Electrical Appliances. (4) Lamps.

Forward Links and Fasteners.

The two belt fasteners shown above are ingenious devices for lengthening a belt which is too short, owing, perhaps, to the closing up of the adjustable pulley. It is interesting to note that the



connecting link is leather lined, and consequently it is noiseless in action, and does not interfere in any way with the working of the belt. These links are made suitable both for the King hook (above) or the Forward fastener (below).

The Forward Motor Co., Summer Row, Birmingham.

Bowden Specialities.

The Bowden lever is, without doubt, familiar to all our readers, but there are few who have taken the trouble to take one of these to pieces and see how beautifully it is made. It will come as some surprise to many when it is shown by means of an illustration that the Bowden lever comprises a beautifully made little

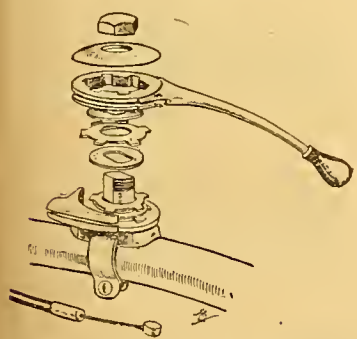
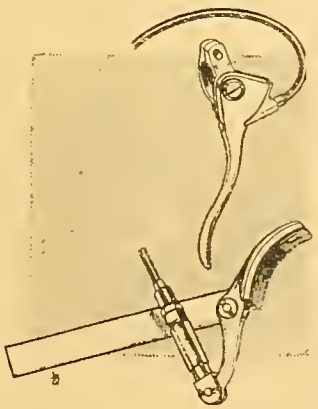


plate clutch, similar to the plate clutches found in hub gears. It will be seen that the centre portion of the lever itself is castellated, and suitable plates engage with the castellations, while on the spindle between the castellated plates are circular plates, which are fixed so that they cannot turn on the central spindle. In this manner the smooth and yet stiff working of the lever is assured.

It may be remembered a band brake device has been brought out by Bowden Wire, Ltd., for the purpose of operating the Philipson pulley, which is usually done by application of the foot, which, though it works well, has a somewhat deleterious effect upon the shoe leather. The new design Bowden control for the Philipson pulley has now been considerably simplified, and is similar in design to a locomotive brake brought into action by means of a Bowden wire on the handle-bar.

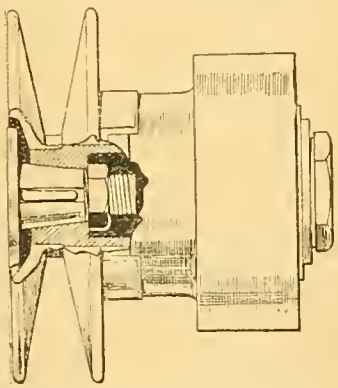


Messrs. Bowden Wire, Ltd., 37-41, Pratt Street, Camden Town, N.W.

The Philipson Variable Gear.

The Philipson pulley and variable gear is so well known that a description is quite unnecessary. We will, therefore, content ourselves with calling attention to a small improvement in the internal mechanism which has recently been made. Some trouble was experienced by thoughtless users of the pulley in over-retarding the governor, the result being that the coiled spring in the governor box occasionally broke. The spring was fastened to the centre bush by means of a set screw and washer. The improvement consists in inserting a leather cam bolster, which extends a certain distance round the circumference of the bush, and which is attached by means of a set screw only. The washer used under the screw head is thus dispensed with.

We understand that the cam bolster has proved entirely successful, and that it



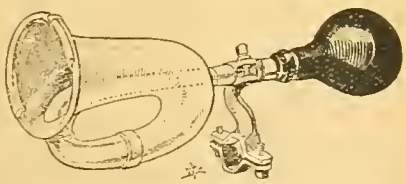
Philipson patent automatic governor pulley. The illustration shows pulley fixed to engine.

can be fitted to existing governor pulleys. It is quite an easy matter to fit it, and it is well worth it, as the cam gives a much smoother action to the working of the governor, and all undue strain to the spring at the fastener screw is done away with. The Philipson governor pulley is perhaps the simplest gear available for fitting to existing machines.

Philipson and Co., Holland Street, Astley Bridge, Bolton.

A New Rotax Horn.

The horn which is shown in the accompanying sketch is sold by the Rotax Motor Accessories Co. It is rather peculiar in construction in that part of the

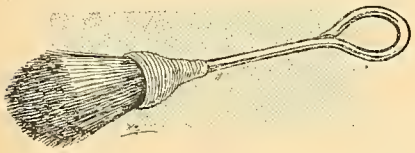


twist is hidden in the bell mouth of the horn. This gives it a pleasing appearance, and renders it far easier to clean than a horn in which there are numerous turns. It emits a clear, audible, and by no means unpleasing sound.

The Rotax Motor Accessories Co., 43, Great Eastern Street, E.C.

An Engine-cleaning Brush.

We have received a sample of an engine cleaning brush from the Motor Factoring Co. It is an exceedingly well-made little article, and has been so constructed that the hairs cannot pull out.



It is, moreover, of a very convenient size, and can be easily carried in the tool bag. Motor cyclists have been long wanting a brush of this kind. The price is moderate—1s.

The Motor Factoring Co., 113, Clerkenwell Road, E.C.

Small Machine Tools for Motor Cyclists.

It is the nature of motor cycle riders to become enthusiastic amateur engineers, and it is not surprising, therefore, that a very large proportion of them soon become exceedingly handy in effecting their own repairs. After the acquisition of the machine the workshop gradually grows, and as time goes on and the rider becomes more of an expert, he is anxious, through the sheer love of doing his own work, to improve and add to its equipment. It is for the handy man who is a clever amateur mechanic that Messrs. Drummond Brothers specially cater. We illustrate herewith one or two of the neat and serviceable small machine tools for which this firm are responsible.

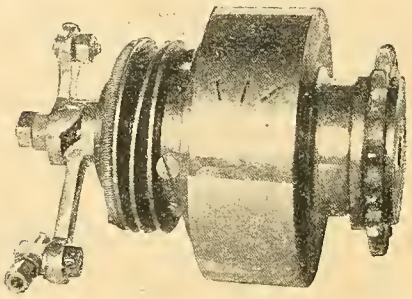
There is a 3½in. screwcutting lathe, which is also suitable for boring, milling, and drilling. The special T-slotted table enables quite large work to be bolted down for boring, etc., as the slide rests may be easily removed by loosening one nut. A neat trip gear is provided which prevents the saddle from over-running and damaging the lathe or work.

Another very popular Drummond tool is that illustrated and known as the 4in. Precision lathe. Owing to its simple design the manufacturing costs have been reduced, and a lathe capable of dealing with practically any operation which can be performed by the 3½in. lathe has been placed on the market at an exceedingly moderate cost. The two lathes described may be driven either by power or by means of a treadle.

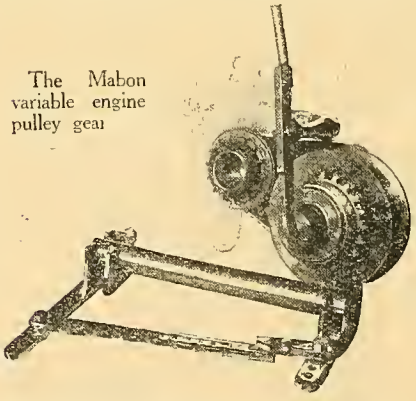
Drummond Bros., Guildford.

Variable Pulley Gear.

The two excellent articles, a plate clutch and variable gear, supplied by the Mabon Motor Works, have been on several occasions described in this journal, but an innovation is the plate clutch, illustrated herewith, for chain-driven machines. The photograph gives a clear view of the external clutch spring, which is adjustable, and the two inclined planes, which serve to separate the plates inside the clutch.



The variable gear has undergone no alteration since we last described it. The accompanying photograph shows the two chain sprockets mounted on a bracket, which pivots on the crankshaft centre and also the adjustable pulley, the opening of which is varied by the operation of a single lever according to the gear ratio required. Owing to the expanding pulley being eccentrically mounted, the opening of the flanges is accompanied by the varying of the distance from the centre of the pulley to the centre of the



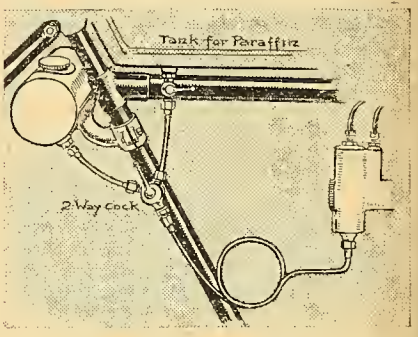
The Mabon variable engine pulley gear

back wheel, thus taking up the slack of the belt and keeping it always at the correct tension. Our photograph also shows the control rod and the ratchet, which is attached to the secondary tube, of the motor cycle frame. This has also at its extreme right a free engine notch, which is obtained by expanding the pulley to its fullest extent, when the belt runs on a loose ring.

Mabon Motor Works, Woodside Gardens, Bruce Grove, Tottenham, N.

How to use Cheap Fuel.

The Binks ingenious jet damping and high velocity carburetter has already been described in detail in *The Motor Cycle*. It remains practically the same for 1915, but Mr. Binks has adopted a method of making it use paraffin. It will be noticed that behind the saddle

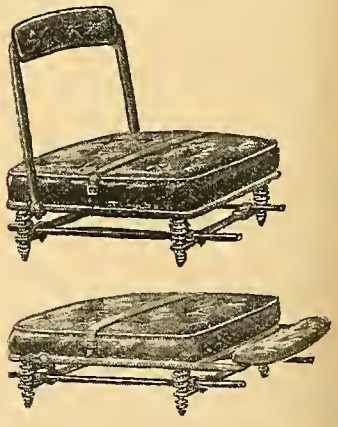


tube a tank for benzole or petrol is carried. The engine is started on the lighter spirit, and afterwards the two-way cock is turned off and it continues to run on paraffin. Mr. Binks recommends a special kind of paraffin which costs 10½d. a gallon, and is sold by him in forty gallon casks, but ordinary paraffin will answer the purpose.

Messrs. Charles Binks, Ltd., Phœnix Works, Church Street, Eccles, Manchester.

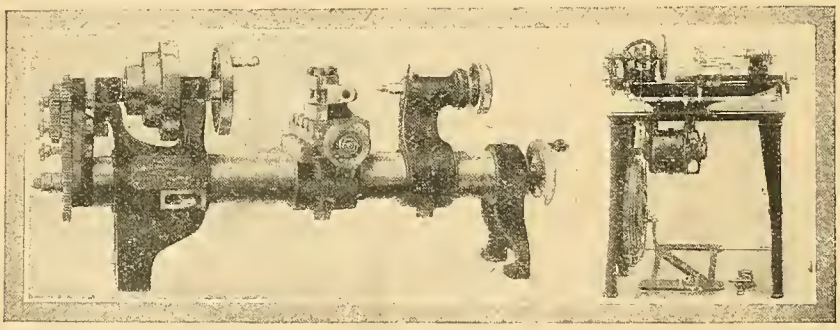
A Passenger Seat.

A very useful accessory is the Tynesider seat with backrest. The accompanying illustrations show the method of springing the platform upon which the seat is mounted. It will be noticed that it may



be used for an extra passenger on the carrier, the back can be raised and used for the driver, or another use to which the accessory can be put is that of a well-sprung luggage platform.

Messrs. The T. Eltringham Henderson Co., 25, Albion Road, North Shields.



Two types of the Drummond lathe.

THE
HENDEE MANUFACTURING COMPANY'S

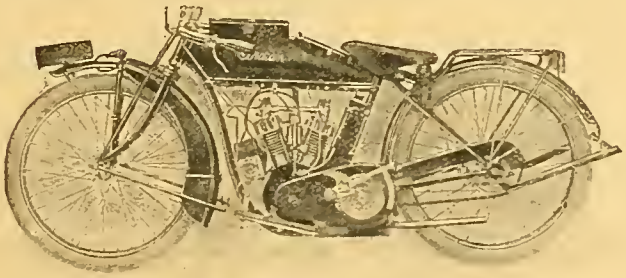
MASTERPIECE.

Expert and novice alike agree that the

1915

Indian

is as near perfection as possible.



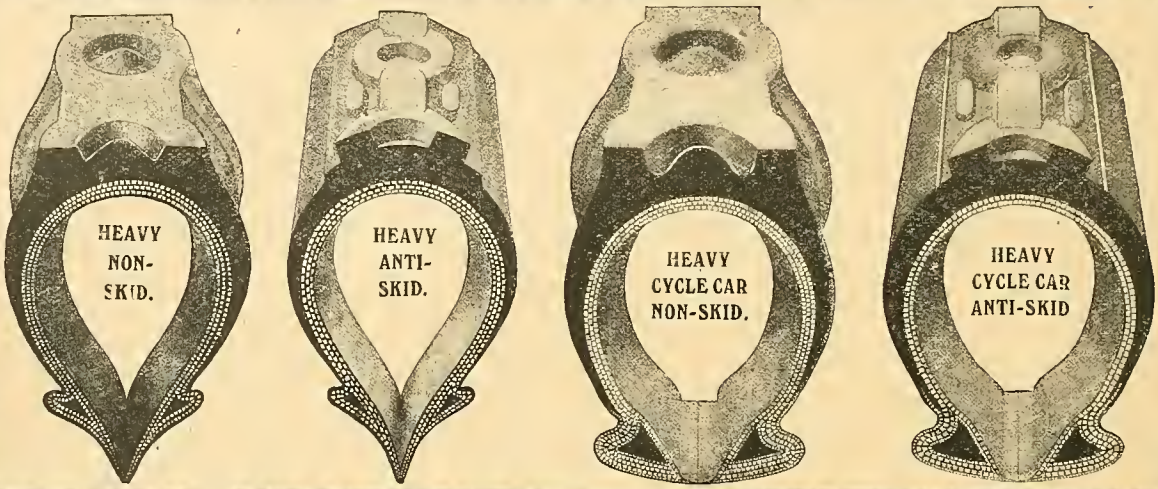
MODEL A 3½ h.p. Fitted with 3 speed gear.

The beauty of line and compactness of design are unique, and all the outstanding features show originality in every direction.

AN IMITATION CAN NEVER BE UP-TO-DATE.

HENDEE MANUFACTURING CO.,
"INDIAN HOUSE," 366-368, EUSTON ROAD, LONDON, W.
Telegrams: "Hendian, Eusroad, London." 'Phone: Museum 1643.
DUBLIN BRANCH: Mr. C. B. Franklin, Manager (Temporary Address), 8, Vernon Terrace, Rathmines.
Australasian Depot—109, Russell Street, Melbourne.
Canadian Factory—12-14, Mercer Street, Toronto.

A preliminary list will be sent post free on application.



KEMPSHALL'S

AGAIN THE BEST VALUE FOR 1915:

The tyre requirements of the big twin combination, the medium-power machine, and the baby motorcyclette, are fully and perfectly met in the Kempshall list for 1915: and every tyre is British-made by skilled British labour. . . . .

HEAVY NON-SKID PRICES:

Nominal sizes in inches.	Cover.	Tube.	Complete Tyre.
	£ s. d.	£ s. d.	£ s. d.
26 × 2¼ins.	2 2 0	0 8 6	2 10 6
26 × 2⅜ins.	2 6 0	0 8 6	2 14 6
26 × 2½ins.	2 8 0	0 10 6	2 18 6
28 × 2½ins.	2 15 0	0 12 0	3 7 0
26 × 2½ins. to fit 2¼ Rim	2 12 6	0 11 0	3 3 6

HEAVY ANTI-SKID PRICES:

	Cover.	Tube.	Complete Tyre.
	£ s. d.	£ s. d.	£ s. d.
26 × 2ins.	1 10 6	0 7 6	1 18 0
26 × 2¼ins.	1 12 6	0 8 6	2 1 0
26 × 2⅜ins.	1 17 6	0 8 6	2 6 0
26 × 2½ins.	1 18 6	0 10 6	2 9 0
28 × 2½ins.	2 2 0	0 12 0	2 14 0
26 × 2½ins. to fit 2¼ rim (Ext-a Heavy)	2 5 0	0 11 0	2 16 0

HEAVY CYCLE CAR NON-SKID PRICES:

Size.	Non-skid Cover.	Tube.
	£ s. d.	£ s. d.
26 × 2½ins.	3 2 6	0 10 6
26 × 3ins.	3 5 0	0 12 6
FOR "INDIAN" MOTOR CYCLE.		
	£ s. d.	£ s. d.
28 × 3ins.	3 10 0	0 12 6

HEAVY CYCLE CAR ANTI-SKID PRICES:

Size.	Anti-skid Cover.	Tube.
	£ s. d.	£ s. d.
26 × 2½ins.	2 7 6	0 10 6
26 × 3ins.	2 10 0	0 12 6
FOR "INDIAN" MOTOR CYCLE.		
	£ s. d.	£ s. d.
28 × 3ins.	2 17 6	0 12 6

THE KEMPSHALL TYRE CO. (of Europe), LTD.,

97,98, Long Acre, London, W.C. Cambridge St. Rubber Works, Manchester.

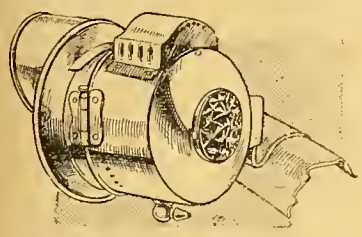
'Phone—244 Gerrard (2 lines). 'Grams—"Studless, London."

Coventry: G. R. Bromley, Warwick Chambers, Warwick Row Birmingham: Reginald G. Priest, 71, Lionel Street. New Zealand: Goldingham & Beckett, Ltd., Palmerston, N. Scotland: Percival E. Pole, 27, Jamaica Street, Glasgow. Paris: The Clapson Co., 26, Rue d'Armenonville, Neuilly.

C.D.C.

P. and H. Lamps.

Among the numerous lamps sold by Messrs. Powell and Hanmer, which are of all types and sizes, suitable for all grades of motor bicycles, we noticed comparatively few alterations, the same standard of excellence being maintained throughout. The accompanying illustration shows an ingenious form of sidecar

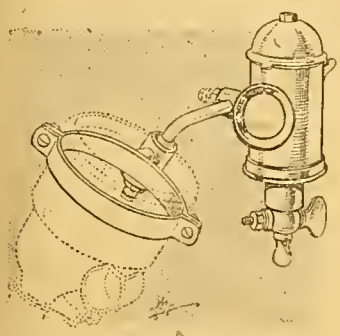


lamp attached to a bracket fixed to the sidecar mudguard. It will be noticed that it shows a white light in the front, and has a red glass at the back.

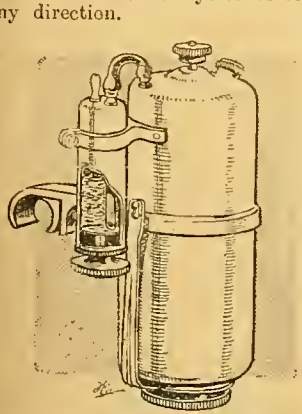
Messrs. Powell and Hanmer, Chester Street, Birmingham.

Lamps and Generators.

Messrs. J. and R. Oldfield, the manufacturers of the well-known Dependence lamps, have recently paid considerable attention to the wants of motor cyclists. They have been the pioneers in introducing small handle-bar acetylene lamps



for the purpose of illuminating speedometers, clocks, etc. The accompanying sketch shows a lamp recently put on the market, fitted with an ingenious ball joint, for the purpose of illuminating the speedometer; while the ball joint referred to enables its rays to be directed in any direction.



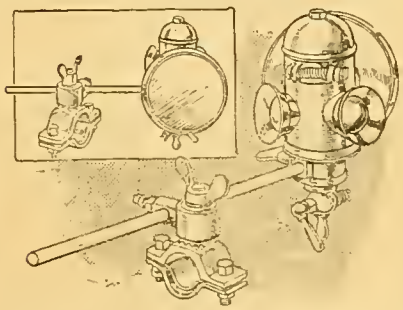
Messrs. Oldfield have also brought out a very well designed and substantially built generator. Contrary to motor cycle practice, it is fitted with an efficient condenser, which is filled with horse hair, and has the effect of drying and purifying the gas before it passes to the burners.

Messrs. J. and R. Oldfield, Refulgent Lamp Works, Warwick Street, Birmingham.

A Double-purpose Lamp.

Few men in the motor cycle business have had more experience in the accessory line than Mr. H. Taylor, who, for the past eleven years, has made a special study of the wants of motor cyclists.

The accessory which appealed to us most on the occasion of our last visit to his showrooms was a useful double-purpose handle-bar lamp, which we illustrate herewith. It is exceedingly well made, and is built to last. The two windows show a red light to the rear, and a white light which illuminates the



speedometer, clock, or route card. By day the lamp may be turned round, and a convenient mirror will be found on the other side.

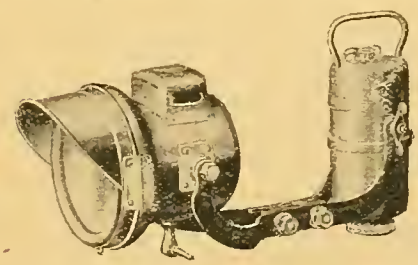
A lamp similar to the above, but of simpler design, is a tail light for sidecars. Both in this and the handle-bar lamp, the lid which acts as a ventilating cowl is kept in position by means of a powerful spring. The surface of the crossbar, which forms part of the scheme of construction, is roughed so as to enable matches to be struck upon it.

While still on the subject of lamps we may mention a useful sidecar lamp bracket, designed to fit upon any convenient portion of the sidecar chassis. It is made so that it can be adjusted to suit requirements.

H. Taylor and Co., 21a, Store Street, Tottenham Court Road, W.C.

The Miller Motor Cycle Lamp.

Miller's lamps for motor cycles are made in a variety of sizes, and are well designed and soundly constructed articles. The larger sizes are fitted with Mangin

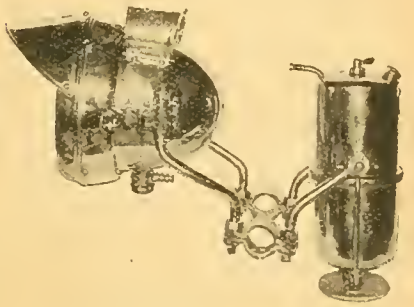


mirrors, and give an excellent light. Miller's Rearlite, which is attached to the right handle-bar and supplied with gas from the main generator, is also a useful article. By day, this can have a mirror clipped over it to give a view of the road behind.

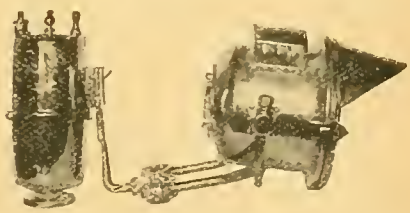
Messrs. H. Miller and Co., 60, Miller Street, Birmingham.

Rotax Lamps.

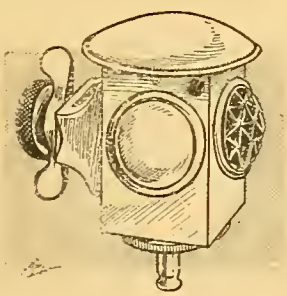
The Rotax Co. has made a special study of lamps for motor cyclists, and those which we illustrate give a clear idea of the various types they have placed on the market for high-powered, medium-powered, and lightweight machines. The lamps are manufactured



at the company's own works at Willesden, and are strongly built and highly suitable for motor cycle work. All the generators are practically of the same pattern, and the method of holding the container on to the water tank is worthy of note, and is most effective. A U-shaped piece is hinged about two clamps



which fit on to the bracket forks, and in the centre of the U is a large milled screw which presses the container up against the tank. The carbide is not placed in the container itself, but in a separate box, the bottom of which is perforated so that the carbide "ash" can shake down to the bottom of the

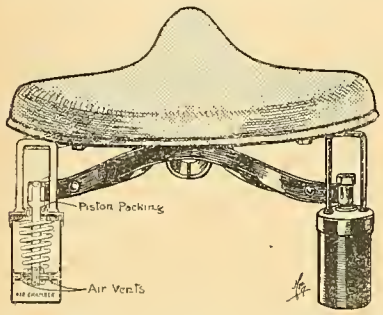


container. The water does not drip direct on to the carbide, but goes into a perforated tube, from which it is more equally distributed on to the fuel. The last sketch shows a neat acetylene tail lamp for a sidecar combination.

Rotax Motor Accessories Co., 43-45, Great Eastern Street, E.C.

An Air Cushion Saddle.

For the first time in this journal we are able to give a description of the Messinger saddle fitted with air cushion springs, similar to the shock absorbers attached to the ends of the springs of motor cars. Naturally, the most interesting point about the saddle is the system of suspension, which the accompanying illustration clearly demonstrates. The lower frame of the saddle is securely connected to the ends of the piston rods, one on each side. The pistons work in air barrels which are carried by yokes clipped to the saddle frame. The piston rods pass through holes in the heads, and are packed so that there is no metal-to-metal contact, and the wear is thus reduced to a minimum. Each piston is fitted with air vents, and the space in the barrel below this is used as an air chamber. Before the weight applied,

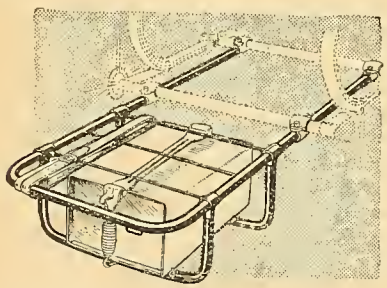


the piston in each barrel is at the bottom of its travel, and there is an air cushion beneath it, but under road shocks the barrels are thrust downwards until the pistons occupy a position about half way up the barrels. The springs are then compressed, and the air is passed from above to below each piston through the vents. On the rebound the barrel rises and the springs extend, but the air cushion prevents violent motion, as the air passes through the vents slowly enough to give a gentle cushioning effect.

Messrs. Morris, Russell and Co., 75, Curtain Road, E.C.

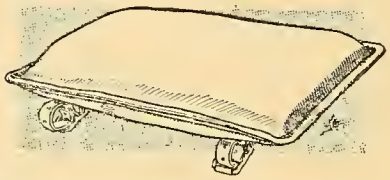
A Strong Luggage Carrier.

A visit to the showrooms of Messrs. A. W. Gamage is always an education. A cleverly designed luggage platform for use on sidecars is shown in the accompanying sketch. It will be noticed that



the platform has a dropped frame for carrying a petrol can, which is kept in position in a particularly ingenious manner. A bar rests on the top of the can, and two clips, kept in position by strong springs, serve to hold the can tightly pressed against the frame so that it cannot move. The top of the grid, of course, is used for luggage, and strap eyelets are placed conveniently at the back of the platform for fixing on the luggage.

Those who are given to the delights of carrier riding will appreciate the



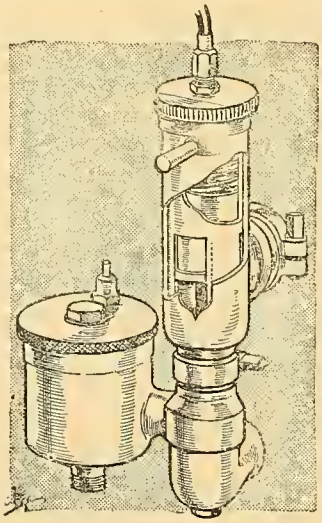
cushion which we illustrate herewith. It is provided with straps for attaching to the luggage carrier.

Messrs. A. W. Gamage, Ltd., Holborn, E.C.

The Scott Carburetter.

The sketch which we reproduce herewith gives a clear idea of the working of the new Scott carburetter.

The carburetter is of the single lever type, but is provided with an auxiliary air shutter by means of which a portion of the fixed air supply may be restricted. The automatic shutter is procured by means of a single piston which uncovers the throttle as it uncovers the air port. If it is desired to strengthen the mixture the side lever which operates the inner sleeve is moved, with the result that the

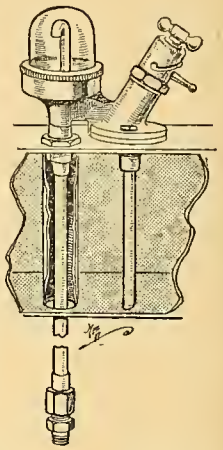


quantity of air drawn in is reduced, but the throttle opening remains the same. It is claimed that since both ports are rectangular both are opened absolutely in proportion. The makers say that to obtain the greatest possible economy the air port should be nearly fully open, and for the maximum amount of power it should only be about half open. The carburetter illustrated is suitable for standard 3½ h.p. single-cylinder machines, or for 6 h.p. twins.

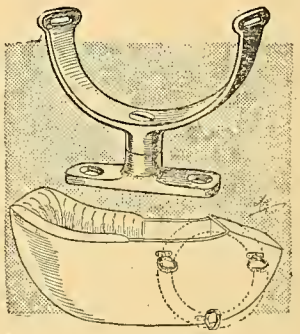
Messrs. William Scott and Son, 153, North Street, Glasgow.

Lubrication Specialities.

Messrs. Benton and Stone, Ltd., have, during the last few years, given a great deal of attention to the motor cycle business, and have brought out many interesting and novel accessories. Probably, the company is best known for the manufacture of lubricating devices. The type illustrated is known as the Enots automatic drip lubricator. It consists of an automatic drip feed, regulated by means of a needle valve. The flow of oil to the crank case is induced by suction. The drip feed is, of course, controllable, but if at any time it is required to give the engine



an extra supply of oil, the lever is given a half turn and the oil will continue to run in a steady stream until the lever is returned to its normal position.

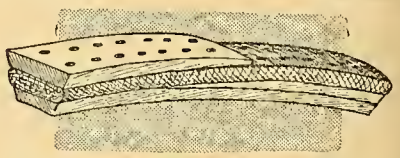


The other sketch shows a set of tyre carriers sold by Messrs. Benton and Stone for attaching to sidecar bodies. The stem of these carriers is swivelled so that the plate may be attached in any position and accommodate the sweep of the tyre to the lines of the car.

Messrs. Benton and Stone, Ltd., Bracebridge Street, Birmingham.

A Chrome Leather Belt.

A new pattern Balata and chrome leather combination belt has been introduced by Mr. W. Pollin, who is a pioneer in belt manufacture, having been occupied in making belts from the very earliest



days of the motor cycle movement. This inventor has been experimenting for some time with Balata in combination with leather, and the main feature of the new pattern is the method of riveting the materials together. The ordinary steel eyelet, as used in former patterns, had a tendency to cut the strands of the woven material and so weaken it to a large extent, whereas the new pattern contains a double row of small gauge solid rivets, all fitted and clenched by hand. This forms a complete metal stitching.

Mr. W. Pollin, Shepherdswell, Dover.

Rudge Multi

The range of
Rudge Motor Bicycles
for 1915.

		FOR CASH. £ s. d.	DELIVERY:
3½ h.p. (499 c.c.)	**Rudge Multi** Roadster or T.T. Model.	58 . 15 . 0	Immediate.
5/6 h.p. (750 c.c.)	**Rudge Multi Roadster**	63 . 15 . 0	Immediate.
7/9 h.p. (1,000 c.c.)	**Rudge Multwin** with Multi-speed Gear and Twin Engine.	75 . 0 . 0	January.
7/9 h.p. (1,000 c.c.)	**Rudge Twin** with Chain drive and 3-speed Countershaft Gear.	75 . 0 . 0	February.
	Rudge Sidecar	16 . 16 . 0	Immediate.
	Rudge Sidecar with Rudge hood and screen.	20 . 11 . 0	Immediate.

Any model may be purchased by Easy Payments.

Abridged Catalogue illustrating and describing each model, and the popular booklet "Rudge Wrinkles," Post free on application to—

LONDON DEPOTS:

230, Tottenham Court Road, W.
(OXFORD ST. END),

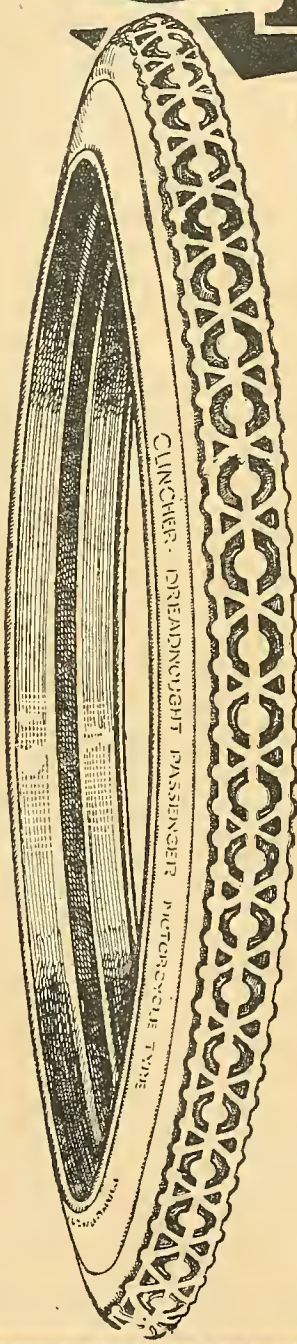
23, Holborn Viaduct, E.C.

By Appointment
Cycle Makers to
H.M. KING GEORGE

Rudge-Whitworth, Ltd.
(Dept. 600),
COVENTRY.

Illustrated Art Catalogue fully illustrating and describing all models will be published early in January, 1915.

CLINCHER



MOTOR CYCLE TYRES.

NEW PATTERNS FOR 1915.

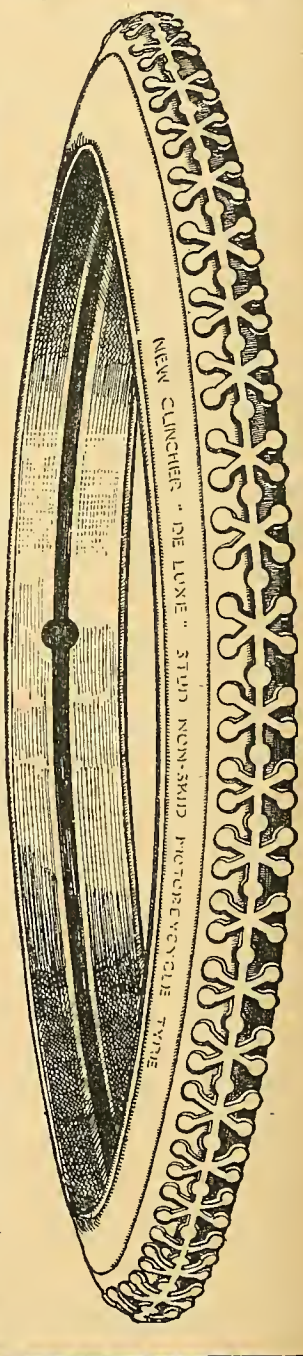
THE IDEAL TYRES FOR HARD WEAR.

DREADNOUGHT PASSENGER (left-hand design).—This tyre has hitherto achieved remarkable success on almost every type of machine, and the various mileages reported range between 5,000 and 22,000. It is constructed so that it will stand up to the road and present a good square running surface, while the casing is of such a quality that it will allow perfect flexion in the walls, to the comfort of the rider and protection of the machine. We have further improved the construction for the coming season by the addition of crossed ribs extending between the studs and by the enlargement of the centre row. This gives the tread a much greater substance and renders it a perfect non-skid, and without question it is the finest tyre on the market for Heavy Solo or Passenger work on machines up to 8 h.p.

"DE LUXE" (right-hand design).—This has been greatly improved both in quality and construction for the coming season. The rubber has been changed from the former grey to a tough white quality, which will better stand the strain of the ordinary type of machine. The tread has also been improved by the addition of crossed ribs extending between the studs, thus giving a heavier and thicker wearing surface and a more reliable non-skid.

It is made in three weights—"Heavy" for machines up to 4 h.p., "Extra Heavy" for machines up to 6 h.p., and "Junior" for machines up to 2¾ h.p.

In the Extra Heavy pattern there are three millimetre sizes for Round Base Rims. It is also made in Wired Edge for those who prefer this type for racing purposes.



MANUFACTURED BY

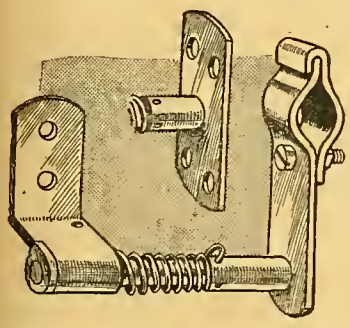
The North British Rubber Company, Limited,

169, Great Portland Street, London, W.

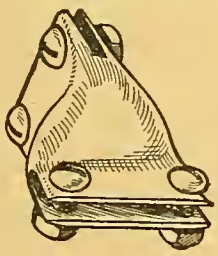
Factories: Castle Mills, Edinburgh.

Spring Lamp Brackets.

A. H. Hunt is best known as a dealer in electrical accessories, but the accompanying sketches show that the firm by no means confines its attention to this class of goods. The two spring brackets illustrated are for carrying oil tail lamps, the idea being that a lamp which is properly sprung will also keep alight and is less liable to damage. An



interesting form of adjustment is provided. One end of the coil spring is anchored to a movable portion of the bracket, while the other end is anchored in a hole on the fixed portion, so that if a heavier lamp be fitted the tension of the spring can be altered. These brackets are made in two patterns, one of which is intended to be attached to the carrier of a motor cycle, while the other may be screwed on to the bodywork of a sidecar.



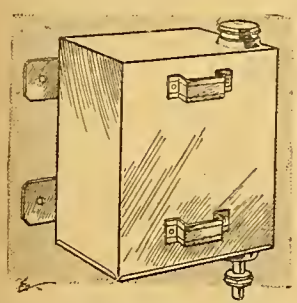
Another interesting little accessory is the H.H. badge holder for fixing to the number plate. It is a neat pressing out of a piece of tube.

It is interesting to note that the "clutch" adhesive insulating tape which is a speciality of this firm is now British made.

Mr. A. H. Hunt, 115, Cannon Street, E.C.

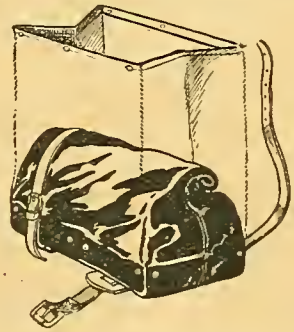
An Extra Petrol Tank.

The handy little extra tank which we illustrate follows very closely a design suggested in *The Motor Cycle* for petrol consumption competitions. It will be



noticed that means are provided for strapping the auxiliary tank to the main petrol tank.

The man who tours, or the despatch rider, is often at a loss as to how best to pack up his kit. The folding valise, a sketch of which we reproduce, is a thoroughly serviceable article. It is constructed of patent leather, which we are assured will not crack. It is absolutely waterproof and very capacious.



The Service Co., Ltd., have also introduced a new tyre gaiter, which is particularly well made, and is constructed of the finest Egyptian canvas and strengthened by means of the best chrome leather.

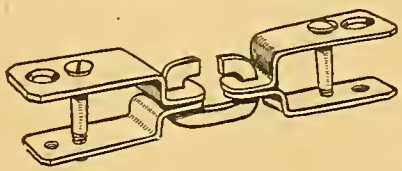
The Service Co., Ltd., 292-293, High Holborn, W.C.

A Patriotic Mascot.

A mascot of interesting design and suitable for the present period is that now being marketed by the Stentophone Co. As the illustration shows, it is of a distinctly patriotic nature, the bulldog's head and shoulders being surrounded by French, Belgian, Russian, and English

flags. It is sold in three styles, *i.e.*, antique bronze and polished brass, antique silver, or heavily lacquered. The price is 2s. 6d. in either of the three styles

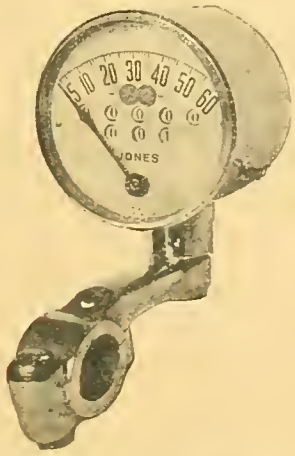
The Stentophone Co., 36, South Road, Hockley, Birmingham.



A strong hook fastener for high powered machines, and having double screw fixings. It is sold by John Piggott, Ltd.

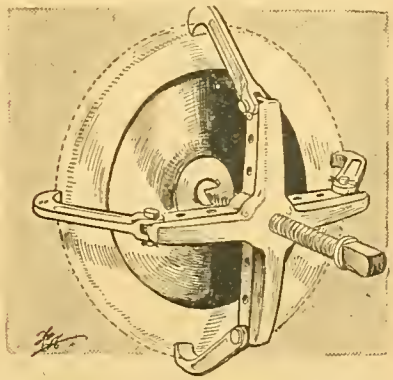
The Jones Speedometer.

Among the first successful speedometers for use on motor cycles was the Jones. This, as our readers are aware, works on the centrifugal principle, and has long been a popular accessory. Our illustration shows the clearness of the figures, a point which is of great value to motor cyclists. There has been an in-



creased demand for speedometers registering in kilometres per hour, and these instruments especially appeal to motor cycle despatch riders on the Continent, where all distances are marked in kilometres.

One of the most useful accessories ever sold by this firm is the Giant wheel drawer. A modified form of this useful tool was also adopted for motor cycle



pulleys, and recently another improved form with four legs has been brought out for removing any kind of pulley or the flywheels of lightweights.

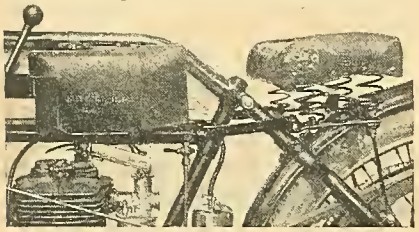
Messrs. Markt and Co., Ltd., 98-100, Clerkenwell Road, E.C.

Knee-grip Seat.

This combination seat is expressly designed to take in all the requirements of motor cycling. It departs from the usual pedal cycle saddle form, and embodies a new principle of riding, well known to every horseman—that of control by the knees. Motor cycling, with its great pace, and consequent vibration, requires a seat in which one can reduce the road shock by rising from it, and this can be brought about by means of a knee grip. Engine vibration at speed is coped with in this seat by in-

General Accessories.—

troducing car cushion springing in combination with a 1½in. thick feather pad, which can be removed and shaken up. The rider by use moulds the top of the seat to his form, thus ensuring the greatest comfort. The knee grips are in the form of bags; they are of solid hide cut in one piece, and are made to serve

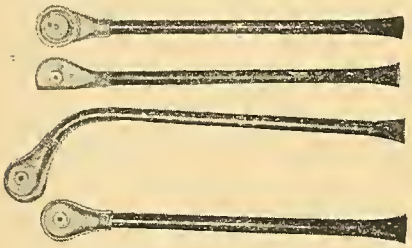


a useful purpose, as each carries a metal box. They also keep the legs upright in a natural position, and off the hot engine. The modern requirement of a low riding position is given in a great degree.

The Kumfurt Motor Accessories Co., Cookham, Berks.

Willers Extension Pipes.

We illustrate herewith four types of Willers extension pipes designed to fit various makes of motor bicycles. These extension pipes serve to reduce the

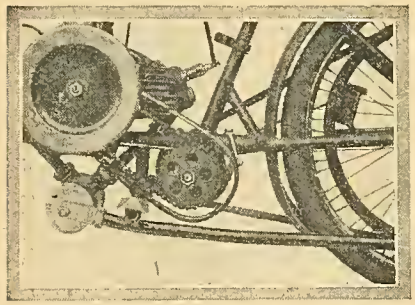


noise without in any way causing back pressure. These are made to fit various machines.

Messrs. Willmott Bros., 51, Prince of Wales Road, Norwich.

Clair Silencers.

The Clair silencer, it may be remembered, consists of a nest of drilled cups, which successfully break up the exhaust gases, rendering their exit quite silent



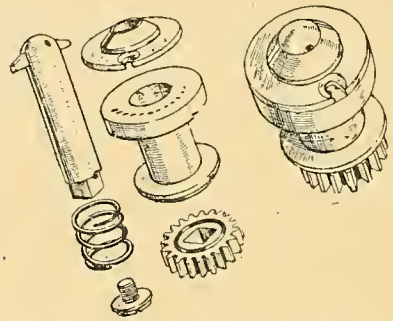
without exerting undue back pressure. The Clair was originally a French invention, and gained an exceedingly high award in the A.C.F. Silencer Trials many years ago. Messrs. Lyell have bought up the patents and now manufacture these themselves. Ingenious end plates and adapters have been made, rendering the Clair silencer suitable for all makes of machines.

Messrs. J. C. Lyell and Co. also make a speciality of oxy-acetylene welding, and sell a plant for accomplishing this work. They are exceedingly expert in repairing broken castings, and thoroughly understand the requirements of motor cyclists.

Messrs. J. C. Lyell and Co., 115, Great Portland Street, W.

The Wilkinson Twelve-jet Carburetter.

Some detail alterations of considerable interest have been made to the Wilkinson twelve-jet carburetter. The main features remain the same as before, but the jet control has been somewhat altered. Instead of opening up a series of jets up to twelve in number, leaving all open at once, the jet valve is now arranged in the form of a flat plate with a gap



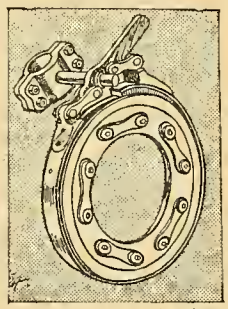
in one side. As this is rotated the first jet is opened, and just before it again starts to close the second jet begins to open. Thus, though the jet area constantly increases as the valve is rotated, there is never more than one and a fraction of a second jet exposed at one time.

Another modification takes the form of a hole drilled in the centre of the valve stem with two inclined outlets at the top, and similar holes partly on and partly above the part of the stem squared for the reception of the pinion. Besides acting as an air vent, this lead ensures any fuel which might leak back into the rack chamber, when the carburetter is flooded for starting, being sucked back into the engine. This helps to give easy starting, and ensures absence of wastage.

Mr. J. H. Wilkinson, 40, Jubilee Road, Doncaster.

A Fibre-lined Brake.

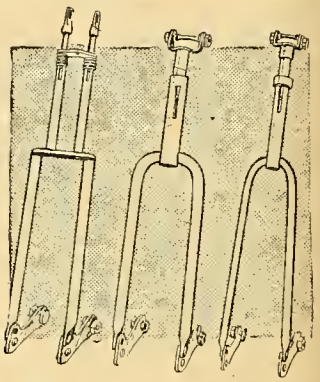
The speciality of this firm is a band brake which is fibre-lined. It is easily fitted to existing makes of machines and is suitable for the heavier types of motor bicycles, especially with sidecar attachments.



Messrs. Ukantes, London Colney, Herts.

Spring Fork Attachments.

Among the Kerry list of accessories we may mention a series of excellent spring forks designed to be adapted to motor bicycles of ancient manufacture, which are fitted with forks of the single or rigid type, and it is surprising how many of these are still in use. These forks are known as the Readhead

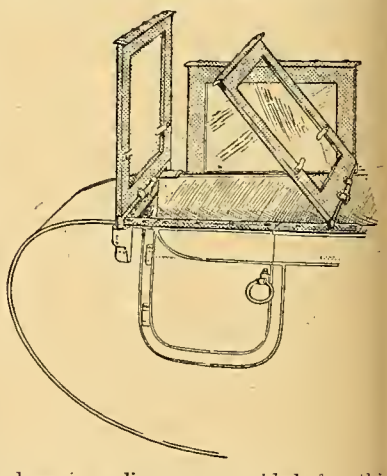


girder spring fork attachments, and are made suitable for lightweights of 2½ h.p., for medium-powered machines of about 2¾ h.p., and for full touring mounts.

The East London Rubber Co., Ltd., 29, Great Eastern Street, E.C.

A Sidecar Windscreen.

One of the most ingenious wind screens that has yet been produced for sidecar work has just been brought out in conjunction with a special body. When out of use the screen drops inside a panel of the body, and besides being invisible, is quite out of harm's way and cannot be damaged. At a moment's notice the screen can be lifted out and fixed at any desired angle, either at the front of the body or behind the sidecar door. In this latter position it can be sloped forward to act as a paper or book rest,



and spring clips are provided for this purpose. Any change in position of the screen can be made by the passenger while the machine is travelling, and it is but the work of a moment to swing the screen to one side so that one can enter or leave the seat. The body has graceful lines, and is very tastefully finished and upholstered.

The Light Car Body Co., Fleetwood Works, Union Street, Coventry.

REMEMBER:

Every Dunlop tyre bought helps to support the workpeople of your own country; and every foreign tyre bought—European or American—is a blow aimed at the workpeople of your own country.

The DUNLOP price reduction

Heavy type (3-ply casing) beaded-edge, for heavy solo and medium passenger work.

Extra Heavy type (4-ply casing) beaded-edge, on round base rim, for heavy passenger work. Made in 650 x 65 mm. size.

ITS design, its method of construction, and its quality render the patented Dunlop rubber-studded motor cycle tyre the finest ever produced.

And now that the prices are down, take advantage of your opportunity. Specify Dunlops for your new mount, and set your mind at rest on the tyre question.

Here are a few examples of sizes much in demand :—

		Cover.	Tube.
Ribbed Motorcyclette	24 x 2	12/-	6/6
" "	26 x 2	14/3	6/9
R.S. "	24 x 2	16/3	6/6
" "	26 x 2	17/6	6/9
" Light	26 x 2	20/-	6/9
" Heavy	26 x 2⅜	30/6	8/6
" Extra Heavy	26 x 2⅜	37/9	8/6
" " "	650 x 65	41/-	10/6
Three-Ribbed "	650 x 65	34/6	10/6
Sidecar Extra "	26 x 2½	23/-	8/9
Combination Rubber and Steel-studded	650 x 65	55/9	10/6
R.S. Heavy Wired-on	26 x 2¼	28/-	7/9

There is a big saving on some of these tyres. The full list of 52 types and sizes is given in the A.R. leaflet (free). Get a copy from your agent or from any of our branches, note the price which interests you, and give your order straightaway.

THE DUNLOP RUBBER CO., LTD.,

Founders throughout the World of the Pneumatic Tyre Industry,

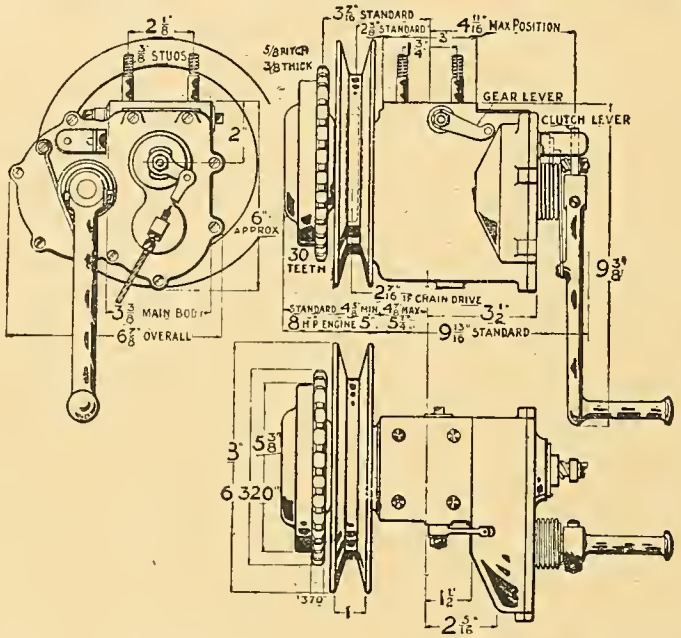
Aston Cross, BIRMINGHAM; and 146, Clerkenwell Road, LONDON, E.C.

Branches—Coventry, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

DUNLOP SOLID TYRES FOR HEAVY COMMERCIAL VEHICLES.

TRADE MARK.

THE NEW STURMEY-ARCHER COUNTERSHAFT GEAR IS A REVELATION



Adopted for 1915 by the leading Motor-cycle Manufacturers. 3-speed & enclosed kick-starter.

Suitable for Motor-cycles from 3 to 6/8 H.P. Gears constantly in mesh, and may be changed at any time without declutching or raising Exhaust lifter. Clutch is of the cork inset type, operated from handle-bar, and very smooth in action.

Kick-starter completely enclosed, constantly in mesh, with safety device to prevent injury should a back fire occur.

Weight of gear complete, 24 lbs. Can be supplied either with combined chain and belt drive or all chain drive.

Write To-day for reduced prices of S.A. 3-speed Hub Gears as supplied for Russian and British War Office Motor-cycle Contracts.

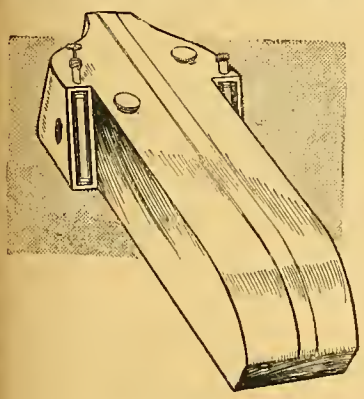
SEND FOR DESCRIPTIVE BOOKLET, POST FREE.

STURMEY-ARCHER GEARS, Ltd., NOTTINGHAM.

In answering this advertisement it is desirable to mention "The Motor Cycle."

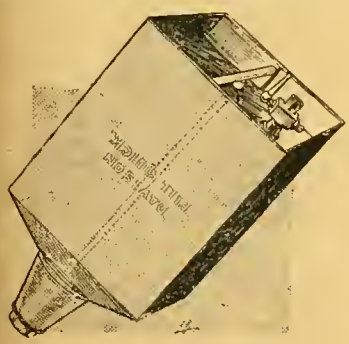
Visible Petrol and Oil Gauges.

Few people in the accessory trade have displayed more ingenuity in the design of useful fitments than Mr. A. C. Davison. One of his latest ideas is an excellent form of motor cycle tank, to which he has adapted his gauges. The accompanying drawing will show that these are readily visible, thus showing the quantities of oil and petrol in the tank at a glance.



Previously, the complaint has been that petrol gauges are not easily seen from the saddle. Another point about the tank is the carrying of oil in a totally separate box inside the main tank, thus greatly adding to the strength of the oil tank and preventing the tiresome leakage between the two compartments, about which so many riders have complained from time to time.

The other accessory we have to deal with under this heading is a petrol can specially designed for the use of record breakers and racing men. This is turned upside down and the spout inserted in the



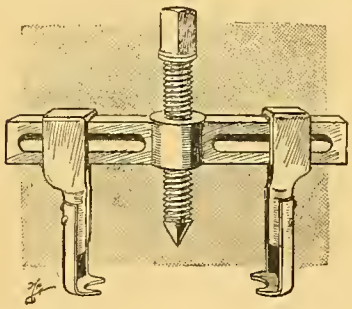
filler cap of the motor bicycle. The petrol is allowed to escape by first of all opening the vent at the top, which takes the form of a tap, and by pressing down the handle, by means of which the exact amount may be easily regulated.

A. C. Davison, 163, Arlington Road, Camden Town, N.W.

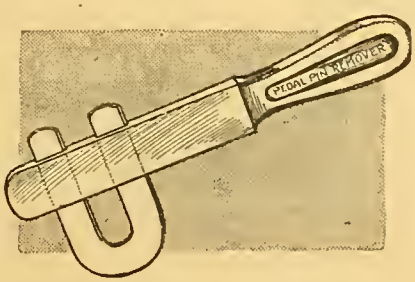
Useful Tools.

One of the most up-to-date firms in the manufacture of useful tools is that of Messrs. Lake and Elliot. A particularly useful little appliance is the Millenmium magneto timing wheel puller. The joints of the arms are made of sheet steel, thinned at the part which goes behind the wheel to be removed, and carefully hardened and tempered. The arms are self-locking as soon as pressure is applied to this screw, and they cannot slide away from the work.

Yet another interesting tool made by this firm is the Millennium pedal pin spanner, which should especially appeal to the owners of lightweights. The flats



on the end of the pedal spindle are extremely small, and it is difficult to find a spanner thin enough to take them and yet strong enough to withstand the necessary strain to unscrew these spindles after the machine has been in use for some time. In the case of this

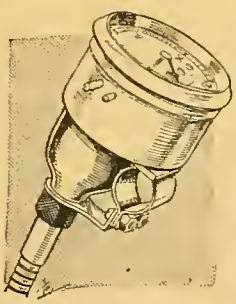


tool the force applied to turn the pedal spindle tends to hold the shoes together, thus giving the necessary firm grip.

Messrs. Lake and Elliot, Ltd., Albion Works, Braintree, Essex.

Watford Speedometer and Magneto.

One of the most successful motor cycle speedometers on the market is the Watford, which works on the centrifugal principle. It owes its popularity entirely to its wonderful reliability, which has been brought about by the extreme care and accuracy exercised in its manufacture. We have had a considerable amount of experience with this excellent little instrument, and we can speak most highly of it in consequence.

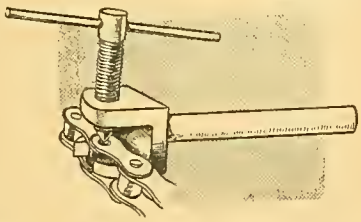


Messrs. Nicole, Nielsen and Co. are also manufacturing a magneto. Their experience in fine and accurate work should stand them in good stead in this new departure, and we have no doubt that it will be a first-rate article.

Messrs. Nicole, Nielson, and Co., Watford, and 14, Soho Square, W.

A Chain Rivet Punch.

Quite a novel accessory, sold by the Service Company, is a chain rivet punch. It is absolutely self-centring, is smaller than any existing similar tool, and is machined out of a solid bar. When the chain link is looped on to the fork end, the punch is opposite the counter-sink of the chain stud, and thus a rivet can be punched out accurately in the dark if

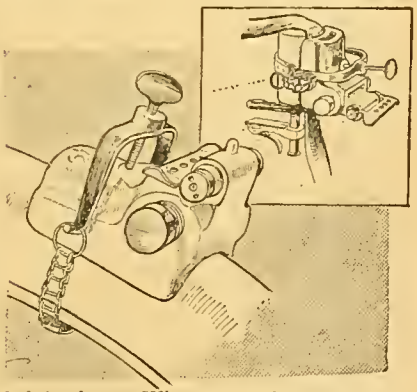


necessary. It is made suitable for the following size chains: $\frac{5}{8} \times \frac{1}{4}$, $\frac{7}{8} \times \frac{5}{16}$, $\frac{3}{8} \times \frac{3}{8}$, while a larger size is also made.

The Service Co., 292, High Holborn, London, E.C.

The Vulcan Vulcaniser.

There are few more useful accessories which form part of the garage equipment than a good vulcaniser, and the Vulcan is one which has been brought out by the well-known firm of Lacoste and Co., especially for motor cyclists' use. It is but a miniature model of the larger Lacoste vulcaniser sold to the owners of motor cars, and, consequently, is a thoroughly well-tried article. It stands a little under 5½in. high, and is worked by opening the shutter shown in the smaller of the two sketches, and inserting therein a small spirit lamp consisting of absorbent wool soaked in methylated spirit placed in the hole designed to receive it; then, after the tyre has been suitably prepared, the lamp is lit, and it

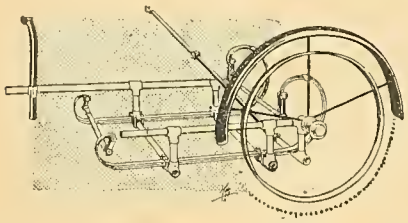


is left alone. When a certain temperature has been reached the white metal surrounding the spindle of the shutter melts, and the spring allows the latter to close automatically, with the result that the flame is reduced and the correct temperature is maintained. The two illustrations show the vulcaniser employed in repairing a badly gashed cover, and also in repairing a punctured tube. The process is very fully described in a well written little booklet which is supplied with each vulcaniser. The box is sold complete with vulcaniser, bench clamp, solution, wood block for a mandrill, and the necessary materials.

Messrs. J. Lacoste and Co., 184 Shaftesbury Avenue, W.

A Dropped-frame Sidecar.

Messrs. Bransom, Kent and Co. especially lay themselves out for the production of inexpensive and extremely neat sidecar bodies and chassis. The

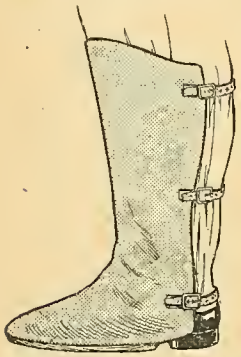


accompanying sketch shows the Dual chassis with dropped frame, which is sold at a very moderate price.

Messrs. Bransom, Kent and Co., 40, Great Eastern Street, E.C.

Gamage's Over-boot.

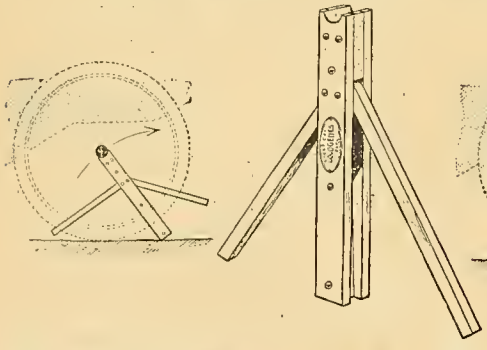
A most excellent over-boot has lately been placed on the market by Messrs. A. W. Gamage, Ltd. The upper consists of waterproof canvas, and adequately protects both the leg and foot. The advantage of such a garment is that it is fixed on with a great deal less trouble than the ordinary overalls, and yet gives adequate protection in the very worst weather, if worn with a long coat.



Messrs. A. W. Gamage, Holborn, E.C.

The Gogogenes Jack

The Gogogenes jack is a light and handy device intended to be used with a light cycle car. It is placed under one end of the axle in a sloping position with the legs extended clear of the ground The car is pulled back on to it, or forward if the front axle is to be raised. When a vertical position has been assumed the legs may be allowed to touch the ground. The car will then be

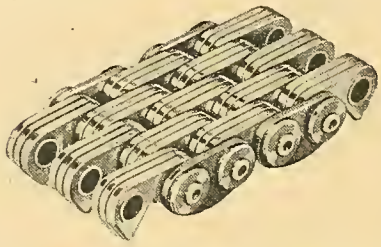


quite steady. Being of wood, it is strong, cheap, and cannot damage the other articles in the tool box. It weighs only 1 lb.

Messrs J. F. Buckingham, Spon Street, Coventry.

A Silent Chain.

This company was the first to adopt the noiseless type of chain to motor cycle use, and was the first to realise its advantages, which lie not only in the silence of the transmission, but also in the fact of its greater suitability for an engine chain, since, as the latter runs at very high speeds, it has been found that

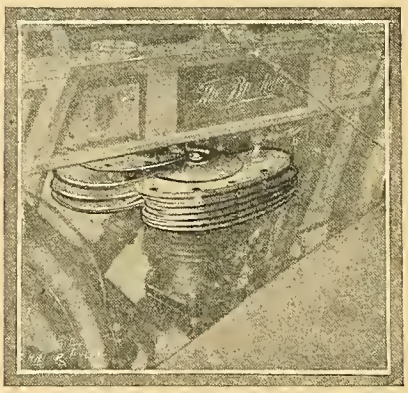


the silent chain is more suitable. The first machine to be fitted with the Coventry silent chain was the Matchless sidecar combination.

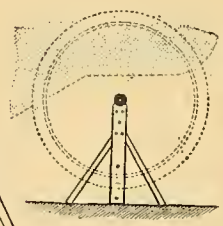
Messrs. The Coventry Chain Co., Spon End Works, Coventry.

Harcourt Radiators.

Considerable interest was evoked on the first appearance of the Harcourt radiators at the beginning of this year. These are aluminium fins provided with



copper separaters which are attached to the ordinary radiating fins of an air-cooled cylinder. We have seen a good many in use, have tried them, and found them to be efficient. They are now made suitable for more than fifty makes of motor cycles, and have proved to be especially useful for two-stroke engines.

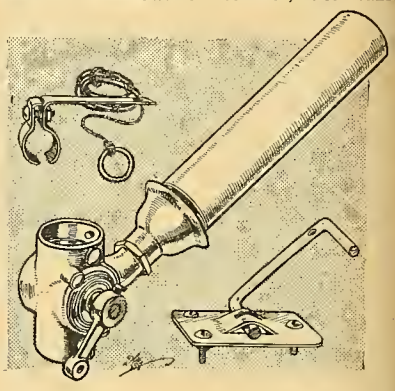


The above illustration shows the Harcourt radiators fitted to a single-cylinder 4 h.p. Bradbury motor cycle engine. It is claimed that they save 50% in the oil consumption and from 20% to 30% in petrol, owing to the efficient manner in which they keep an engine cool.

Messrs. Wylie and Lochhead, Byers Road, Glasgow.

The Simms Exhaust Chime.

Among the various alarms sold for motor cyclists the Simms exhaust chime is especially worthy of mention. An idea of its neat design may be gathered from the illustration, which also shows the two methods of control, the cable

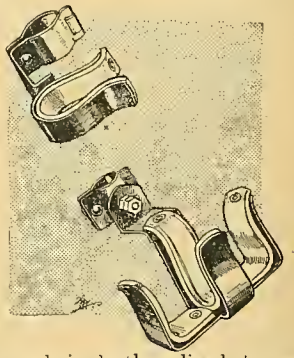


and clip for attaching to the handlebars, or the pedal for screwing on to the footboards. The valve is returned to the closed position by means of a clock spring, which is plainly visible in the drawing.

Simms Motor Units, 191, Wardour Street, W.

A Rifle Clip.

One of the numerous accessories sold by Messrs. Herbert Terry and Sons, which will especially appeal to military motor cyclists, is a rifle clip, illustrated herewith. This is very strongly made of good quality steel, so as to stand rough



usage, and is leather lined to prevent injury to the rifle. The clips are clamped to the forks at the top and bottom. A strong spring action prevents the rifle being shaken out, and the bottom of the clip is adjustable to any angle. When ordering the make of fork should be specified.

Herbert Terry and Sons, Redditch.

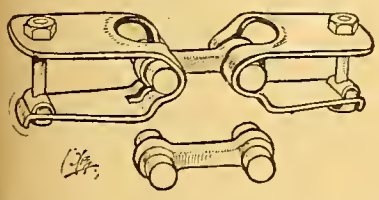
Sarolea Engines.

The Sarolea engines are manufactured at Herstal, near Liège, where so brilliant a stand was made against the enemy. These engines are a well-known and much appreciated Belgian make, and the Tormo Co. hold a good stock. Naturally, owing to the factory being in German hands, no improvements have been able to be made for the coming season. This company also deals in English-made spokes for all types of wheels, and F. and S. ball bearings.

The Tormo Engineering Co., 67-68, Bunhill Row, E.C.

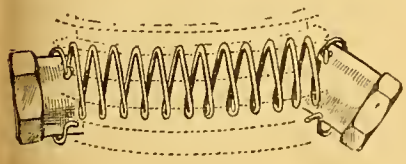
Dall Accessories.

Two very useful accessories are sold by this firm. One is the Dall belt fastener, a most ingenious device which works admirably. The connecting link has a steel roller at each end, and these rollers are pressed into the ends of the fastener through specially large holes. When the rollers are in position the fastener cannot come undone, and, owing to the first-class material employed, excellent wear is obtained. A small point worth mention-



ing is the provision of a U-shaped piece through which the fastener screw runs, which is intended to fit into the bottom grooves of a rubber belt, thus helping to add to the security of the joint. The links are of different sizes, so that by their means a belt which is too slack or too tight can be easily adjusted. We may mention that the price of this fastener has been reduced.

The other device sold by this firm is a trouser guard, consisting of a wire spring hooked round the combustion chamber of



a motor cycle. It serves the very useful purpose of adequately protecting the rider's trousers or overalls from being burnt.

Mr. J. B. Dall, Ladybank, Fife.

A Grease Cartridge.

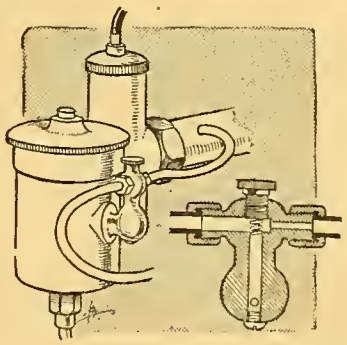
The Vacuum Co. have for many years very carefully studied the various qualities of oils and greases for motor cyclists. One of their latest innovations is a grease cartridge, which is illustrated herewith. It consists of a tin of grease, the top of which is provided with a shutter. When the latter is opened and the handle

turned, a steady stream of grease flows out, so that there is no waste, and the grease is handled in comparative cleanliness. The company also issue a special leaflet on motor cycle oils, and those interested would do well to write for a copy.

The Vacuum Oil Co., Ltd., Caxton House, Westminster, S.W.

Badcock's By-pass.

An effective little device for rendering more automatic the usual motor cycle carburetter is the Badcock by-pass, which



consists of a small pipe conveying small quantities of strong mixture into the inlet pipe for slow running. This comes into use when the throttle is shut. It has been on the market a considerable time, and is much appreciated by motor cyclists.

Mr. F. Badcock, 110, Woodville Road, Thornton Heath, Surrey.

Purcell's Sidecars.

A firm which has made a special study of the construction of sidecars is Messrs. Purcells. Particular attention has been paid to the strength and rigidity of the various models, and this has been accomplished by doubling the main tubes, which take a large proportion of the weight and are subjected to the greatest amount of vibration, by doing away with lugs and by welding all the joints, thus obtaining a neat appearance and rendering the chassis easy to clean. The axle is made of a special grade of steel, is of ample dimensions, and is welded into the axle tube. It is interesting to note that the quality of the material is such

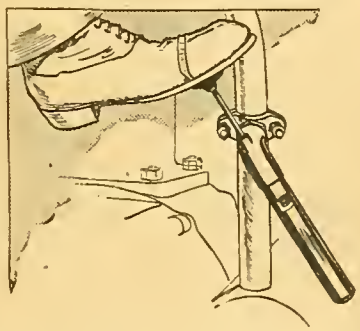
that the axle can be bent cold, so that a broken axle should be an impossibility. The hub embodies a special ball-retaining device, which enables the wheel to be detached instantly. The centre flange is provided with a special ring for excluding grit from the ball race. The springs are specially designed with long leaves so as to give the greatest amount of comfort, and are fitted in such a manner as to reduce the over-all width of the chassis by over two inches. Another noteworthy feature is the fixing of the mudguard to the inner side member, which is well valanced, and is attached to the chassis by means of strong tubular stays, welded throughout. This welding is carried out by the oxy-acetylene process. It is also interesting to note that the chassis is dropped, giving ample room for a low body position, thus ensuring comfort and a pleasing, graceful outline. Care has also been taken to ensure that the combined weight of sidecar body and passenger is correctly balanced over a line joining the axle and the rear fixing to the machine, thus relieving the front forks and the head of the motor cycle from unnecessary stresses.

Numerous models are built, but the type illustrated gives a very good idea of the substantial sidecar chassis, complete with luggage carrier, to which a luxurious body can be fitted. A speciality is also made of light chassis for use on motor bicycles of medium horse-power. On the road, riding in a Purcell sidecar is extremely comfortable and the springing is excellent.

Messrs. Purcells, Ltd., 78, Charlotte Street, Fitzroy Square, W.

The Garner Whistle.

One of the first whistles adapted to motor cycles was the Garner, a most efficient means of giving audible warning. It is designed to be attached to the



exhaust pipe of a motor cycle, and is operated by pressing a plunger with the foot

Messrs. Henry Garner, Ltd., 120, Alcester Road, Birmingham.

Belts and Fasteners.

For many years Stanley belts and fasteners have been exceedingly popular among motor cyclists. The belts are of exceedingly high quality and are largely used by numerous riders. The two types

of hook fasteners are well known and have already proved their worth, and so may be dismissed in a word.

Quite a useful innovation is the Stanley shield, designed especially for expanding pulleys, though equally efficient for fixed pulleys, which prevents the belt slipping as it passes round the pulley. Its use may be clearly seen in the accompanying

sketch. Another useful accessory is the Stanley spare link, which we also illustrate. It serves the purpose of shortening or tightening the belt when an adjustable pulley is used.

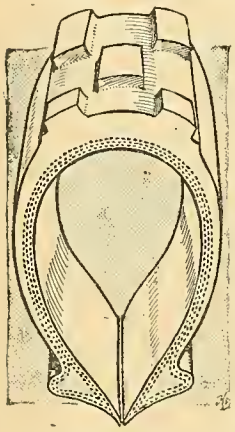
The Stanley Motor Belt and Fastener Co., 32, London Road, Bromley.

TYRES AND CLOTHING

S R J

Rom Tyres.

One of the best known non-skid tyres at present on the market is the Rom combination, which is so familiar to our readers that it needs but a passing reference here. The Rom rubber-studded cover is not, however, so well known as it deserves. It will be noticed from the accompanying illustration that the studs are square in shape, forming a rather uncommon pattern. The tyre is well built, and its wearing qualities are as satisfactory as its non-skidding qualities.



It is interesting to note that prices for Rom tyres for 1915 have been reduced; the same standard of quality is, of course, maintained. The rubber-studded cover to which we have referred above is sold at a very moderate figure.

The Rom Tyre and Rubber Co., Ltd., 36, Brooke Street, Holborn, E.C.

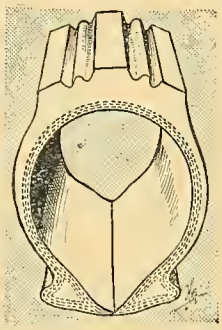
Quickly Detachable Leggings.

A very useful article at this time of the year, when there is much mud on the roads and rain in the air, is a pair of Brooks's motor cyclists' leggings. These are made with spring clips at the knee and ankle in such a manner that they can very easily be slipped on or off in a moment. When in position they afford excellent protection against the weather. The Brooks saddles are too well-known to need detailed description, but we may mention that B170 continues to be very popular amongst motor cyclists. The list of bags, luggage carriers, etc., is a long one.

Messrs. J. B. Brooks and Co., Ltd., Great Charles Street, Birmingham.

Palatine Tyres.

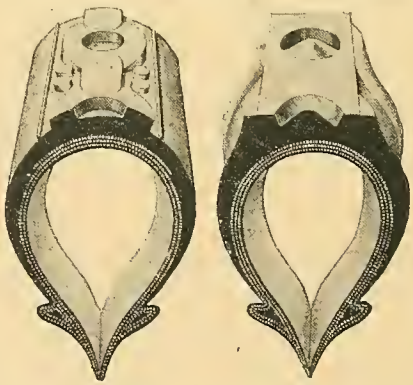
The manufacturers of the Palatine tyre hold the honour of being the first firm to allow a motor cycle cover to be submitted to a three thousand miles Auto Cycle Union official test. The tyre is strongly constructed and is built to wear, and it came through the above test, it may be remembered, with flying colours.



The Palatine Tyre Co., Ltd., Saul Street, Preston, Lancs.

Kempshall Tyres.

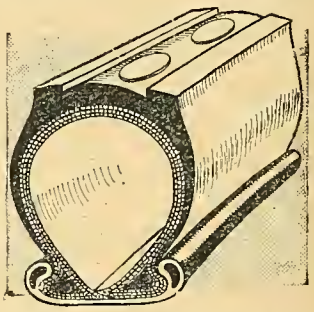
No alterations will be made in Kempshall tyres for 1915, the company pinning its faith to the models which have done so well during previous years. For four years in succession machines fitted with Kempshall tyres have been awarded the team prize in the A.C.U. Six Days trials, whilst this year the P. and M. team, fitted with Kempshalls, were only four points behind the winning team in these important trials, and in the Scottish trials the winning team of Indian machines was Kempshall equipped. It is also interesting to note that, in addition to having a record for reliability, the greatest speed ever attained by a motor cycle—93½ miles an hour—was made on Kempshalls. The two models illustrated are the non-skid and the anti-skid tyres, which are made in all popular sizes, including 2½in. to fit 2¼in. rims.



The Kempshall Tyre Co. of Europe, Ltd., 97-98, Long Acre, W.C.

A New Stepney Tyre.

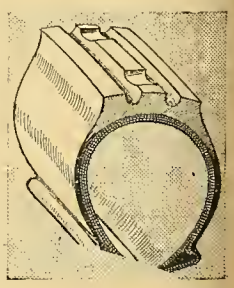
A new motor cycle tyre has been introduced by the Stepney Co., and it will be marketed for the coming season in addition to the well-known Road-grip cover. The new tyre is suitable for machines up to 3½ h.p., and is to be sold at a popular price. The makers claim that it combines the advantages of the three-ribbed tyre and the rubber-studded type. The ribs at each side provide the side grip, and the rubber studs in the centre give the necessary adhesion in a forward direction when driving. It is made of the best quality rubber and fabric obtainable. The Stepney Co. inform us that they are now supplying tyres for Auto-wheels, size $20 \times 1\frac{1}{2} \times 1\frac{3}{4}$ inches.



The Stepney Spare Motor Wheel, Ltd., Llanelly, South Wales.

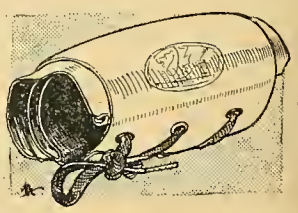
Bates Tyres.

A useful and durable tyre, made by Messrs. Bates and Co., is illustrated herewith. It will be noticed that it is of the three-ribbed variety, but differs from standard practice, in that it has indentations moulded at intervening spaces in the central rib.



A useful accessory made by this firm is a practical form of tyre gaiter, which the careful motor cyclist will find it convenient to carry in his outfit.

Messrs. Bates have also introduced a new motor cycle repair outfit, containing a small tin of specially prepared solution, as well as twelve patches, valve tubing,



French chalk, canvas, an indelible pencil, a tube of corned emery, a wire brush, and some insulating tape, so that there is little fear of a motor cyclist carrying one of these outfits being stranded.

Messrs. W. and A. Bates, Ltd., St. Mary's Mills, Leicester.

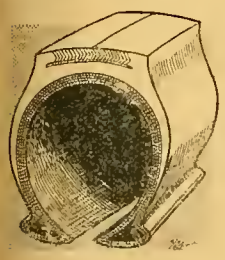
Skew Tyres.

We illustrate herewith the well-known Skew tyre, the tread of which consists of staggered indentations, moulded on its periphery. It will be noticed that the tread is square (round treads are also made), and it is a well made cover, strongly and soundly constructed, and is an efficient non-skid.

Messrs. Oylers, Ltd., 35, New Cavendish Street, Great Portland Street, W.

The Max Metallic Tyre.

Messrs. Chas. Cuthbe and Co. have introduced quite a new type of motor cycle cover, known as the Max Metallic Tyre. The tread is built up upon a brush-like material in which the metal bristles are attached to a specially prepared fabric base in such a manner that they cannot be dislodged. It is claimed that these bristles act as a non-skid. Certainly this type of tread should be useful in withstanding the onslaughts of nails and sharp flints. The highest grade of toughest Para rubber is forced hydraulically into this material, entirely saturating the fabric base and filling the spaces between the bristles.



Messrs. Chas. L. Cuthbe and Co., 37, Great Eastern Street, E.C.

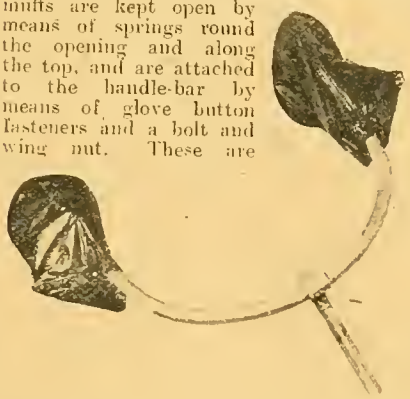
A Chest and Throat Protector.

The A.K. leather vest is a combination of waistcoat and throat protector. It can be worn in the house as a simple waistcoat, and when going out the neck attachment can be turned up and clipped into position at the back. It then affords ample protection against the weather.

The A.K. Manufacturing Co., 348, Idle Road, Bradford.

Handle-bar Muffs.

Among the many useful motor cycle accessories to be seen at Messrs. Selfridges, we would like to make special mention of a pair of handle-bar muffs, which are invaluable during cold weather. The exterior is made of waterproof material lined with warm cloth. The muffs are kept open by means of springs round the opening and along the top, and are attached to the handle-bar by means of glove button fasteners and a bolt and wing nut. These are naturally highly appreciated by motor cyclists who are serving their country both at home and abroad.



Messrs. Selfridge, Oxford Street, W.

Coats and Caps.

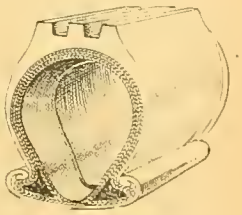
Among the numerous articles of apparel for motor cyclists to be found in the Service Company's showrooms we noticed a useful macintosh coat of a length sufficient to come below the rider's knees and lined with detachable fleece lining. It is sold complete with belt, and is, we understand, being supplied in considerable quantities to despatch riders.

Yet another article of interest to those who do much winter riding is the cap which we illustrate. Under normal conditions it looks just like an ordinary cap, but in very cold weather an inside lining, which is made of wool, may be pulled down; it then adequately protects the rider's ears from cold.

Service Co., Ltd., 292-293, High Holborn, W.C.

Reflex Clipper Tyres.

A high quality three-ribbed tyre which is well made and substantially constructed is the Reflex Clipper Ideal, the introduction of which should undoubtedly be welcomed by motor cyclists.



Another speciality of this firm, which, we understand, has been considerably improved for 1915, is the Clipper motor cycle belt, the prices of which have been considerably reduced.

The Clipper Tyre Co., Ltd., 52-60, Steelhouse Lane, Birmingham.

Detachable Endless Tube.

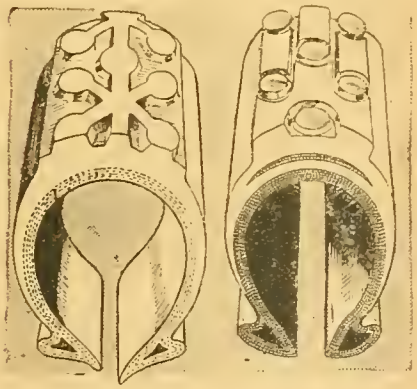
The Rich detachable air tube allows a free passage of air as it is not butt-ended. It was introduced for motor cycles as early as 1904 and is most successful. The firm also specialises in motor cycle covers.

The Rich Detachable Air Tube Co., Crawley, Sussex.

Clincher Tyres.

A tyre of interesting pattern recently brought out is the Clincher de Luxe. It is a substantial type, as the studs are joined by ribs, and should act as an efficient non skid until worn down, and the wearing should take a long time. The rubber has been changed from grey to a tough white quality, and has been improved in durability, the cross ribs between the studs giving larger wearing surface. It is made suitable for all types of machines.

Another novelty is the Clincher combination steel and rubber-studded tyre, which should prove an efficient non-skid under all road conditions. A special point is made of anchoring the studs securely, so that they will not pull out under ordinary usage. It is made suitable for voiturette rims.



The North British Rubber Co., Ltd., Clincher House, Great Portland Street, London, W

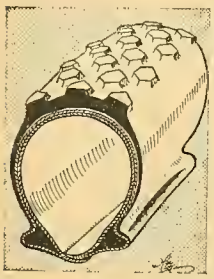
Beldam Tyres.

The peculiarity of the Beldam tyre is that the flexible rubber V's at the sides prevent not only circumferential slip but are claimed to prevent sideslip. The steel-studded tyre, it will be noticed, has the studs let in flush with the rubber.

The Beldam Tyre Co., Ltd., Beldam Works, Brentford, Middlesex.

Avon Tyres and Belts.

The Avon tyre is one which is exceedingly popular among motor cycle riders. The type of cover illustrated is known as the Druid, and it will be noted that the studs are of a somewhat peculiar pattern, being hexagonal in shape. Numerous other types of tyres are made by this firm, including three-ribbed, ordinary studded, the Sunstone special, the tread of which is flat and has transverse grooves moulded in it, and the combination cover, in which the steel studs are placed at intervals flush with the ribs.

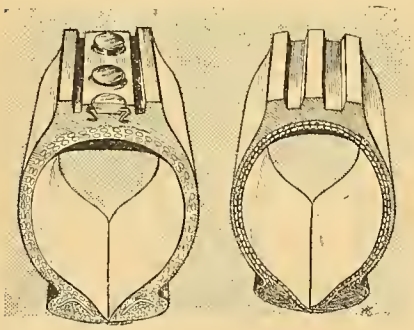


A reference to the new Avon belt was made in our issue of November 19th.

Avon India Rubber Co., Ltd., 19, Newman Street, Oxford Street, W.

A Steel-studded Palmer Tyre.

Few tyres have a greater reputation for durability than the Palmer. One of the innovations for 1915 is a new combination cover, which in outward design follows the three-ribbed pattern which the Palmer Co. has made so popular. It will be noticed that down the centre there runs a row of steel studs. Another interesting cover is the three-inch steel-studded Palmer Cord tyre, which is specially designed for use on heavy sidecar combinations. This has a square



steel-studded tread. The other patterns made by this firm are the three-ribbed tyre, which, we are told, has been greatly improved for the coming season, and covers made in two plies and four plies of fabric, which are suited for less strenuous work than that for which Palmer Cord tyres have been designed. These covers are also made in the 2½in. size to fit 2in. and 2¼in. rims. Although Palmer tyres have not been appreciably reduced in price, it may be pointed out that the tread of the three-ribbed tyre has been considerably increased in substance, and every endeavour has been made to keep up and even improve upon the present high quality.

Palmer Tyre Co., 119-123, Shaftesbury Avenue, W.

Tyres and Treads.

There will be two standard patterns for 1915, ribbed and studded. The prices of both tyres and treads have been reduced. Tyre repairs are a speciality.

The Fox Tyre Co., 30, John Bright Street, Birmingham.

Clothing.

Ever since the early days, John Piggott, Ltd., have made a careful study of the clothing wants of motor cyclists. One of the most serviceable motor cycling suits—that known as the J.P. Invincible—we have yet seen has been placed on the market by this firm. It is supplied with a good leather belt passing through straps at the back, so that the belt may be undone and yet be held in position. The material is thick and warm, practically untearable, and doubly proofed against wet. An excellent point is the extra thickness of material over the shoulders and the very sensible wind cuffs, which save wear, and keep the rider's arms warm. The buttons on these wind cuffs and also on the legs are of the spring type. The coat is of ample length, and if desired a seat may be fitted to the trousers at a slight extra cost. It will be noticed that the insides of the lower portion are provided with leather protectors, which are a great advantage. They prevent the cloth being worn through by contact with the sides of the footrests or any projecting part of the machine, and save the material in the case of the foot coming in contact with any part of the exhaust pipe. Straps of double thickness are sewn underneath the instep.

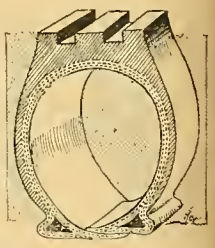
Messrs. Piggott make a feature of waterproof overalls, and we specially recall examining one suit of exceedingly durable material in khaki shade, and of a pattern which has been supplied to the Government.

A great point is also made of gloves, and we saw some excellent gloves made of real lambs' wool, which are specially suitable for winter riding.

Messrs. John Piggott, Ltd., 117, Cheapside, E.C.

Severn Tyres.

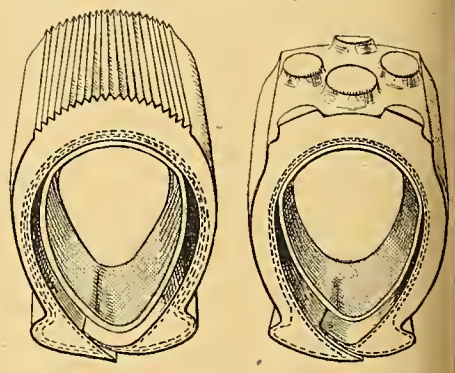
An excellent motor cycle cover of the popular three-ribbed tyre is the Severn. It will be seen from the illustration that it is chiefly conspicuous for the amount of rubber in the tread, which naturally greatly adds to its life.



Severn Rubber Co., Ltd., Newhall Street, Birmingham.

Wood-Milne Tyres.

The Wood-Milne range of motor cycle tyres is a wide one, and should meet the demand of all riders. It is difficult, with such a comprehensive list before one, to select any types for particular mention. The Wood-Milne "special" covers are fitted with three plies of canvas, and they are intended for fast work on medium weight machines, and for front wheel work on passenger machines. There are

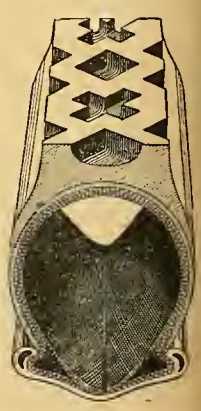


also the "extra strong" tyres with four plies of canvas, and the "new design" steel studded tyres, the last-named being intended for bad weather work. There is, of course, a range of inner tubes.

Messrs. Wood-Milne, Ltd., Preston.

A Suction Cup Tyre.

The Burnett non-skid tyre is made with a flat tread having V-shaped indentations on the edges and cups on the tread. This is claimed to be a most effective non-skid arrangement. These tyres are made with four-ply heavy motor canvas casing on the same system as the Burnett motor tyres.



The Burnett Motor Tyre and Rubber Co., Limpley Stoke, Wilts.

THE CALTHORPE

One, two, three—

three distinct Calthorpes offered in five different models. That's the Calthorpe proposition for 1915 — a proposition which has already strongly "caught on" — a proposition we invite YOU to investigate NOW.

And of course they're BRITISH—through and through.

Note carefully the illustrations — the neat and business-like design and pleasing proportions — then study a few details of their specifications — note the price, and say if better VALUE was ever offered.

One — The NEW "CALTHORPE JUNIOR" Motorcyclette. Price: 25 Guineas

— a considerably improved model of the popular "Calthorpe Junior" of last season. It embodies many added refinements — is speedy, exceptionally economical, and RELIABLE to the last degree.

SPECIFICATION :—*ENGINE—2 h.p., side-by-side valves, 2-speed gear integral with crank case, specially designed Silencer. FOOT BOARDS—Aluminium, special design. IGNITION—High Tension Magneto. FRAME—Very strong, complete with "DRUID" Patent Girder Spring Forks. WHEELS—26 × 2in. Moseley B.E. Studded Tyres. Complete with strong stand and Carrier, Pannier-bag, Toolkit, etc.*

Two — The "CALTHORPE-JAP." Price: 30 Gns. Single Speed, 25 Gns.

The "Calthorpe-Jap" is a higher-powered machine — particularly suitable for touring purposes — a perfect hill-climber, and listed at a popular price.

SPECIFICATION :— *ENGINE — 2¾ h.p., JAP, fast and powerful. GEAR—Enfield Patent Two-speed and Free Engine with Cush Sprocket. CARBURETTER—Senspray, 1915 pattern. IGNITION—High Tension Magneto. TRANSMISSION—Two roller chains to Countershaft, ⅜in. belt from Countershaft to back wheel. FORKS—"DRUID" Girder. WHEELS—26 × 2in. Moseley B.E. Studded Tyres. SADDLE—X'L ALL Pan Seat. Complete with armoured Pannier bags and full set of tools in Roll.*

Three—The "CALTHORPE 2-STROKE." Price: £28 10 0. Single Sp., 24 Gns.

A machine full of valuable features — designed and built to offer Calthorpe enthusiasts a perfected model of this particular type of machine.

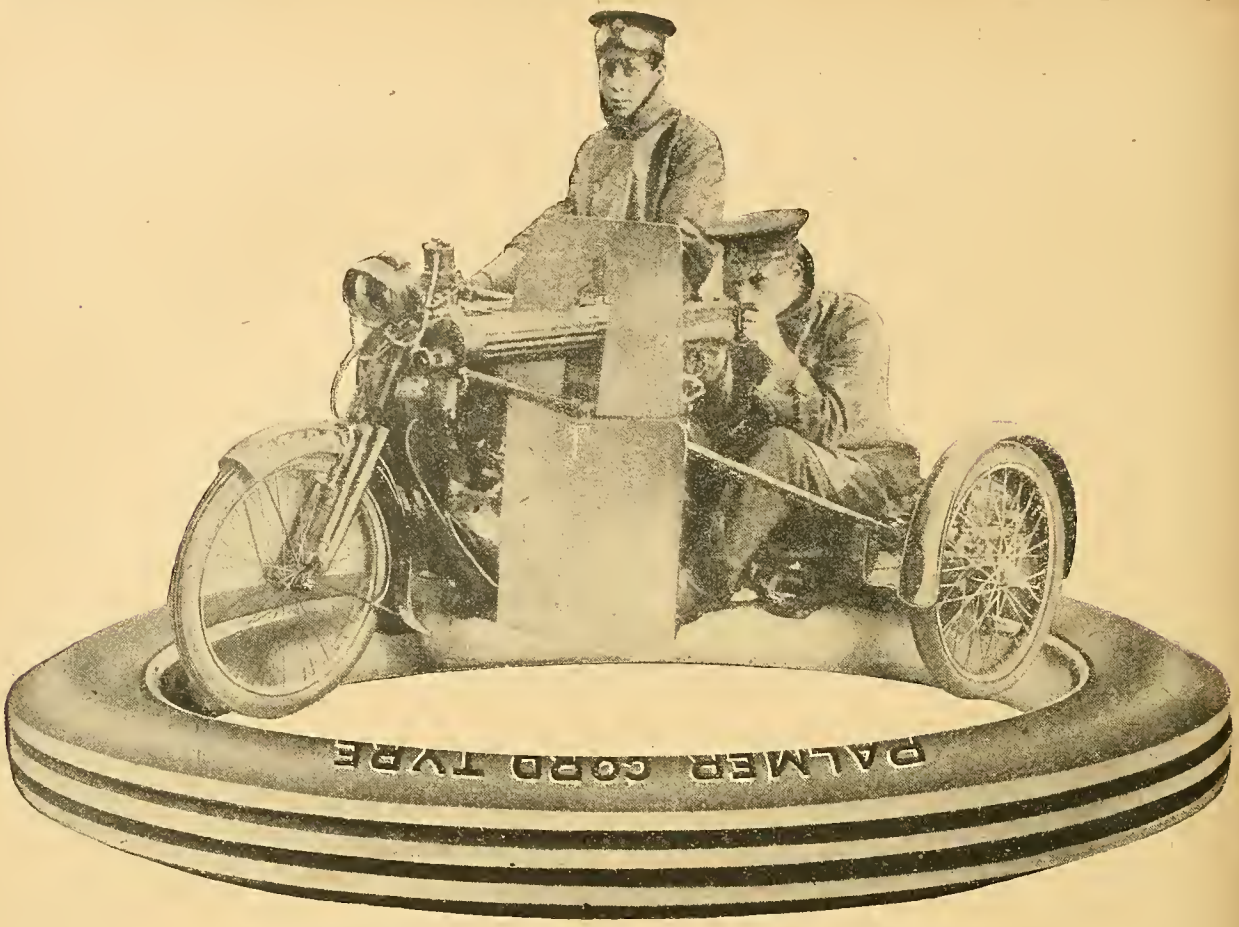
SPECIFICATION :—*ENGINE—2¾ h.p. LUBRICATION—Patent and perfected system. GEAR—Countershaft 2-speed, combination Belt and Chain Drive. CARBURETTER—Senspray, 1915 pattern. IGNITION—High Tension Magneto. FORKS—"DRUID" Patent Girder. WHEELS—26 × 2in. Moseley B.E. Studded Tyres. Complete with armoured Pannier bags, tools, etc.*

Now decide to ride a Calthorpe during 1915, and, as a first step, ask us for copy of the Calthorpe Catalogue — it deals fully with all models, and will be posted free on request.

The CALTHORPE MOTOR CYCLE CO.,
— BARN STREET, —
BIRMINGHAM.

FOR 1915

R.H.S.



Right Tyres for Strenuous Work.

Where true economy is the aim, or where life itself is dependent on reliability, then it has to be Palmer Cord Tyres.

The above illustrates the Scott Armoured Motor Cycle, fitted with 2½in. Palmers. This is the heaviest work to which Motor Cycle Tyres can be put, and it is quite in accordance with the fitness of things that the tyres that helped the Scott to score in days of peace should also help the Scott to fulfil its mission in times of war.

PALMER

(ORIGINATORS OF THE THREE-RIB TREAD)

CORD TYRES

THE PALMER TYRE, LTD
119, 121, 123, Shaftesbury Av.
LONDON, W.C.

Motor Cycle Tyre and Repair Dept.
103, St. John Street, Clerkenwell
London, E.C.

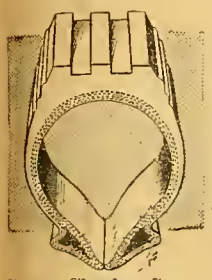
'Phone: City 1485 and 1486 (2 lines).
Telegrams: "Inwheeling, Smith, London."

c6

In answering this advertisement it is desirable to mention "The Motor Cycle."

Pedley Tyres.

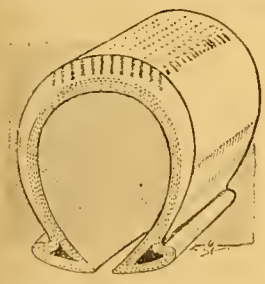
A three-ribbed cover, which is a great favourite, is the Pedley. We have had considerable experience with these tyres, and have found them to possess admirable wearing qualities. They are fast, resilient, excellent preventives of side slip, and by no means subject to cuts from flints.



Messrs. J. Pedley and Sons, Limited, Great Charles Street, Birmingham.

Stelastic Tyres.

Stelastic tyres are well-known to our readers. The accompanying illustration shows a section of the latest model round tread cover. Our readers will recollect that the Stelastic tread consists of upstanding spirals of fine piano wire, between which the rubber is



hydraulically pressed, thus rendering the most vulnerable portion of the tread impervious to cutting agents. It is interesting to note that Stelastic tyres have been considerably reduced in price.

Stelastic Tyres, Ltd., 76, York Street, Westminster, S.W.

Burberry Motor Cycle Kit.

Burberry's gabardine combines the power to resist the wet and afford comfort in a remarkable degree. The suit we illustrate has a jacket with a

triple front, lined with proofed wool. This with Burberry overalls and cap renders the rider practically independent of the weather.

Burberrys, Haymarket, W.

A Double-purpose Coat.

The Legxtenshun coat is a very practical garment, being a coat with overalls attached, which may be folded up out of the way when the machine is out of use. Often it is necessary to visit a neighbouring town and then to put the machine away and continue one's calls on foot. In such an event the Legxtenshun coat fills the bill splendidly, as, being a first-class article, it is of presentable appearance, and the folding overalls are quite unobtrusive.

Mr. T. W. Wareing, Gold Street, Northampton.

The Midland Tyre.

A tread with a central rib and a row of studs on either side, the pattern adopted by the Midland Rubber Co.,

should wear well and be an excellent preventive of side-slip.

Midland Rubber Co., Ryland Street, Birmingham.

A Sidecar Hood.

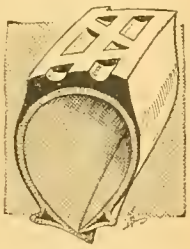
The Baby hood is designed to take the place of the more cumbersome and expen-

sive hood and screen, and at the same time to furnish ample protection for the sidecar passenger against the weather. When not in use it folds up into a flat cover and is fastened to the storm apron.

Mr. H. R. Starke-Jones, Park House, Halifax.

Spencer-Moulton Tyres

A most excellent cover, made by a firm which has had a great deal of experience in the manufacture of motor tyres, is the three-ribbed Spencer-Moulton. It is an excellent wearing and speedy tyre and an efficient non-skid. It is interesting to note that the three ribs are joined at intervals by diagonal cross bars. Owing to the ventilation of the tread offered by the grooves it is said to keep extremely cool, and the minimum amount of friction is set up.



Messrs. G. Spencer, Moulton and Co., Ltd., Kingston Mills, Bradford-on-Avon.

The Leicester Rubber Co.

The Leicester Rubber Co.'s productions and the John Bull motor cycle tyres are

well-known to our readers. These are being continued for next year, and we are informed that all prices have been reduced. A new cover is the 26in. × 2in. Granby, which has been designed for lightweights. It is a rubber-studded cover, and it has been well tested.

As a specimen of the clothing sold by the same company, we illustrate the new John Bull "trouser-alls." These, it will be noticed, are so arranged as to allow of them being taken off without slipping them over the boots—a point to be appreciated in winter weather. Like the John Bull tyres, the material is of excellent quality.

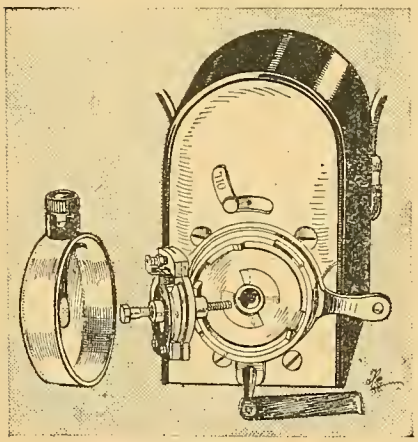
A storm proof suit and Sou'-wester

Leicester Rubber Co., Leicester.

Electrical Appliances

The Elkhart Magneto.

A magneto which makes its *début* into this country is the Elkhart, which hails from the U.S.A. In outward construction it follows accepted lines, but the contact-breaker which we illustrate herewith can be seen to be a slight departure from standard practice. The upper of the two platinum points is mounted on a spring parallel with the end plate of the magneto, which keeps it normally in engagement with the lower of the two platinum screws. On the end of it, adjacent to that portion to which the platinum point is fixed, is a fibre block, which as the contact-breaker is rotated, comes into contact with two cams on the back of the contact-breaker disc. The lower of the two platinum screws is fixed into a slotted plate, and through the end of the slot there is a screw next to the platinum point, the object of which is to tighten up the platinum screw so that the latter cannot work loose when once secured after adjustment. The method of attaching the high-tension



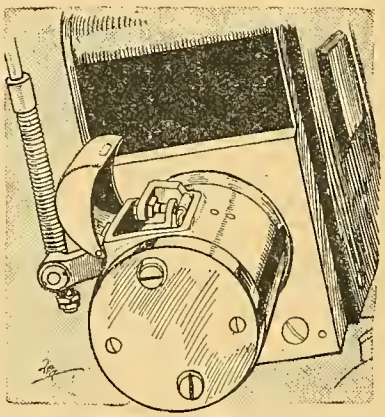
wire and carbon brush holder is also ingenious, the bared wire of the high-tension cable being pushed into the vulcanite holder and secured by a screw, the brass head of which makes contact with the carbon brush. Another interesting point is the neat lubricator through which oil is introduced to the armature bearings. These magnetos are made suitable for all types of engines, the particular type illustrated being suitable for machines with the cranks set at 180°, such as the Scott.

Another accessory sold by this firm is the Champion heavy stone sparking plug. It is made by a firm in America which manufactures 2,600 plugs per day, and it is sold at a moderate price. The chief points about the plug are the specially substantial insulator, which is made of stone, the strong electrodes, and the fact that the insulator is well hollowed at the base, thus preventing sooting.

Messrs. Morris, Russell and Co., 75, Curtain Road, E.C.

The Latest Dixie Magneto.

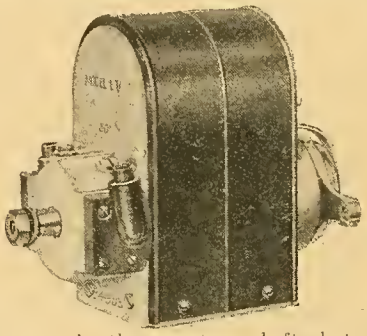
It was as recently as in our issue of September 17th that we described the interesting new Dixie magneto, for which this company are responsible. It is



Inspection cover for adjusting or examining the platinum points in the new Dixie magneto.

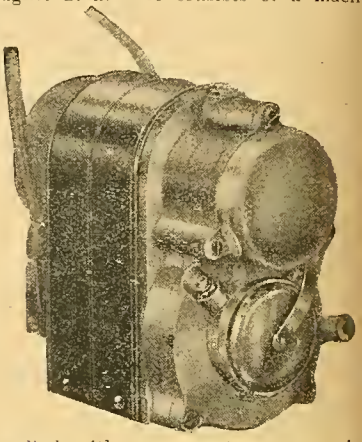
worthy of note that the latest type of Dixie magneto is fitted to the 1915 Indian models. The accompanying sketch shows the ingenious manner in which the platinum points can be reached for adjustment.

We make special reference to this pattern because it is a distinct departure from standard practice. What is in other



magnetos in the armature shaft, but in this case a rotor with staggered shoes, is placed in a line with the magnets, while the armature winding is above the rotor shoes. A full description of this interesting little magneto appeared on page 355 of *The Motor Cycle* of September 17th.

The combined dynamo and lighting set was described in detail in our issue of August 27th. It consists of a machine



supplied with two armatures, one above the other, of which the upper one is the generator for lighting purposes.

The Splitdorf Co. inform us that their factory in the States is turning out 800 magnetos a day, consequently there is no difficulty about delivery.

The Splitdorf Electrical Co., 162, Great Portland Street, W.

Hobson Plugs.

The accompanying sketch shows the latest type of mica-porcelain Hobson plug. The two parts are easily detachable. The upper portion is of the best mica and is practically unbreakable, and highly suitable for standing rough usage on motor bicycles. The lower portion, being of porcelain, can stand the great heat to which it is subjected and prevents sooting up.

Messrs. H. M. Hobson, Ltd., 29, Vauxhall Bridge Road, S.W.

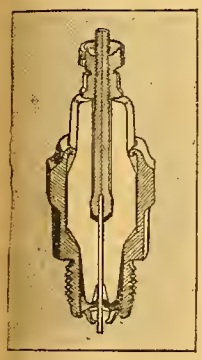
An Adjustable Spark-gap.

In our issue of September 1st we described the Runbaken sparking plug with adjustable gap. This has been considerably improved, and the alteration in design will be noticed in the top of the plug, which is now provided with the pointer showing the amount of spark gap between the two shoulders on the top of the insulator, while the bottom portion has also been changed in design. The central electrode sparks against the edge of a ring of nickel, the inner circle of which is cut eccentrically.

Mr. J. H. Runbaken, 7, Peters Street, Manchester.

The Oleo Plugs.

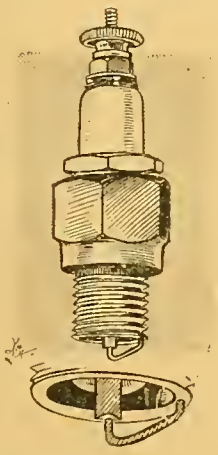
The accompanying sketch shows a section of the latest pattern of Oleo plug, which is used by the Governments of all the Allies. The chief points about its construction are the employment of a central electrode which is very thick towards the top, so that the heat is rapidly conducted away from the extremities thereof, and the use of a metal washer to make up for any unequal expansion of the porcelain through heat. The whole plug is beautifully made and highly popular among motorists of experience. Our own experience of the Oleo has been most satisfactory.



Leo. Ripault and Co., 64a, Poland Street, W.

Cup Detonating Plugs.

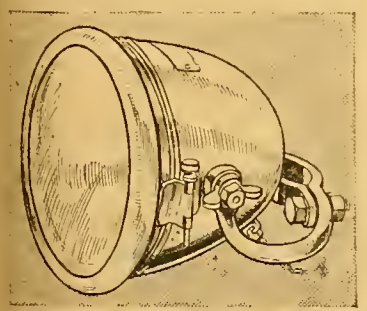
The latest form of Low cup plug for motor cycles has several advantages. The insulator is made of special material containing both asbestos and porcelain, thus possessing not only excellent insulating properties but the desired degree of toughness. The cup at the lower end of the central electrode has been carefully made so that the spark is thereby intensified.



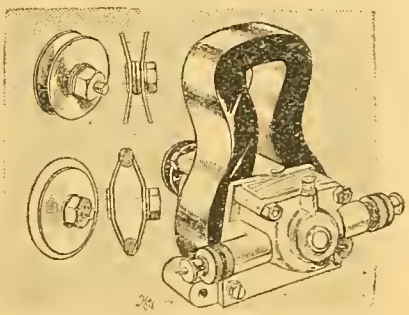
The Low Accessories Co., 15, Great St. Helens, E.C.

Mira Head Light and Dynamo.

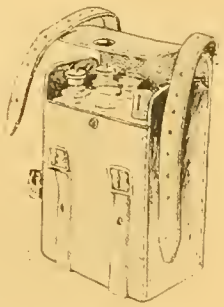
The Mira dynamo set, which consists of a head light, dynamo, and accumulator, in leather case, as illustrated, has been improved by the addition of a commutator, which converts the alternating current



generated by the dynamo into a continuous one so that it may be used for charging a six volt accumulator. Prevention of damage by allowing the accumulator to drive the dynamo after the machine has been brought to a standstill is effected by winding the armature with a somewhat thin wire, which has the effect of offering a resistance to the current, and unless the accumulator is left



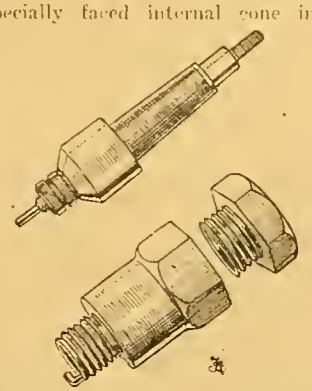
on for an appreciable time no harm will ensue, and then all that will happen is that the battery will run down. A three-way switch is provided to control the lighting and charging. The pulley on the new dynamo is adjustable and reversible. The two flanges can be separated by means of a washer or two and a lower gear obtained, or they may be inverted and a leather ring interposed between them, and they will act as an efficient friction wheel. The wiring is of good quality, and the head light is well made.



The High Tension Co., 62, Belvedere Road, Westminster, S.E.

A Plug with Removable Electrode.

The Electric Ignition Company have, in response to a large demand for an all-British sparking plug with a quickly detachable central electrode, produced a most serviceable plug. The central electrode is well insulated with mica, the central portion being strongly coated with steel and having a wide conical face, which, with the aid of a specially faced internal cone in the



body of the plug, forms an excellent compression joint. The central portion is held in position by a gland nut, which can be loosened or tightened with ease by an ordinary spanner.

Electric Ignition Co., Sampson Road North, Birmingham.

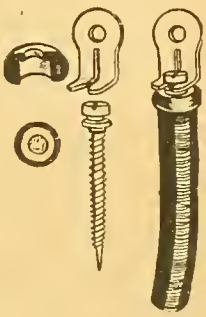
Lodge Plugs.

There is no better plug than the Lodge, and the pattern we illustrate, which, we understand, is largely used by despatch riders, is most suitable for use on motor cycles during the winter, as it is fitted with a weather-proof terminal, which can be instantly detached. Other patterns are also made, a recent model having mica insulation. With every plug a gauge for setting the points correctly is supplied.

The Lodge Sparking Plug Co., Ltd., Wrentham Street, Birmingham.

Amac Accessories.

In addition to the manufacture of carburetters, the Aston Motor Accessories Company has introduced an exceedingly neat, well-designed, and strong cut-out switch, operated by means of a push button. The nut which secures the cable can be placed on either side of the block so that the device may be used either on the inside or outside of the handle-bar.



Another useful electrical accessory made by this firm is a spring terminal clip, screwed on to the end of the sparking plug. The cable is bared for about three-eighths of an inch, and the strands are splayed over and the ebonite is slipped on. The point of the screw is inserted in the centre of the wire and then screwed home and the ends of the terminal are sprung into position.

The Aston Motor Accessories Co., Ltd., Aston Cross, Birmingham.

A Protected Terminal.

Among the many interesting accessories manufactured by Messrs. Bluemel, one of the neatest is known as the Shortproof terminal. It consists of an insulated cap, which can be easily attached to the high-tension wire, and slips over a special plug terminal, thus preventing the possibility of short circuits through rain or damp. The special plug terminal referred to is screwed internally to suit most standard plugs. Our illustration shows the terminal removed, and with it one of Bluemels' Mascot plugs. The firm's tyre pumps have a world-wide reputation, and their excellent workmanship is maintained in all their many productions.

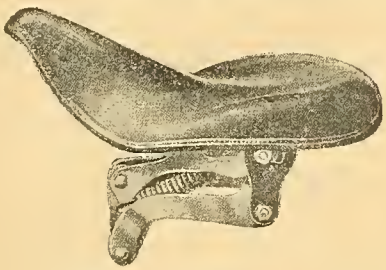
Bluemel Bros., Ltd., Wolston, near Coventry.

GENERAL ACCESSORIES.

(*Continued from page 645*).

Xl-All Saddles.

The Xl-All saddles and seats are noted for their extreme comfort and the excellence of their springing, which is on the cantilever principle, the tops being



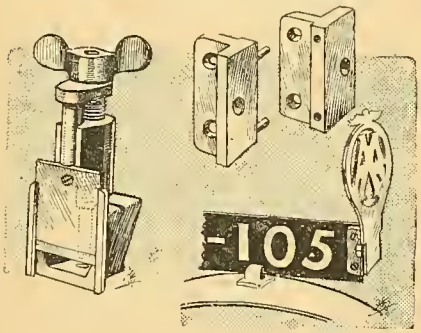
on anatomical lines. They can be supplied with saddle-pillar giving a very low saddle position.

Xl-All, Ltd., Hall Green, Birmingham.

P. and P. Belt Punch.

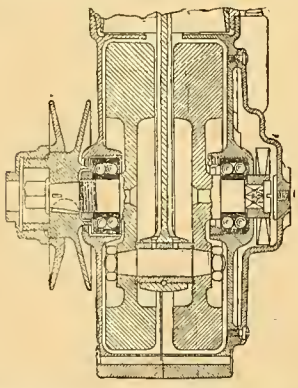
A firm which has been responsible for many ingenious accessories is the P. and P. Engineering Co. One of their latest introductions is a very neat badge clip, a sketch of which illustrates this article.

In the combined belt punch and cutter which the company have been marketing for some time the punch and screw are now made from solid steel, and are hollow so as to allow the punched por-



tion of the belt to pass through the screw and out of the top of the thumb screw. The tool is also sold in the form of a guillotine belt cutter without the punch.

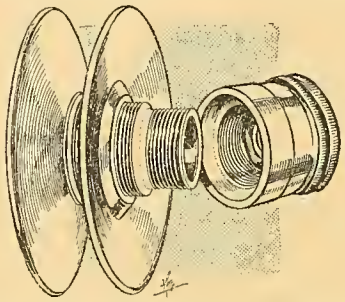
The P. and P. Engineering Co., Ltd., Roden Street, Ilford, E.



A Skefko double row ball bearing fitted to the crankshaft of a motor cycle engine.

The Lohr Pulley.

A simple adjustable pulley is the Lohr. The accompanying sketch will show the manner in which the flanges are mounted. A threaded boss is attached to the engine shaft, and on to the back of this a fixed flange is screwed. Next, the movable

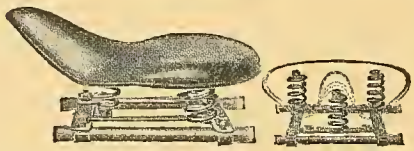


flange is screwed on to the front of the boss, and is possessed of a left-hand thread, while last of all the lock nut goes on, which has an ordinary right-hand thread.

Messrs. A. and E. Lower, 670, Seven Sisters Road, London, N.

A Comfortable Pillion Seat.

The Empire de Luxe saddles are the principal products of the Leatheries, but they make several other useful articles, and we show on this page a very neat

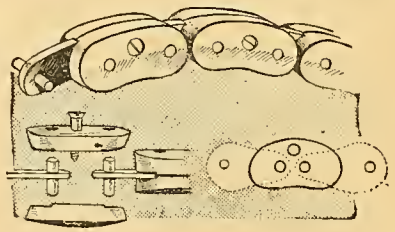


pillion seat, which is attached to the carrier by a strong base and three spiral springs.

The Leatheries, Ltd., Sampson Road North, Birmingham.

Whittle Belts.

A belt which is exceedingly popular among motor cyclists is the Whittle, which consists of leather links held together by means of wood screws against steel links; this is flexible, stretches very little, and wears well. It also possesses the advantage of having no belt fastener, since, to detach the belt, it is only necessary to remove one of the wood screws.

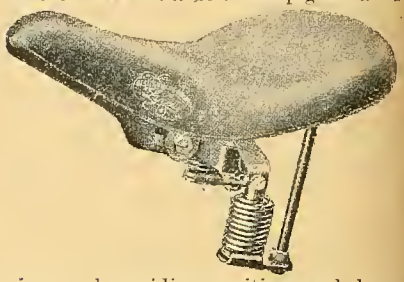


A short link is supplied for the purpose of taking up the belt. The belt also possesses the advantage of doing away with the necessity of carrying a complete spare belt, as, in the event of breakage, the insertion of a new link or a new section is all that need be done.

Messrs. T. Whittle and Sons, Warrington.

Lyco Saddles.

We illustrate herewith the No. 4 pan seat Lyco saddle. The seat is automatically shaped, having a stout metal base covered with felt and pig skin. It

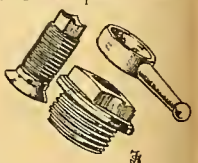


gives a low riding position, and has a machined adjustable clip. Other specialities of this firm are belts, tool bags, cases, etc.

Lycett's, The Saddlery, Birmingham.

A Neat Compression Tap.

It might be thought that designers had reached the limit of ingenuity with regard to compression taps. Yet a simple device has recently been produced by Rotherham and Sons which has many excellent features. It consists of a plain metal body, which is bored, and screwed left-handed. In the internal thread works a hollow spindle having a conical seating at the bottom, while

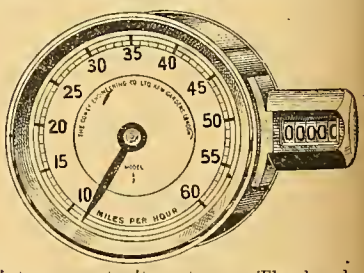


just above the seating are four small holes communicating with the central hole. When screwed up tight the conical face forms an effective valve, and is absolutely compression tight. Thus, not only are the injection holes cut off from the cylinder, and so prevented from carbonising up, but also a flat smooth surface is presented to the hot gases. A turn of the handle opens the valve and permits petrol or paraffin to be injected direct into the cylinder.

Messrs. Rotherham and Sons, Spon Street, Coventry.

The Cowey Speedometer.

The Cowey speedometer enjoys the distinction of being an instrument which works on a different principle from any other on the market. The principle of working is the rotation of a simple eccentric which causes impulses to a circular pendulum, carrying it to the position at which the invariable "return" force is balanced by the rapidity of the impulse which, having carried it to that

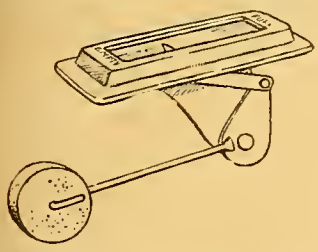


point, prevents its return. The hand on the dial only moves to indicate a change of speed, and is extremely steady.

The Cowey Engineering Co., Ltd., Archer Works, Kew Gardens, S.W.

A Petrol Gauge.

A clever little gauge has been produced by the Croft Engineering Co., which is so simple that our illustration is self-explanatory. The glass-topped dial plate is affixed to the top of the tank, and the cork float carried on the end of a light arm moves the indicator

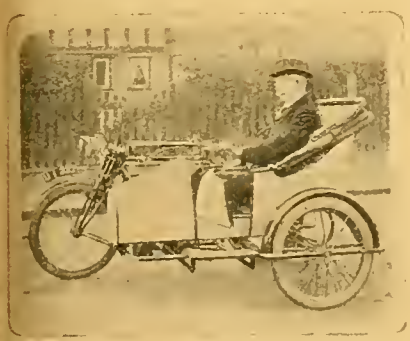


needle through simple mechanism. If necessary, graduations can be made on the dial, but as the variation of movement due to the angle of the pivoted arm is compensated by the toggle action such marks are hardly necessary.

The Croft Engineering Co., Croft Road, Coventry.

A Two-seated Sidecar.

Those sidecar riders who desire more comfort than the bicycle seat affords should make a point of seeing the U. and I. two-seated sidecar, which provides accommodation for the driver as well as the passenger. The handle-bar is replaced by a tiller, the saddle removed, and the brakes connected to pedals in the body. The carburetter controls are fitted to the tiller handle. The sidecar weighs 140 lb., and the width of the track is 42in. A

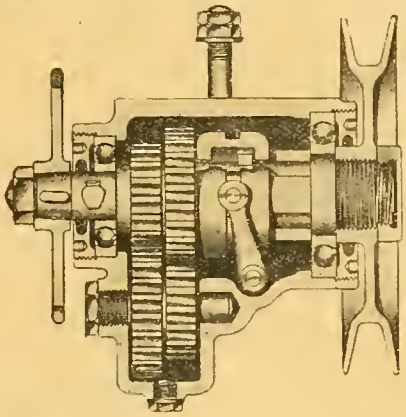


neat metal shield can be supplied to fit along the whole length of the tiller, thus giving the hands complete protection from the cold.

Mr. N. Barrett, King's Road, St. Albans, Herts.

Jardine Two-speed Gear.

The Jardine Mark 4 gear is somewhat similar in construction to the four-speed gear of the same make, described in our issue of October 8th. The construction and operation is as follows: The driven sprocket is attached to a main shaft, which carries the left-hand gear wheel and an enlargement having teeth formed on it, shown between the double clutch dogs. These latter slide on a splined sleeve which carries the belt pulley and revolve with it. The gear wheel shown on the right revolves freely upon the main shaft. The wheels on the layshaft are rigidly attached to one another. When the clutch is in the position shown the low gear is in operation, the drive being through all four gear wheels, but when the clutch is moved to the right the pulley is clutched to the main shaft through the teeth on the enlargement of the shaft and the splines, the wheels on the layshaft revolving idly. It will be observed that the gear wheels are always



in mesh. This gear is suitable for single-cylinder engines up to 350 c.c. and twins to 500 c.c. The gear ratios are 4¾ and 9½ to 1, a 50% reduction in speed.

Mr J. Jardine, Deering St., Nottingham.

The Bonniksen Speedometer.

The Isochronous Bonniksen speedometer differs from other instruments in having two hands and an escapement mechanism, which allows each hand in turn to register the speed for a period of five seconds. Thus it is very easy to observe acceleration. Also when each hand has taken up its position it remains absolutely steady even on rough roads

The latest pattern Bonniksen instrument—a most reliable speedometer, by the way—is provided with trip recorders in the centre of the dial, as shown in the illustration. The right-hand needle records miles, the left-hand needle tens of miles.

B. Bonniksen, 16, Norfolk Street, Coventry.

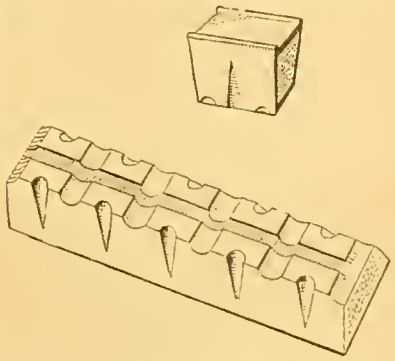
Stewart Magnetic Speedometers

One of the most deservedly popular speedometers on the market is the Stewart. It may be recollected that this works on the magnetic principle, and that the figures are printed actually on the magnetic cup, which is rotated by means of the eddy currents set up on the permanent magnet driven by the flexible shaft. We have tried one of these speedometers for a considerable distance and found it to be most efficient. It records the speeds accurately, is steady, and the figures can be read at a glance.

The Cooper-Stewart Engineering Co., Ltd., 11, Broad Street, Bloomsbury, W.C.

The New Avon Belt.

An outstanding feature of the Avon 1915 programme is the new design of rubber belt. The first thing to attract attention is the design of the top, which is channelled, the makers claiming that such a construction allows rain to drain off beyond the pulley much more readily than the usual belt design. For this reason the makers call it the "Watershed" top. Another interesting point is the use of grooves at the sides and base of the belt, the object being to allow for displacement of the rubber when working round the small pulley. Great trouble



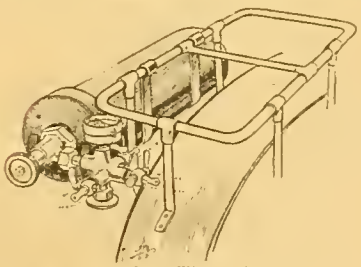
has been taken in arriving at the correct shape for the indentations and their location. The vertical grooves narrowing from the base upwards alternate with transverse grooves on the base at right angles to a central circumferential channel.

The prices of the new Avon belt are as follow: ¾in., 1s. 6d. per foot; ⅞in., 1s. 9d. per foot; 1in., 2s. per foot; 1⅛in., 2s. 6d. per foot.

Avon Indiarubber Co., Ltd., Melksham, Wilts.

D.A. Cylinders.

The cleanliness, convenience, and practicability of dissolved acetylene are already beginning to be appreciated by motor cyclists. A difficulty, however, is the carrying of the cylinder in a convenient place, especially on solo machines. An attempt to find a solution has, how-



ever, been made. The cylinder is carried in a metal case with a leather end, and can be clipped to either side of the luggage carrier or to the back thereof.

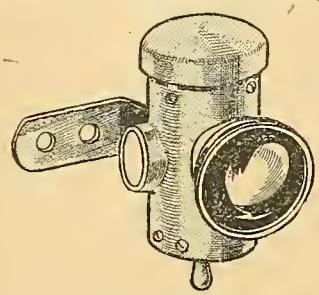
A further improvement has been made by the addition of a reducing valve fitted with three separate taps and a gauge from which pipes may be led to the head light, tail lamp, and sidecar lamp.

It may be mentioned that the standard cylinder is 12in. long by 3½in. in diameter, weighs 6 lb., and holds six cubic feet of gas, giving light for a seven litre burner for twenty-four hours.

Acetylene Illuminating Co., Ltd., 268, South Lambeth Road, London, S.W.

A Rear Lamp.

One of the latest novelties to be found among the interesting display of accessories sold by Messrs. Dunhills is a very neatly designed metal tail lamp, which is intended to be attached to the bodywork

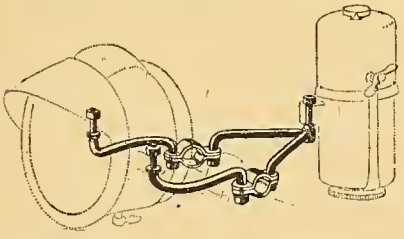


of a sidecar. The finish is dull black and is certainly attractive.

Messrs. Dunhills, Ltd., 359-361, Euston Road, N.W.

A Neat Adjustable Lamp Bracket.

The accompanying sketch shows an ingenious form of lamp bracket made by Brown Bros. It possesses the advantage of being universally adjustable, and capable of being made to suit any form

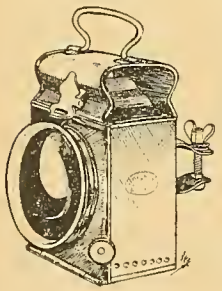


of handle-bar, while it also provides a support for the generator. The bracket is well-made, and is certainly a most useful accessory.

Messrs. Brown Bros., Ltd., 22, Great Eastern Street, E.C.

An Oil Lamp for Sidecars.

There has always been a demand for a good oil rear lamp for the sidecar combination, and such has been brought out by Messrs. A. W. Gamage. It is a strong, well made article, designed to be fastened direct to the tubing of the luggage carrier.



Messrs. A. W. Gamage, Ltd., Holborn, E.C.

A Small and Neat Tail Lamp.

A visit to the Service Co.'s showrooms in High Holborn reveals several useful accessories. One of these is the smallest electric rear light on the market, which is designed to be screwed into the number

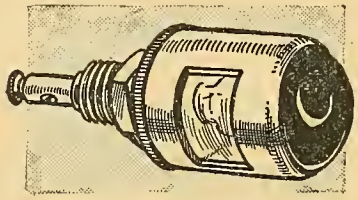
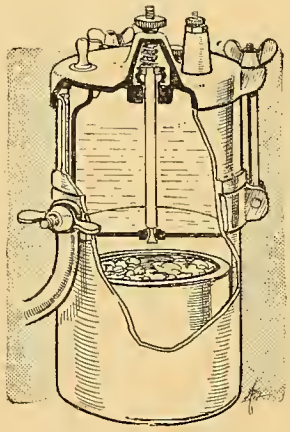


plate of a sidecar combination. It is illustrated in the accompanying sketch, which clearly shows its neat and compact construction.

The Service Co., 292, High Holborn, E.C.

A Novel Generator.

It was in our issue of October 8th that we described the new Low generator, and in that description it may be remembered it was mentioned that the particular model described was suitable for small cars. We are now enabled to illustrate the latest type, suitable for motor cycles. This is in height about the same as an ordinary generator, but slightly wider. Considerable improvement has been brought about by placing the filler cap

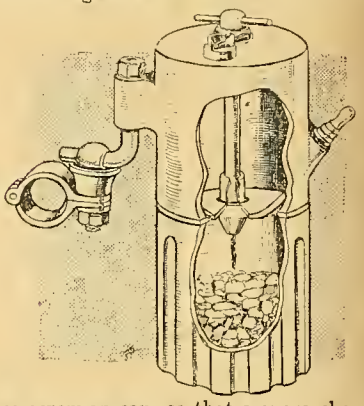


on the top of the water tank, whereas in previous models it was at the bottom. Other details in design have been considerably improved. The generator is constructed to go on to brackets made by several of the best-known manufacturers of motor cycle lamps.

The Low Accessories Co., 15, Great St. Helens, E.C.

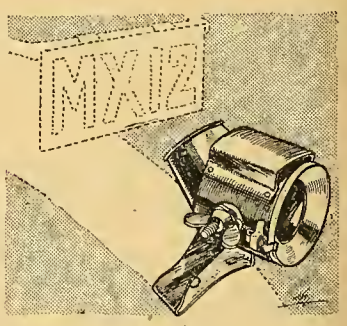
Lamps and Generators.

We illustrate herewith the latest form of Smith's A.L. generator. It is constructed on the drip feed principle, water being introduced through a needle valve and dripping down a short chain on to the carbide. The outer casing is made of aluminium so as to ensure lightness. An interesting feature is the spare carbide container, which can be obtained with each generator. It is fitted with a



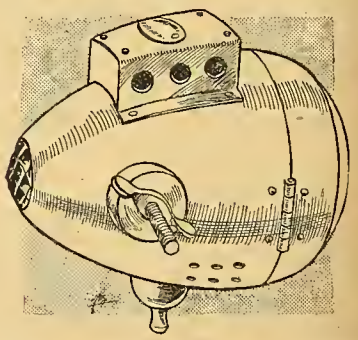
brass screw-on cap, so that a spare charge may be carried on the machine and when required screwed straight in position after the cap or cover has been removed.

Another novelty which is sold by this firm is a motor cycle tail lamp constructed to fit on to the mudguard. It



is supplied with a red glass at the back, while at the other end there is a transparent glass set at an angle suitable for illuminating the number plate. The lamp is finished in black.

We also show a sketch of a sidecar lamp of neat design. It is intended to

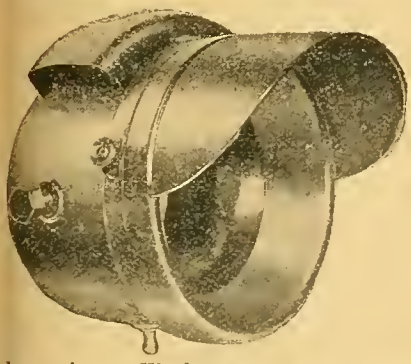


throw a wide beam so as to illuminate hedges and corners, etc., and has a red light at the back.

Messrs. S. Smith and Sons, Ltd., 179-185, Great Portland St., W.

Bleriot Lamps.

Although the well-known motor car lamp manufacturers, Messrs. Blériot, Ltd., entered into the motor cycle industry at a somewhat late period, they succeeded in bringing out a most efficient motor cycle head light. It is made of solid brass, nickel plated, and has a Bausch and Lomb



lens mirror. We have put one of these lamps to a strenuous test, and found it to give an excellent light, and to be extremely durable.

Messrs. Blériot, Ltd., Blériot House, Long Acre, W.C.

The Cox-Walker Electric Lamp.

The accompanying illustrations show the complete range of lamps sold by Messrs. Cox-Walkers, Limited. The most conspicuous features are the excellent finish and substantial construction, enabling them to be capable of standing the rough usage likely to be encountered on a motor cycle.

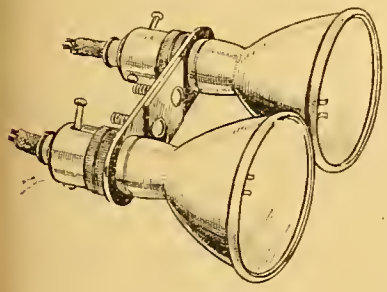


Fig. 1.

The pair of powerful head lights shown in fig. 1 are of a pattern used with great success by Mr. Harold Karslake. They may be used either off accumulators or dry batteries, and are so arranged that both head lights may be in use simultaneously or only one, according to the will of the rider, owing to the convenient arrangement of the switches in the bulb holder of each lamp. It is in the switch that a considerable improvement has been recently made in these lamps, as this is now of the push type, and working on the same principle as the pear-shaped switch so satisfactory in household use at the present time. The bell of the lamps is carefully silvered inside and constitutes a convenient form of parabolic reflector, while if attention is paid to fig. 3, showing the tail lamp for sidecar use, it will be seen that a straight bell is used, this being also a convenient form for the steering column lamp for a small car, which, though it gives a somewhat restricted light, yet gives adequate illumination for the instruments on the dashboard.

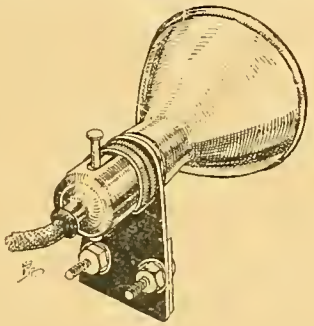


Fig. 2.

Fig. 2 shows the side light for a car.

A convenient feature is that the lenses of the lamps are now detachable, which, in the event of a glass being broken, allows of easy replacement. Standard makes are fitted with four-volt bulbs, but bulbs of higher voltage can be fitted if desired.

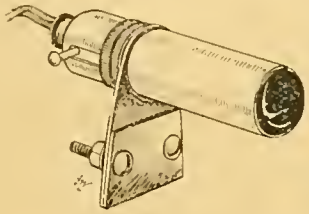


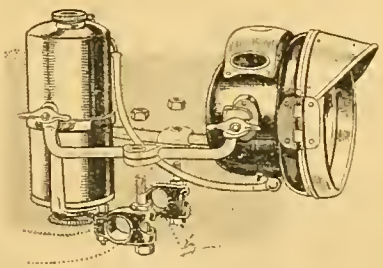
Fig. 3.

We have been using a Cox-Walker steering column lamp for a considerable time, and have found it to be excellent in every respect.

Cox-Walkers, Ltd., North Eastern Electric Works, Darlington.

Lucas Electric and Acetylene Lamps.

The products of no firm of lamp manufacturers have a better reputation for durability and super-excellence of workmanship than those of Messrs. Joseph Lucas, Ltd. With regard to their acetylene lamps, we illustrate herewith the latest type, which is equipped with a combination bracket, which may be lifted



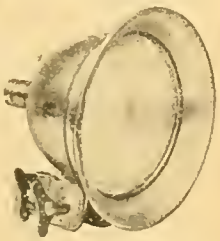
from the handle-bar with lamp and generator complete merely by undoing two nuts and leaving the bolts and brackets in position on the handle-bars.

We are also in receipt of an advance copy of Messrs. Lucas's catalogue of their dynamo lighting set for motor cycles and sidecar combination. This catalogue makes most interesting reading, giving, as it does, various examples of machines equipped with the outfit, instructions for use, and a diagram of wiring, which latter is, of course, invaluable to the user. It also shows the method of driving the dynamo on various models, such as the A.J.S., which is driven off the engine-shaft; the James, which is driven off the gearshaft; and the 6 h.p. Enfield, which is also driven off the engine-shaft.

Messrs. Joseph Lucas, Ltd., Birmingham.

Ward and Goldstone Lamps.

The accessory for which Messrs. Ward and Goldstone are best known is the Voltalite electric lighting outfit, a small dynamo driven off the rim of the front wheel of a motor cycle which lights the head light direct. The makers point out the advantages of this lighting installation to military riders, since, if a spare bulb is carried, the motor cyclist is independent of oil or carbide. In ordinary use a bulb is expected to last about twelve months.



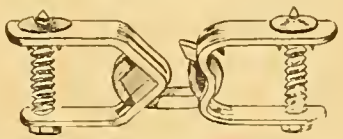
Another useful accessory is a motor cycle handle-bar inspection lamp. The lantern is on a ball joint and can be turned in any direction, and on occasions may even be used as a small head light.

A lesser known accessory sold by this firm is the Volex Giant battery, which will light a four volt metallic filament bulb for about eighty hours. Two of these batteries are said to last a motor cyclist twelve months. The company supply a special head light fitted with a metallic filament bulb for use with this battery. The battery possesses the advantage of being a quarter of the weight of an accumulator of equal capacity.

Ward and Goldstone, Sampson Works, Salford, Manchester.

The Star Belt Fastener.

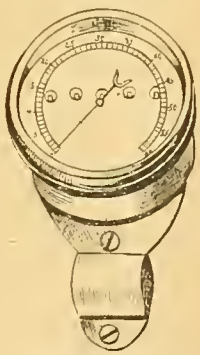
One of the strongest and most reliable fasteners on the market is the Star. It



is substantially made, and it will be noted from the illustration that the screw is inserted from the underside, and a circular nut with prongs ensures a good grip of the belt. The fastener is of the hook type, and there are no flimsy parts.

The Star costs 9d., but the Blake fastener on the same lines costs 6d. only.

Mr. Stanley T. Robson, 59, Hobmoor Road, Small Heath, Birmingham.



The Stewart magnetic type speedometer referred to on page 653

MILITARY NOTES.

Military Honour for a Motor Cyclist.

The first motor cyclist to be honoured by the King is Corporal B. J. Hallowes, R.E. The French "medal for valour," which he is shown wearing in our illustration, was handed to the King by the Prince of Wales, and then pinned by His Majesty himself on Hallowes's tunic. This incident occurred at the Front the other day during the King's visit to his troops. Hallowes, who is a Streatham man, was home on leave for three days during last week, and he had only just received his decoration. The blue and white bands on the hero's arm denote that he belongs to a signal section.

Corporal B. J. Hallowes, R.E., wearing the French medal for valour. Note the armlets (which are coloured) denoting that he belongs to a signal section.

A Message from the High Seas.

Rear-Admiral Sir R. K. Arbuthnot, writing from somewhere on the High Seas, says: "I have my Douglas at home, but still have the Triumph to gaze at and wonder if I shall ever ride it again. . . . I read *The Motor Cycle*, which still comes regularly." Sir R. K. Arbuthnot, Bt., on many occasions has said that motor cycle riding is the finest training a naval officer can have. Certainly the indulgence in the pastime steadies a man's nerves, and makes him quick in action and resourceful in times of danger.

The Sidecar Machine Gun Battery.

At the time of going to press there were ten vacancies in the 5th Motor Machine Gun Battery, details of whose equipment were given in our last issue. Experienced sidecar drivers, having good eyesight, who are free to commence training with a quick-firing gun, should apply at once to Mr. Geoffrey Smith, 19, Hertford Street, Coventry, stating age and experience. The pay is 1s. 2½d. per day, *plus* 6d. per day after passing the gun test.

Enfield sidecars of 6 h.p. have been allotted to the 5th Battery, most of the motor cyclists attached to which have been recruited from the Coventry district.

These machines are now being delivered. In the Royal Enfield design provision is made for carrying 1,000 rounds of ammunition, and the gun may be turned to fire at any angle. Moreover, we have seen it removed completely from the chassis and mounted on its tripod in less than half a minute, and re-mounted in the same short period of time.

More Despatch Riders Wanted.

Captain Fladen, Signal Company, Div. Engineers, Duke of York's Headquarters, Chelsea, informs us that he has vacancies for six more motor cycle despatch riders. Applicants should be expert riders, and have some experience of map reading.

The Bristol Motor Cyclists' War Committee, Queen's Hotel, Clifton, Bristol, informs us that more military motor cyclists are urgently needed, and those who apply with suitable machines will very shortly have positions found for them.

A Well-known Rider in a New Role

Mr. H. P. White, who was instrumental in introducing the preparation known as Motiphos for dressing clutch leathers, has received an interesting postcard from W. Pratt, the well-known competition rider. Pratt writes as follows: "I am taking the opportunity to drop you a line. I have been travelling in a railway truck for the last two days to this place for my captain at the front. I have had some very exciting times, as I have been in the thickest part of the fighting for the last month. I was in a town last week for two nights, and we had 157 shells arrive from the Germans. I am glad to say I got out alive, although I was next to a house which received two shells. I had a narrow squeak two weeks ago; a piece of a shell went right through my pocket and cigarette case, which practically saved my life. I am driving a Maudslay, and am kept very busy taking ammunition to my battery. I am keeping very fit, but it is very cold here."

Graham Price, of Catford, a prominent Bat and P.V. rider, has recently joined the Public Schools Battalion as a despatch rider.

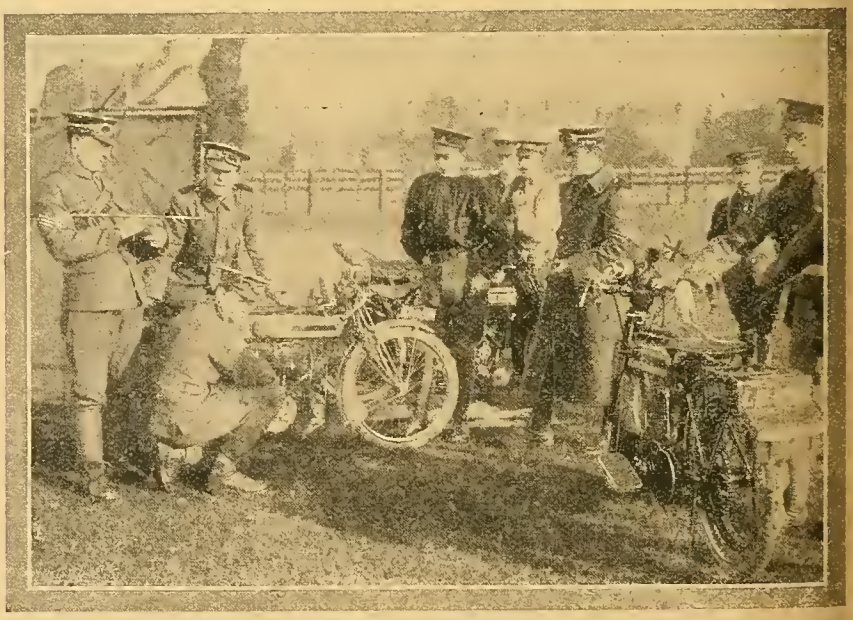
Messrs. S. Smith and Sons inform us that their Roll of Honour now numbers forty men at the Front and in training. One of their members, who holds a commission of second lieutenant, went through the bombardment of Antwerp and duly escaped, while one of their best hands in the speedometer factory was wounded at Mons and is now in hospital.

Messrs. Brown and Barlow, Ltd., makers of the B. and B. carburetter, have sent out 25,000 cigarettes for the benefit of the motor cycle despatch riders on active service.

Frank Philipp, the well-known Scott exponent, now holds the rank of acting sergeant, and spends his time in instructing novices in the handling of Scott-Maxim sidecar combinations.

A Woodgate and C. Allison (late of the Colmore Depot) are attached to the new motor machine gun batteries. Allison is a sergeant-instructor with the Scott sidecar maxims, whilst Woodgate is a repairer on one of the cars fitted up as workshops and attached to each battery.

Messrs. Chater-Lea, Ltd., it is interesting to note, are at present engaged in manufacturing equine accessories in the shape of taps for threading the holes for the "roughs," which are screwed into the horses' shoes to prevent them from slipping on frosty roads.



Motor cyclists who have enlisted in the new sidecar machine gun batteries in training at Wembley. Many of the Scotts have already been delivered, and the Enfields are now practically ready.

TWO NEW BRITISH MAGNETOS.

The Products of the Cicoy and Stentophone Companies.

ALTHOUGH the Cicoy Magneto Co., of 259, Goswell Road, has only been established seven weeks, it has already begun to turn out magnetos which are entirely made in its own factory, and hopes by the beginning of next year to be in a position to manufacture 100 weekly.

We recently saw the magnetos in various stages of their construction, and can assure our readers that the workmanship is good throughout.

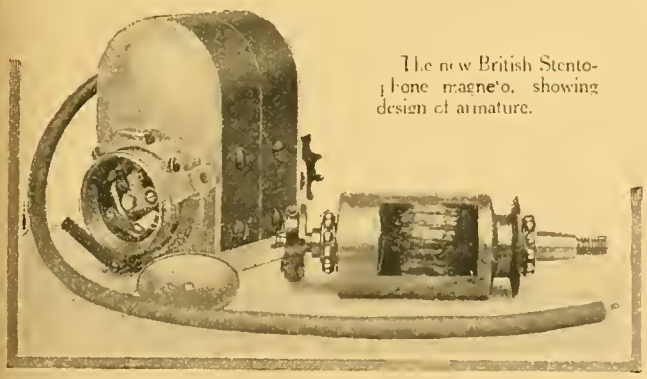
As regards design, we can only say that it closely resembles the lines followed by other well-known makes. The chief departure from standard is in the high tension terminal. The end of the h.t. wire is sweated into a brass socket; this is pushed into a vulcanite end which is provided with a spring socket, so that it may be clipped on the tapered brush holder, the whole forming a neat and entirely waterproof joint.

Parts of and a complete Cicoy motor cycle magneto.

It is interesting to note that the first magnetos manufactured by this firm are of the motor cycle waterproof type. They are being made for all types of motor cycle engines.

The Stentophone Magneto.

A company has been formed to take over the Price Magneto Co. This will be known as the Stentophone Magneto Works, Ltd., and will occupy works at 61, Vincent Parade, Balsall Heath, Birmingham, where several models will be made, which are designed on standard lines and interchangeable with existing Bosch types. These include several interesting and important features, among which may be mentioned the double wound laminated armature, which is subjected to a special treatment to prevent damage from moisture. The magneto is well enclosed, and as the aluminium end plates are cast the full width of the magnets a wide joint surface is available. The contact breaker is of the Bosch type, and substantial adjusting nuts are fitted. The high-tension terminal is absolutely waterproof, and can be fitted on either end of the magneto, while easy access to the carbon pencil is arranged. The condenser is contained in the end of the armature, and rotates with it on ball bearings. All types of motor cycles are catered for from the lightweight to the big twin, and all magnetos are subjected to a severe test before leaving the works, each instrument being run up to 5,000 r.p.m.



The new British Stentophone magneto, showing design of armature.

A Patriotic Club.

Bristol M.C.C. Dinner. A Splendid War Fund Donation.

THE Bristol M.C.C. held its annual dinner and prize giving on Saturday last, December 5th, at which there were nearly fifty present. Considering that about 30% of the club's members are on active service, a bigger muster could not be expected.

The president, Mr. Roderick Fry, was in the chair, and he made the presentation of prizes won by the members during the past season. A welcome visitor was George Brough, the only gold medal winner in the club's recent open eighteen hour trial. A silver cup was presented to Brough by a few of the members as some slight recognition of and admiration for his wonderful performance in such a severe trial. It will be recalled that the only other award was a silver medal to A. Ludlow Clayden (10 h.p. A.C. light car).

A magnificent collection of £30 0s. was made at the dinner for one of the war funds, and the president decided that this should be sent to *The Motor Cycle* for this journal to send to the *Weekly Despatch* for that paper's tobacco fund. Bearing in mind that the Bristol M.C.C. has already given £10 10s. to the Princess Mary's Fund, and is also awarding the surplus left over the recent eighteen hour trial, this further amount of £30 0s. speaks well for the generosity of the club.

A New Year Trial to Land's End and Back.

The club has decided, we understand, to run the annual twenty-four hours' run to Land's End and back on Friday and Saturday, January 1st and 2nd, 1915.

The club is losing its honorary secretary, Mr. Philip Grout, the founder of the club, and who has been honorary secretary since its formation in 1911. His place will be difficult to fill, because a harder working and more enthusiastic club official it would be difficult to find. The club itself is in a very healthy condition. Finances are good, and promises for the future are bright. There is to be a new executive.

CURRENT CHAT

SPECIAL FEATURES

EQUIPMENT NUMBER.

Over 150 illustrations of accessories of all kinds.

SEVERAL NEW MODELS (Illustrated).

TIMES TO LIGHT LAMPS

Dec.	10	... ...	4.49 p.m.
,,	12	... ...	4.49 ,,
,,	14	... ...	4.49 ,,
,,	16	... ...	4.50 ,,

New Models in this Issue.

We describe and illustrate in this issue the new O.K. two-stroke—a new departure for the firm of Humphries and Dawes—the 1915 sporting model 2¾ h.p. A.J.S. and 6 h.p. A.J.S. with sloping top tube, ladies' and men's new Velocette, the extremely novel twin-cylinder two-stroke Premier, the 1915 Wolf, and the two-stroke Allon.

In addition, two new British-made magnetos are described.

British Exports Increase in War Time.

Exports of British-made motor cycles in November actually increased from £87,549 in 1913 to £95,233 this year. This is the finest tribute possible to the efficiency of the British Navy. Just imagine record exports during war-time! It will reflect throughout the world the normal state of the country, and particularly the motor cycle industry. The imports of foreign-made motor cycles are, of course, considerably down, and are, indeed, but a fraction of what they were. The import and export figures for the month of November, and also the figures for the eleven months ending November 30th, are given hereunder :

VALUE OF MOTOR CYCLES AND PARTS THEREOF.

	Nov., 1912.	Nov., 1913.	Nov., 1914
	£	£	£
Exports ...	79,880	87,549	95,233
Imports ...	14,428	27,916	2,103

MOTOR CYCLES AND PARTS THEREOF FOR ELEVEN MONTHS ENDING NOVEMBER 30TH.

	1912.	1913.	1914.
	£	£	£
Exports	651,945	908,193	1.094,769
Imports	187,846	241,650	183.351

The Overseas Market for Motor Cycles.

Another reason for the increase in the exports of British-made motor cycles is that manufacturers at home are at last paying attention to the special requirements of motor cyclists Overseas. *The Motor Cycle* has consistently urged the immense possibilities for the British motor cycle in our Colonies and Overseas Dominions, and a monthly Overseas Supplement has been issued with this journal since the beginning of the year. During the eleven months of the present year, and despite the fact that the war affected the Overseas market during August in particular, over a million pounds worth of British-made motor cycles have been shipped abroad.

Continuous High Speed in America.

In a three hundred mile race at Savannah, U.S.A., at the end of last month, the winner, who was mounted on an Indian machine, covered the distance in 5h. 2m. 32s. This equals an average speed of practically sixty miles an hour. The course was 11.25 miles to a lap over good roads.

Increase in Motor Cycle Tyre Exports.

The war has no doubt been the cause of British exports of tyres and tubes for motor cycles increasing from £4,186 to £7,047 during November, 1913, and November, 1914, respectively. Germany enjoyed a large export trade in tyres prior to the war. In the eleven complete months of this year our motor cycle tyre export trade equalled £63,631.

Despatch Riders at Home.

Owing to increased facilities for leave, many motor-cyclist despatch riders, who went out to the Front in August, are already home from the Front for a week. Several well-known Coventry men are once again in the city of motors, and we have just heard of another batch arriving at Folkestone, after having come sixty miles across France in a motor 'bus.

Sidecars for Despatch Riders.

This week we make the suggestion that the War Office authorities utilise up-to-date sidecar outfits for the use of despatch riders during the winter campaign. It is well known that the roads are very soft and badly cut up by the heavy transport, and sidecars would therefore well fill the bill during the winter months, on account of their two tracks, and consequent stability.

Purley and District M.C.C.

At the annual general meeting last week it was decided that all present members serving in His Majesty's Forces, or who may hereafter enlist, be made honorary members for next year.

Lightweights for Despatch Riders.

It is not unlikely that lightweight machines will be tried by the War Office for the work of despatch riders during the winter campaign. There is no doubt that they would score on rain-soddened by-roads on account of their handiness, light weight, and extreme mobility.

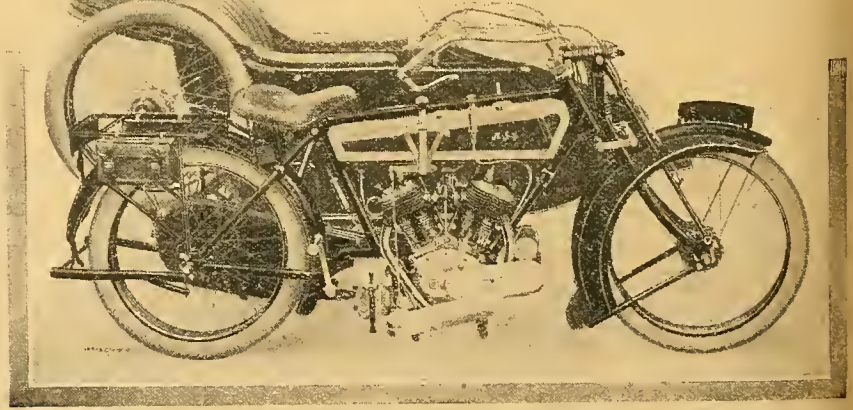
How the War Funds Stand.

The principal war funds amounted to the following figures on Tuesday last :

	£	s.	d.
H.R.H. Prince of Wales's National Relief Fund	4,053,000	0	0
H.R.H. Princess Mary's Fund to provide Christmas Gifts for Soldiers and Sailors	123,309	0	0
The Queen's Work for Women Fund	95,161	0	0
The Times Fund for Sick and Wounded ...	718.025	8	4
The Daily Telegraph Belgian Relief Fund ...	80,661	0	1

Affiliation Fees.

To prevent any possible misunderstanding in connection with our recent paragraph on the subject of affiliation fees and club finances, we should point out that our remarks referred to those clubs affiliated to the A.C.U. under the 5s. per head scheme. The other scheme, viz., 6d. per head, is a very nominal amount, and should not tax the resources of any sound body.



The 1915 model 6 h.p. A.J.S. three-speed sidecar outfit. The sloping top tube has been adopted on this model; the detachable wheels are retained. (See page 663.)

Club Profits for National Fund.

A profit of £10 5s. was made on the Bristol Motor Cycle Club's reliability trial, described in our last issue, and in accordance with a recommendation of *The Motor Cycle*, that amount will be handed over to H.R.H. the Prince of Wales's National Relief Fund.

Despatch Rider's Novel Training.

A motor cyclist, who expects to receive orders shortly for the Front, has been attracting attention at Cudham and the test hills by his novel training methods. Attired in semi-regimentals and with revolver in a sling strap, he was seen to make several climbs at Cudham, part of the way with revolver in hand as though firing at some imaginary foe. This movement would be varied by skilled cornering into the side tracks and lanes.

Brake Testing.

How the machine—a well-known T.T. twin—stood the racket is a wonder. Another manœuvre consisted in jamming the brakes hard on, making a flying dismount, and levelling the revolver as though suddenly confronted with an enemy patrol.

New Australian Records.

The mile and half mile single-cylinder motor cycle Australian records have been beaten by A. Byrom, of Tenora, New South Wales, a well-known record breaker of Australia. His times were : half mile, 26⅖s. ; mile, 54⅖s. The engine used was a Precision 3½ h.p. with side by side valves.

A Victim of Enteric.

A. L. Ommaney, a member of the Coventry and Warwickshire Motor Club, who was formerly in the testing department of Rudge-Whitworth, Ltd., has recently succumbed to enteric fever in the General Hospital, Colombo. Three years ago Ommaney went to Ceylon as a planter.

An American Motor Wheel

When a well-known motor cycle dealer of Toronto, Canada, applied for selling privileges of the Smith Motor Wheel, made by the A. O. Smith Co., of Milwaukee, Wis., he was advised that the company could not make any arrangements for the sale of the attachment in Canada for some time to come because of the great demand in the States. This is a disappointment for Dominion dealers because it is felt that the Smith Motor Wheel would take well in Canada, partly because of the similarity with the Wall Auto-wheel made and used in the British Isles.

Despatch Riders and Licences.

At Bexhill Police Court, V. Jones, a corporal in the 25th Reserve (County of London) Cyclist Battalion, was summoned for riding a motor cycle without a licence.

Lieutenant A. R. Churchill, of the same regiment, said he had been instructed to appear in the case on behalf of Colonel Gilbertson Smith, his commanding officer. The regiment was stationed at Lewes, and they were charged with the duty of taking over coast defence along the sea coast of Sussex, and he wished, with the greatest respect, to protest against the action of the civil authorities in such cases as the present, because again and again they had summoned the men of the regiment for various trivial matters. Lieutenant Churchill explained that the machines were registered in the name of the Home Secretary, and that a licence was not needed. Therefore, he asked for the dismissal of the summons, and, at the same time, he wished to be allowed to enter his emphatic protest at having been brought to the court on such a case. The case was dismissed.

We wonder if soldiers will next be prosecuted for not having gun licences.

A Business Trip to the U.S.A.

We understand that Mr. W. W. Douglas sailed last Saturday for New York on a business trip. He expects to be away for about three weeks.

Motor Cycle Racing in New Zealand.

Now that things have settled down here somewhat and business is running again in ordinary channels, it has been decided to continue the competitions, trials, etc., decided upon by the Pioneer Motor Club before the war. The beach races at New Brighton on Oct. 24th resulted as follows : Eight-mile Open Handicap—1, Berry (Douglas); 2, Laughton (Rover). Sixteen-mile Open Handicap—1, G. B. Brown (Triumph); 2, Laughton (Rover); 3, Berry (Douglas). Four-mile Novice Handicap—1, C. Orr (Triumph); 2, C. Farrow (Triumph).

Motor Cyclists with the King in France.

During the King's visit to the Front three motor cyclists accompanied the royal cars during tours of inspection.

A Flying Visit from Corporal Sproston.

Corporal A. J. Sproston, R.E., was in London last week, and we were able to congratulate him over the telephone upon having been mentioned in despatches.

A Patriotic Club.

The Moto-Club-Liègeois was formed into a company of motor cycle volunteers immediately the war broke out, was officially approved by that gallant Belgian hero, General Lehman, and was attached to the staff of the 3rd Belgian Division.

Douglas Sidecar in the Bristol Trial.

With reference to the statement in our report of the Bristol M.C.C. trial that the new 4 h.p. Douglas and sidecar went astray, Messrs. Douglas Bros. write that the machine completed the whole course, the only trouble suffered being from tyres.

The Indispensable Motor Cyclist.

During the annual manœuvres it was apparent to all that the motor cycle was to play an important part in any future war, but we doubt if even the military authorities realised the indispensability of a motor cyclist despatch rider in a war in which the fighting line is spread over a wide range.

Motor cyclist despatch riders attached to the Royal Engineers arriving at Luton after leave. The machine is a 6 h.p. New Hudson, of which the company already have six.

1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

1915 WULFRUNA MODELS.

A NEW two-stroke model is perhaps the most striking departure of the Wulfruna Co., of Wolverhampton, and, as might be expected, it has been carried out in a thoroughly workmanlike manner. The frame is solidly constructed, and has a bottom bracket specially adapted for the fitting of a two-speed gear if required. The machine thus fitted has a very neat appearance, and forms a sound machine for touring or town work. The 2¼ h.p. Peco engine is used, and on the two-speed model the most striking external feature is the fact that the flywheel lies close to the cylinder carrying the sprocket for the driving chain on the outside. This, of course, simplifies the fitting of chain cases, and the Wulfruna have taken full advantage of the opportunity. Otherwise the 2¼ h.p. Peco follows the design of the already well-known 2¾ h.p. model, except that plain bearings are used on the crankshaft. The two-speed gear is the usual counter-shaft type employed by the company, and is solidly but neatly constructed. If ordered, a kick starter and clutch can be obtained at a small extra. As regards fittings, the machine is complete in every way. A drip feed lubricator supplies the oil to the engine, and mudguards, carrier, and stand are of sensible proportions. 26in. × 2in. tyres are fitted, and aluminium footboards add considerably to the rider's comfort. A similar model can be obtained fitted with a 2½ J.A.P. engine of 70 × 76 mm. bore and stroke. The final drive in each case is by belt.

Other New Models.

Another new model which has been introduced specially for sidecar work is the new 5 h.p. twin, which is fitted with a J.A.P. engine (70×85 mm.), and drives by chain throughout, a three-speed countershaft gear being employed, and a cone clutch being fitted on the engine-shaft.

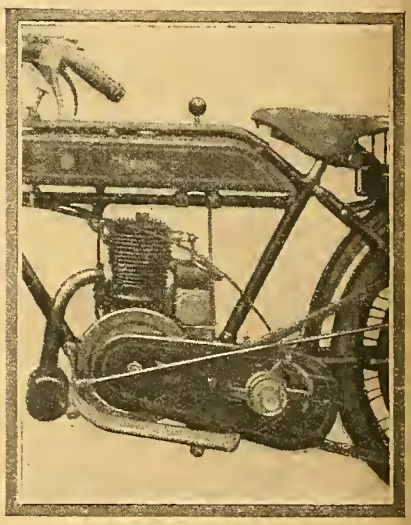
The machine is thoroughly up to date in every way, and the fittings and finish are excellent throughout.

The 4 h.p. single cylinder Wolf would at first sight appear to be a new model, but in reality the change in appearance has been mainly brought about by the lowering of the frame. The new machine is extremely neat and sturdy. It is, as before, fitted with the 4 h.p. single-cylinder J.A.P. engine, but a choice is given of two or three-speed countershaft gears and either double chain or chain and belt drive. Thus the 4 h.p. model can be obtained in almost every possible form, and suitable for the man who wants a fast single-geared mount through the various stages of the ordinary solo tourist to the owner of a go-anywhere sidecar outfit. As a point of interest, it may be mentioned that Wolf frames are specially reinforced at all vital points.

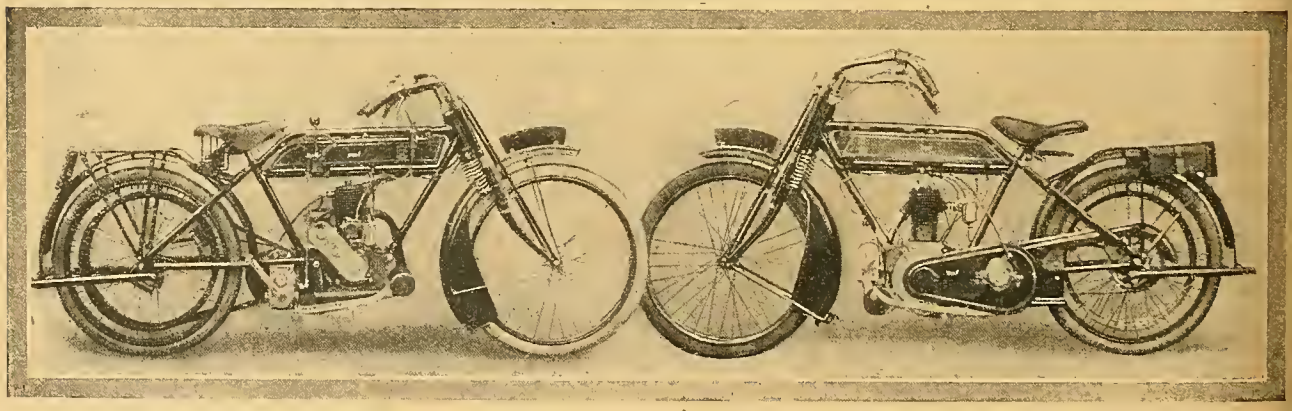
EDITORIAL NOTE.

ALREADY many full descriptions of 1915 models have appeared in these columns, and as a guide to readers we give below the dates upon which the different descriptions were published:

Sept.	3rd.	Henderson and Levis Popular.
,,	24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct.	1st and also 29th.	Three-speed shaft-driven Rex.
,,	8th.	Radco and Abingdon.
,,	15th.	Ivy, Vindec, and 4 h.p. Brown.
,,	22nd.	J.A.P. engines, Calthorpe, Lucas dynamo.
,,	29th.	Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and two-stroke Ariel.
Nov.	5th.	Sparkbrook, Lady's Metro, 2½ h.p. and 6 h.p. Enfields, Omega, and 4 h.p. A.J.S.
,,	12th.	6 h.p. Humber, Sun Vitesse, and Levis.
,,	19th.	Diamond, B.S.A., 6 h.p. twin P. and M., Indian, Royal Ruby, Velocette, 6-7 h.p Sunbeam, James, Rover, twin-cylinder two-stroke Premier, and New Hudson.
,,	26th.	Rudge, O.K. Junior, Wooler, New Imperial, J.H., Lady's Radco, Wulfruna, Bradbury, and Hazlewood.
Dec.	3rd.	Norton, Grandex, Connaught, Brown, Clyde, Brough, and Lady's Ivy.



The Wulfruna two-stroke, showing chain drive from a sprocket fitted outside the flywheel



The 2¼ h.p two-stroke Wolf motor bicycle which is fitted with two-speed gear and kick starter.

Transmission side of the 4 h.p. Wolf

THE NOVEL PREMIER TWO-STROKE.

Engine, Three-speed Gear, and Magneto forming a Single Unit.

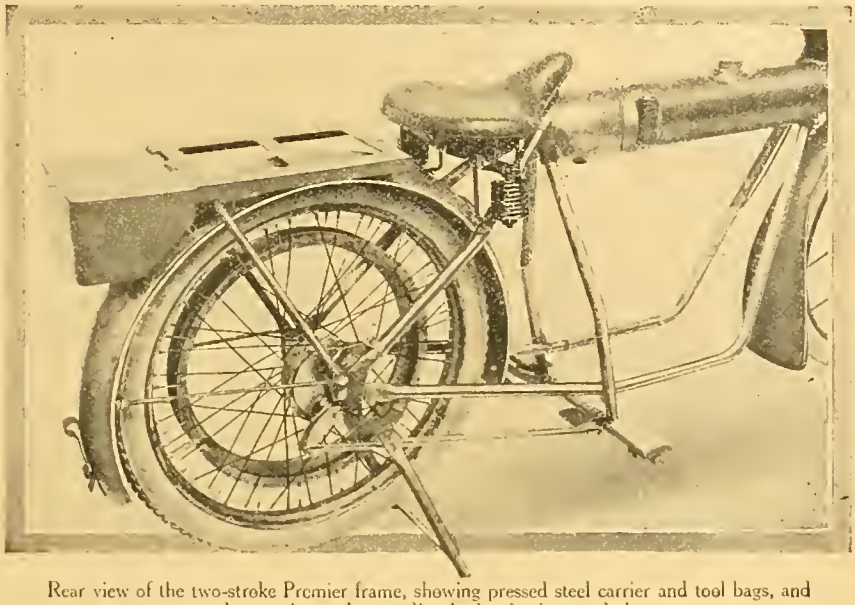
IN the "Buyers' Guide" issue of *The Motor Cycle* we were enabled to give the first details and sketches of the new Premier twin two-stroke, and by reason of its novel and striking design great interest has been evinced by all interested in motor cycles.

The twin engine, which is built under Alfton's patents, is now undergoing tests. In this issue we are enabled to publish illustrations of the power unit and frame; the latter are strikingly unusual both in detail and in general design. The compactness of the unit will be clearly seen from the photographs. In front is mounted the outside flywheel; then come the two cylinders set longitudinally and operating the crankshaft through vertical piston rods and curved foot plates.

Forced Feed Lubrication.

At the back of the crankshaft a plunger oil pump is driven from an eccentric, and forces oil to the big ends and foot plate slides, and behind this again lies a pair of worm wheels driving the counter-shaft three-speed gear. This gear is very neat, and occupies an extremely small space, as the gears are only just separated, and are brought into action by a central shaft arranged so as to expand steel balls against the inner periphery of the pinions, thus locking them to the driving-shaft in turn. To prevent any possibility of the gears slipping out of position a simple and positive form of spring plunger is arranged, and the control rod from the tank operates through a squared joint giving just sufficient freedom of movement. Finally, the magneto is mounted at the rear of the unit, and is driven direct from the crankshaft. Except for the piston rod bearings and slides, ball bearings are used throughout, and careful provision has been made for the prevention of oil leaks, a screwed washer mounted on the shaft returning any excess of oil to the sump.

The special receivers in which the gas is compressed can be clearly seen, and also the expansion chambers, which are attached direct to the exhaust ports, and permit the burnt charge to expand before being led to the large silencer directly in front of the engine. These expansion chambers will, in the final design, be fitted with cooling ribs.



Rear view of the two-stroke Premier frame, showing pressed steel carrier and tool bags, and also two internal expanding brakes in the rear hub.

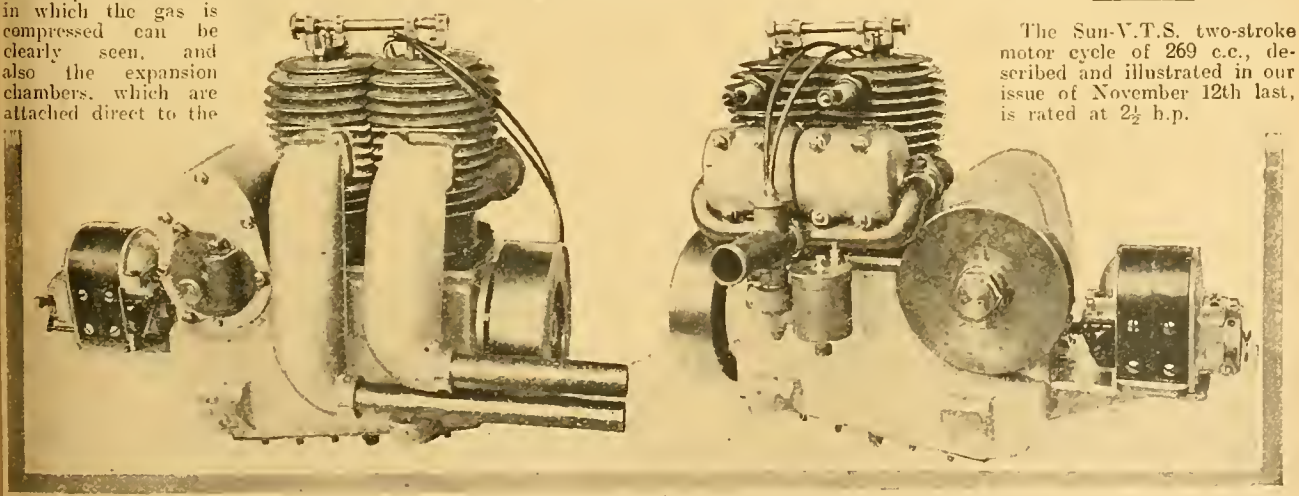
Operation of Compression Release Valves

The compression release valves are very simply operated, for a straight bar is mounted in guides directly over the valve in each cylinder head. A taper is formed with its smallest diameter kept normally over the valve stem by a spring. By means of a Bowden control the bar can be moved horizontally so that the tapers engage the valve stems and release the gas.

The principle of the duplex frame with its top tube tank has already been described. It may be remembered that both brakes are of the internal expanding type mounted in the rear hub. The mudguarding is excellent, and the rear guard is attached to a combined pressed steel carrier and tool box. The frame is extremely low, and the absence of tubes above and below the tank renders the machine particularly easy to clean.

The machine is the most novel and interesting medium weight we have yet seen, and we are looking forward with considerable interest to a road trial in the near future. We shall then hope to refer to the new Premier again.

The Sun-V.T.S. two-stroke motor cycle of 269 c.c., described and illustrated in our issue of November 12th last, is rated at 2½ h.p.



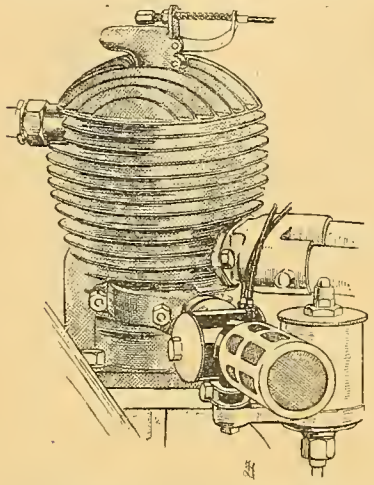
A novel two-stroke Premier. As will be seen, it has two vertical cylinders and an outside flywheel in front of the engine. A three-speed gear is embodied with the crankcase, and the magneto is coupled direct to the crankshaft

THE O.K. TWO-STROKE.

An Entirely New Model in Addition to Existing Four-stroke Models.

ONE of the most striking departures in the O.K. programme, which we have already reviewed, is the new two-stroke, which has many features of peculiar interest. This new model is known as the Mark V., and it can be obtained as a single-geared mount, or with two-speed counter-shaft gear, or with two-speed gear and clutch, in each case the price being strictly reasonable.

The engine has a bore and stroke of 70 mm. × 70 mm., giving a capacity of

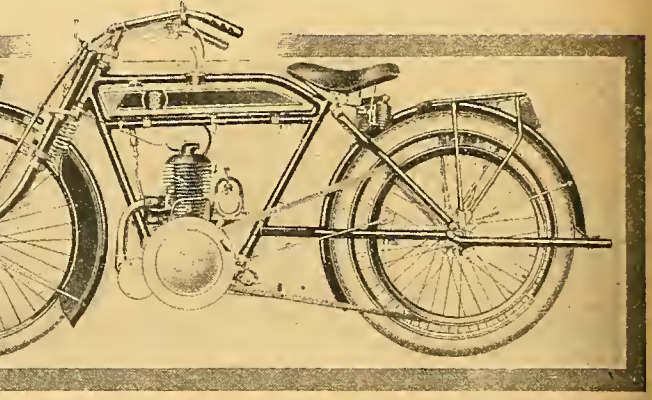


O.K. two-stroke, showing position of ports, double exhaust pipe, and release valves.

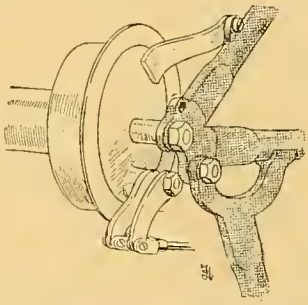
269 c.c. It is very carefully constructed throughout. The ports are of ample size, and two exhaust pipes, each of one inch diameter, ensure an absence of back pressure between the engine and the large silencer mounted in front of the unit. The crankshaft runs in plain bearings throughout, all the bearings being long and the shaft carefully hardened and ground, points which tend to increase considerably the life of the bearings. In combination with the excellent cooling arrangements with radiating ribs extending down almost to the base of the cylinder, the lubrication system proves most effective. Oil is led direct to the cylinder from a Best and Lloyd sight feed drip, and we are told that no single instance of seizure has occurred even under most adverse circumstances.

A Senspray carburetter is fitted at a slight angle from the side of the cylinder. The magneto is chain driven, and lies high up behind the cylinder, where it is well protected from the effects of mud and rain. The two-speed gear is of the sliding dog type, and a cork insert clutch can be obtained as an extra. The drive is by belt and chain, except in the case of the single-geared model, which has a plain belt drive.

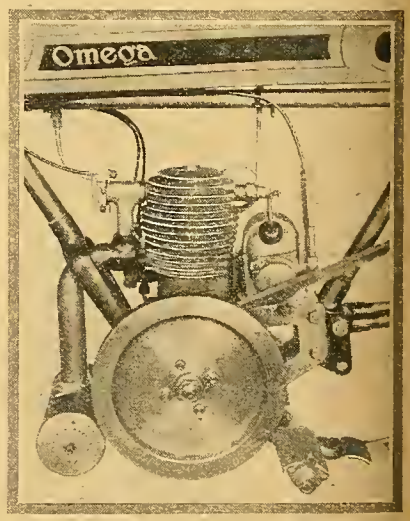
The frame is a powerful one, and, in spite of the large diameter flywheel, provides a 5in. ground clearance. All the fittings are of ample proportions. The pan saddle is a luxury not too often provided by lightweight manufacturers. We were pleased to note that the rear mudguard extends below the belt, which is one of the most simple effective methods of preventing belt slip yet devised. Druid type forks ensure easy suspension of the front part of the machine.



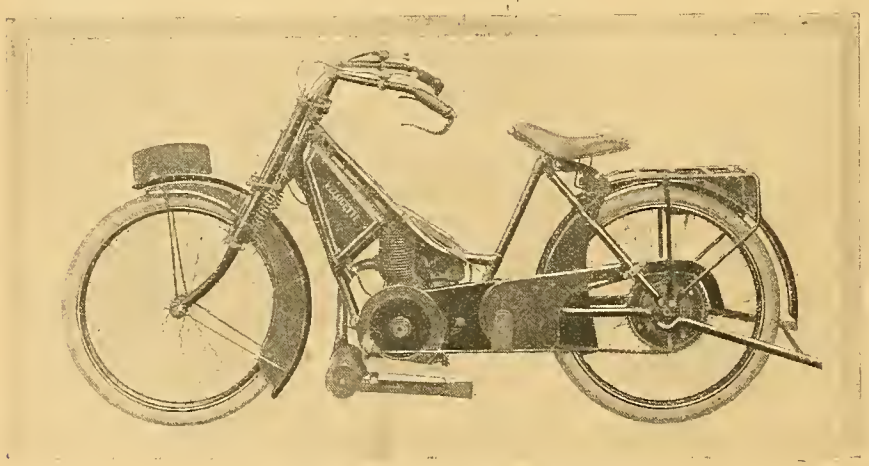
The O.K. two-stroke—a new mount for 1915 of neat design.



Both brakes of the new two-stroke Premier are of the expanding type, and are carried in the rear hub.



Power plant of the 1915 two-stroke Omega. (*Described and illustrated Nov. 5th, page 508B.*)

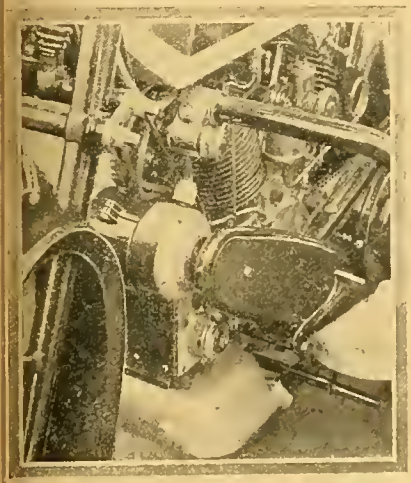


Lady's new model Velocette. (See page 663).

This very handy little touring mount does not, of course, replace the well-known O.K. Junior Mark III. and IV., which have already been illustrated; it is purely a supplementary model. The new O.K. factory will be responsible in the future for all the products of Messrs. Humphries and Dawes, which accounts for its large dimensions and excellent

A.J.S. MACHINES IN 1915.

DURING last week H. Taylor and Co., of 21a, Store Street, Tottenham Court Road, W.C., had a most interesting exhibit of all models of A.J.S. machines. In our issue of November 5th, page 509, we published a description of the new 4 h.p. twin-cylinder machine of this make. All the latest A.J.S. models possess similar features, such as sloping top tube, excellent mudguarding, chain guarding, etc., but in the case of the more powerful 6 h.p., these items are proportionately



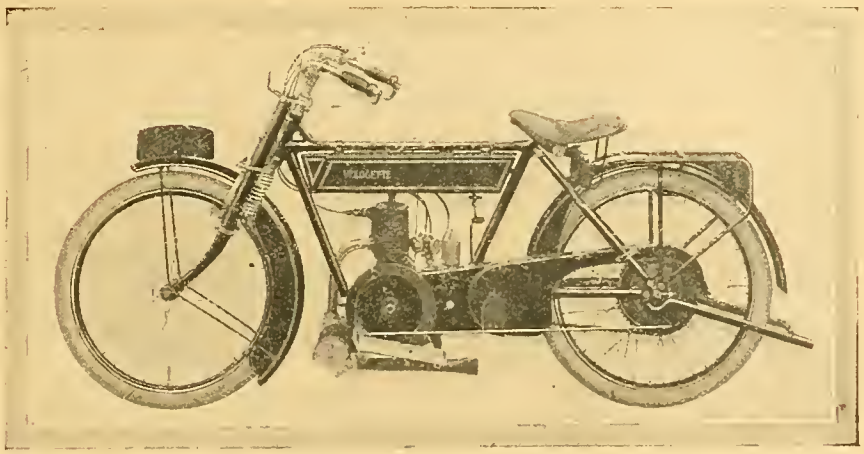
A 6 h.p. 1915 model A.J.S. fitted with Lucas dynamo, which can be seen attached to the front down tube. It is driven by an enclosed chain.

stronger. Even the popular 2¾ h.p. follows more or less the same lines, but a distinct innovation is the 2¾ h.p. sporting model, which has not been previously described in any journal.

It is fitted with semi-T.T. handle-bars and footrests instead of footboards, while the after portion of the chain guarding arrangement is done away with. The silencer consists of a single pipe, which terminates in an aluminium fan-shaped end.

Like all A.J.S. models, it is fitted with detachable wheels. These are removed by undoing three large bolts and the central spindle. On the spindle being withdrawn a small piston falls out. In the case of a tube repair, the tube can be passed through the forks without there being any necessity to take the wheel right out.

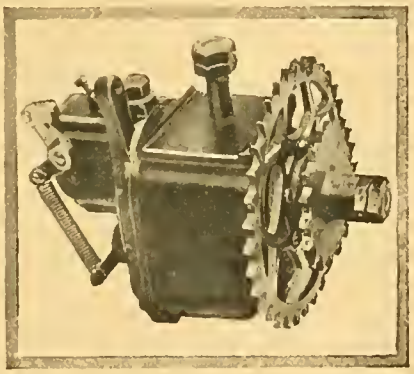
All the models shown are fitted with three-speed gear boxes, though the 2¾ h.p. machines may be had with two-speed gears if desired. The 6 h.p. machine is a thoroughly practical sidecar outfit. It is what is commonly termed a de luxe model, and one type may be had equipped with a Lucas dynamo lighting installation. In this case it will be noticed that the dynamo is carried on the front down tube of the motor bicycle frame, the drive being by chain from the engine shaft. The four models displayed formed a most attractive exhibition, while their smart appearance and attractive finish did not fail to attract admiration.



The 1915 model two-speed chain-driven Velocette.

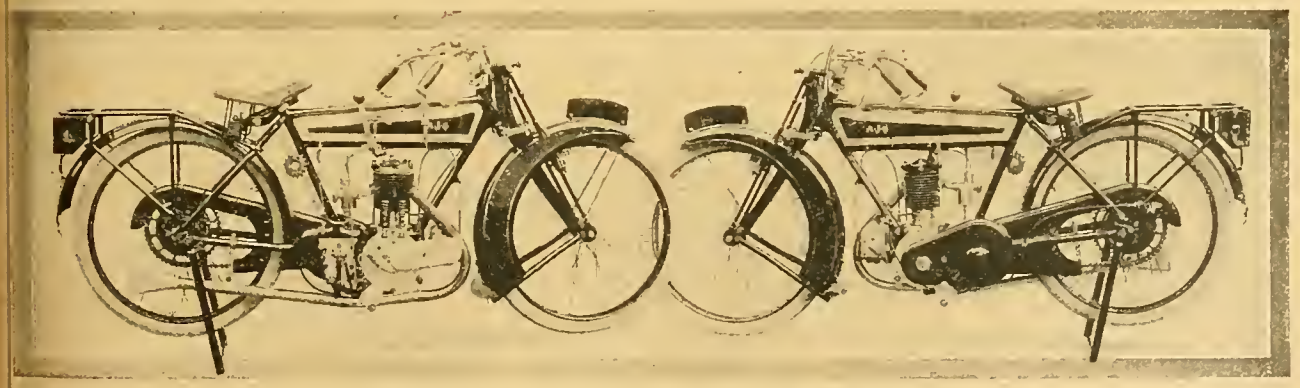
AN OPEN FRAME VELOCETTE.

IN our issue of November 19th we published details of alterations and improvements in the Velocette engine and transmission, though at the time a complete machine was not available for photographic purposes. The illustrations we are now able to publish show the neat lines of the new models. The 60½×73 mm. engine is mounted in a loop frame, and the machine, which is strikingly compact and workmanlike, is chain-driven throughout. A spring drive and internal rear brake are included, and the carrier is arranged to take a special tool bag, which in no way detracts from the general appearance of the machine.



Neat cast iron gear box of latest Velocette. A sliding key is used to engage two different ratios.

Altogether the machine gives one the pleasing idea that every part has been designed to fit in its proper place, an idea which we regret to say is only too seldom afforded by most light and reasonably priced motor cycles.



The new 2¾ h.p. A.J.S. sporting model. It is fitted with detachable wheels.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Removing Flywheels.

Sir,—In reply to the query of "H.A.C." in *The Motor Cycle* of November 26th, I may say that the best way of removing Douglas flywheels is as follows:

Unscrew the lock-nut a couple of turns or so, and then insert a fairly thick screwdriver between the crank case and the engine sprocket. Give the screwdriver a sharp tap or two, and then place a bit of scrap iron or tough wood over the lock-nut, and give one or two sharp taps with a hammer. The screwdriver will then drop out, and the nut may be unscrewed and the flywheel removed. I have removed seven or eight lately, and not had the slightest difficulty If the wheel does not move at the first attempt, keep tapping the screwdriver a bit, and again strike the nut.

ED 663.

Sir—In answer to the question of "H.A.C.," in *The Motor Cycle* of November 26th, as to a simple method of removing Douglas flywheels, I would submit the following as being in every case effective when the engine can be started.

The nut is slackened two threads from the crankshaft, and the engine is run either down the street or on the stand, but not raced at all. If run on the stand put gear in and press brake on slightly, so as to give engine some work to do. A moment will be quite long enough to allow the flywheel to be removed by the hands from the taper, without having hurt in the slightest the ball bearings or the crankshaft. The reason this method is a success is because of the inertia of the flywheel, and when an explosion takes place the blow on the crankshaft is so sudden that the inertia of the flywheel cannot adjust itself quickly enough. Hence it becomes loose on the taper—often on the very first explosion of the engine. I hope this will be what "H.A.C." and others desire. ALBERT V. HUGHES.

Sir,—I noticed in your issue of November 26th a correspondent enquires as to how to remove a Douglas flywheel, and it made me smile to see the reply to it by H. P. Fisher in the issue of December 3rd, when he suggests two people on the job with a 3 lb. hammer performing the operation. This appears to suggest that if assistance is not available you cannot remove the flywheel. I have found it quite a simple matter to remove the flywheel of my Douglas single-handed. I first remove the nut, and tie the exhaust lift up to the handle-bar. Then, while slowly moving the flywheel round with the left hand, gently tap the inside edge of the flywheel with an ordinary hammer (in the right hand), after first wrapping a piece of rag round the hammer head. A mallet would be preferable, but there is no fear of cracking the flywheel, as it is of steel. It comes away very easily. W. G. PERRY.

The Bristol Trial.

Sir,—It was announced in the regulations of the open eighteen-hour trial of the Bristol Motor Cycle Club that all surplus would be handed over to one of the war funds.

I enclose herewith the account of the trial, submitted to me by the hon. secretary, and you will find, after paying all expenses, there is a balance of £10 5s., which is to be handed over to some fund, and I should be glad if you will suggest one.

Please note the costs of the medals (one gold and one silver) are being paid out of the club's prize fund, also the A.C.U. permit fee of £1 1s. has not been charged up in this account, whilst the timekeeper, checkers, and loan of cars have been given gratis.

STATEMENT OF ACCOUNT.

Entry fees			£18 0 0
Stationery	£5 5 0		
Stamps	1 15 0		
Telegrams	5 0		
Car driver	10 0		
		7 15 0	
Balance			£10 5 0

I might point out to you my club gave £10 10s. to the Princess Mary's Christmas Fund. This was originally intended to be given to *The Motor Cycle* Fund for Despatch Riders.

It is proposed that the club adheres to its original programme of holding an open twenty-four-hour trial to the Land's End and back on January 1st and 2nd, 1915, and so we look forward to real support.

PHILIP GROUT,
Hon. Sec. and Treasurer Bristol M.C.C.

[We congratulate the Bristol Motor Cycle Club on the result of the competition, and recommend that the profit be allocated to the National Fund, *i.e.*, H.R.H. the Prince of Wales's Relief Fund.—ED.]

The Design of Drip Feed Lubricators.

Sir,—Your contributor "Runabout," under point two in his article on the above subject (December 3rd, page 610), calls for a lubricator with which it is possible to inject a whole pumpful of oil instantaneously in emergencies without disturbing the drip adjustment.

May we call your attention to our Enots Auto Feed with auxiliary pump, which perfectly fulfils this desideratum, and gives ocular proof of exactly how much lubricant has been passed? This device has been noticed and advertised in your columns, but, apparently, the subject is of sufficient interest to warrant a little further attention.

By means of this lubricator any part of a pumpful, or any number of pumpfuls, may be injected instantaneously at will without interference with the drip adjustment in any way, and the drip feed is resumed immediately and automatically. All oil passes through the glass dome chamber, thus affording certain proof that the object in view has been achieved. Many thousands are in use and may be seen on the machines of leading makers.

BENTON AND STONE, LTD.
W. WHITE (Secretary).

Why an Engine Konks.

Sir,—The subject of konking is one which I was very pleased to see revived in the pages of *The Motor Cycle*, as it seems to be still an unsolved problem. Some of your correspondents have obviously settled the matter in their own minds, but as their conclusions vary so much it leaves the average motor cyclist more mystified than ever.

Mr. de Lissa very emphatically states that a slack piston is the cause of the trouble, and tells us that it can be cured by fitting a piston which is on the tight side. Mr. de Lissa is, as everyone knows, a motor cyclist of long standing and wide experience; but, really, Mr. de Lissa! a tight piston may be a cure in a few special cases, but the two worst konkers that I have come across in the last twelve years have been a certain 3½ h.p. of 1909 and a machine of somewhat similar design, but of a much later date. Both these machines have had smaller piston clearance than any others I have met with. On the other hand, I have possessed four machines (three of them twins) which it was almost impossible to make konk; in each case the pistons were on the slack side, and one (which practically refused to konk under any conditions) had a piston clearance of ten-thousandths (.01), which may be considered almost excessive. Also I believe that the excellent J.A.P. engines are fitted with pistons having very little clearance, and yet the J.A.P. is not guiltless of konks. I am prepared to believe that the piston is at the bottom of the trouble, but Mr. de Lissa's solution will not pass in many cases.

In this connection I would like to put forward a suggestion purely for what it is worth, and not as a definite solution. I have noticed that nearly all engines with detachable cylinder heads are practically immune from konks, and it has struck me that cylinder distortion may cause the noise to a large degree, as distortion would be somewhat relieved in the case of the type mentioned.

A. T. GATEHOUSE.

Sir,—Just a word or two on this evergreen topic. I think Lodge Bros. have hit the solution that konking is due to pre-ignition, the metallic sound being due to the exploded gases knocking against the piston head and walls of combustion chamber. I have run single, twin, and four-cylinder motor cycles, and the part which *has surprised me* is that my four-cylinder never konks, but under similar conditions, which would make a single or twin konk, my four-cylinder machine "peters out."

Herein lies a fact which, I think, will give a clue—if one is wanted—as to the metallic sound. Of course, I don't pose as an authority, because to me the whole thing is so simple, and I don't want an engine that konks.

What I would like to see is some form of "governor ball" regulator to the spark advance and retard of the magneto, so that it was automatically worked according to the speed of the engine, then I think konking would be a thing unheard of. GOVERNOR BALL.

[Such a device has been on the market for some years.—ED.]

A Problem Solved more by Luck than Judgment.

Sir,—The following incident which occurred to me recently may be instructive to some of your readers. Whilst taking a joy ride, my machine, which is a 5-6 h.p. Rudge-Multi, refused hills which, in the ordinary course of events, I should not trouble to change gear for. The belt was not slipping, the compression was good, the clutch was in order, the carburetter was perfect, the make and break of magneto was making and breaking, the sparking plug was sparking; in fact, everything apparently was in order, and yet the machine would only run on the level or stand.

Being a Colonial rider, I carry every conceivable spare part, but the question was which spare to start with; the spare plug went in, but with the same result. The problem was solved by attaching the spare complete contact breaker. The cause of the trouble I did not find out until I reached home and compared the two contact breakers. I found that the platinum points of the business contact breaker had about double the gap of the shirker. To make quite sure that this was the cause of the trouble I replaced the shirker after increasing the break of the platinum points

Being a rider with little experience, I naturally thought that I had found out something, but my ardour was subsequently damped when I referred to the "Rudge Wrinkles," which states, *inter alia*, "We have known cases where the otherwise unaccountably sluggish running of an engine has been vastly improved by increasing the break of the platinum points on the magneto." So have I. W. POINTER.

Fort Beaufort, Cape Colony.

Two-speed Hubs.

Sir,—I was very pleased to see the remarks of "Ixion" *re* a light, cheap, two-speed hub for moderate touring. What he calls for is really wanted—not by a few, but by many riders of light and medium weight machines, ladies included. Let us hope the manufacturers will not keep us too long waiting for its advent.

Also, can any of your readers tell me of a strong, simple, two-speed hub without a clutch (I have a good clutch on engine-shaft), suitable for a 3½ h.p.; gears, say, 4 and 8 to 1? HUB.

Good Advice.

Sir,—In your issue of November 5th, 1914, you advise "J.C.P.," who complains that his Scott will not run slowly, to clean his transfer port gauzes and see that there are no air leaks in the induction pipe.

I have had similar trouble to "J.C.P.," so followed your advice, except that I found it better to buy new gauzes. The induction pipe joints were bound round with tape, and the exhaust ports were also cleaned out by removing the exhaust port cover plates.

The engine now starts at the second kick, and runs at 8 m.p.h. on top without knocking. The carburetter is a Scott, and the machine has been out nearly every day for the last eighteen months without taking down the engine.

LIMIT GAUGE.

Riding Upstairs.

Sir,—I notice in a recent issue an illustration of a motor cyclist riding up and down a flight of ninety-seven stone steps in Rome.

This rider need not have gone to Rome to have found a flight of steps on which to practise riding. At Macclesfield there is a thoroughfare of 108 steps, called "Th' Hunderd an' Eight Steps, leading from the Waters Green to t'owd Church."

I guess this little flight of steps would test the best motor cycle in Great Britain. Its gradient towards the top is somewhere about 1 in 6.

I may say that it is quite a training ground for children.

J. F. TIDESWELL.

Improvements.

Sir,—*Re* "Ixion's" paragraph about a light two-speed hub gear devoid of clutch or complications. This is just what I believe almost every user of a variable pulley gear (*i.e.*, Brampton, etc.) has come to see would solve the gear problem for him at any rate. Why only for lightweights is a clutch necessary with a low gear of 15 to 1 and a rubber belt passing from free engine position to take up the drive? Another point. May I draw the attention of designers and others who mould the machines of the future to the excellent webbed head lug of the American Excelsior illustrated in your issue of November 5th? How is it that on the eve of 1915 we are getting old mistakes repeated and perpetuated? I beg humbly to submit that such things as single forks on light or any weight machine, twisted top tubes, single supports to carriers, frames that form four and five-sided figures, frame tubes meeting at the head almost at a point, single tube frames, flimsy front mudguards, and, last but not least, the tool bag jauntily situated on the top of the carrier, are now out of place. I do not submit that all the above may be found on any one machine, but let anyone look through *The Motor Cycle*, and he will find them. I notice that there are signs of the curved top tube giving place to a straight one, which seems to me a step in the right direction.

I hope I may not be thought hypercritical, but every motor cyclist is keen to see improvement in design.

APERCU.

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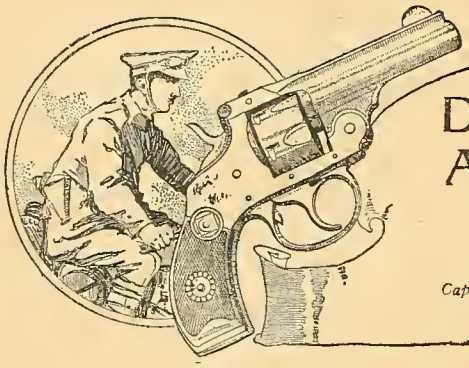


DIARY OF A DESPATCH RIDER.

By Corporal Hedley G. Browne, of Norwich,

Captain Norfolk Motor Cycle Club, now Motor Cycle Despatch Rider, 2na Signal Co., R.E., with 1st Army Corps, British Expeditionary Force.

October 28th, 1914

I HAVE just learnt that we are permitted to state our whereabouts up to about a week ago, so I may record my movements since leaving Southampton.

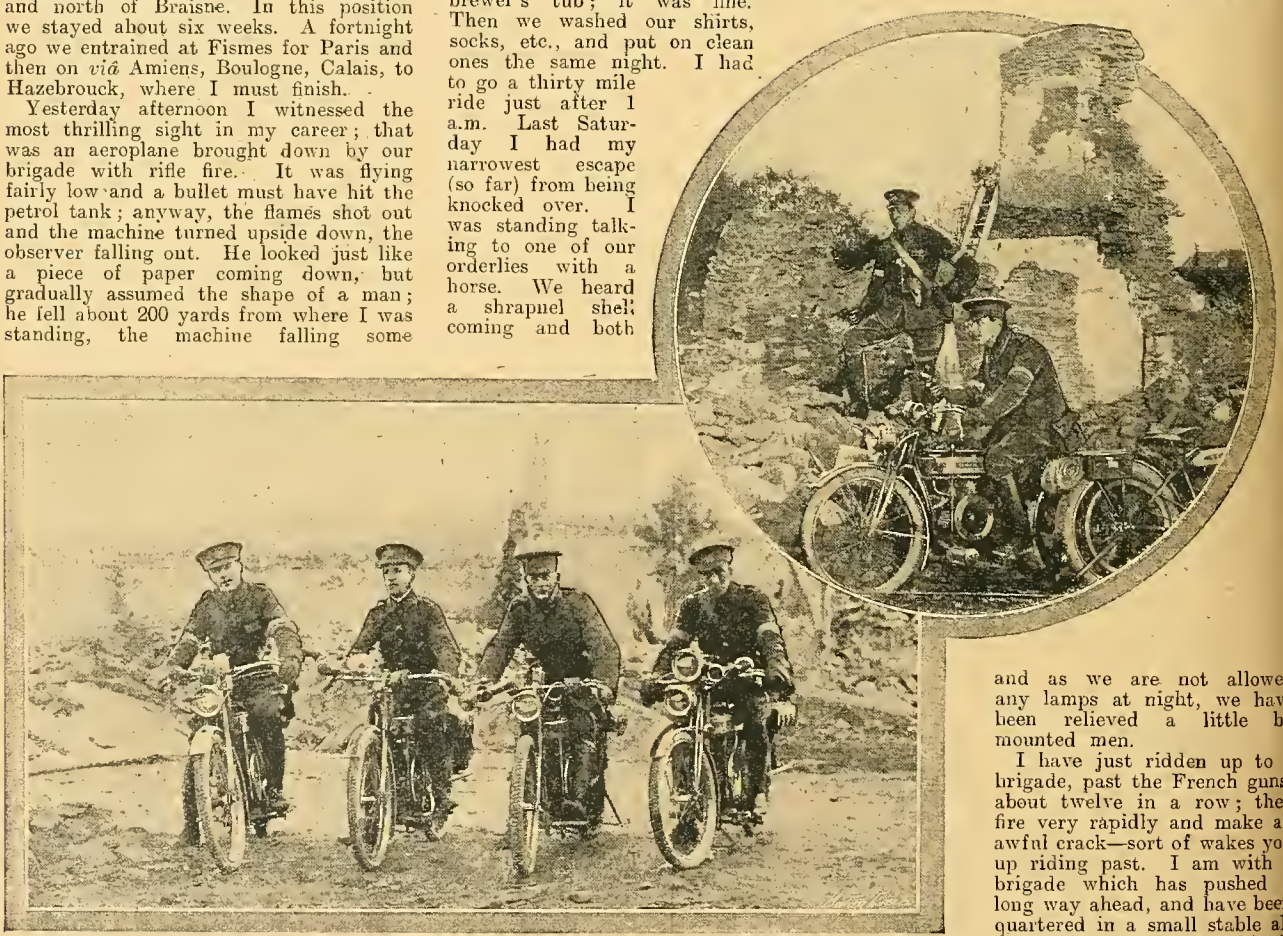
By boat to Havre and down the river to Rouen (two days stop), then by train to a small village north of Arras (Etreux), and marched in stages from there to Mons. Retreated *viâ* Mauheuge, Landrecies, le Cateau, la Fère, Soissons, to Meaux. After that went due east to Coulommiers, then up to the Aisne at a place called Bourg-en-Aisne near Soupir and north of Braisne. In this position we stayed about six weeks. A fortnight ago we entrained at Fismes for Paris and then on *viâ* Amiens, Boulogne, Calais, to Hazebrouck, where I must finish.

Yesterday afternoon I witnessed the most thrilling sight in my career; that was an aeroplane brought down by our brigade with rifle fire. It was flying fairly low and a bullet must have hit the petrol tank; anyway, the flames shot out and the machine turned upside down, the observer falling out. He looked just like a piece of paper coming down, but gradually assumed the shape of a man; he fell about 200 yards from where I was standing, the machine falling some distance away. I can tell you, it is one thing in my life I shall never forget.

Last week I had my first experience of rifle fire; it is not nearly so bad as shells. I had to go down a road just at dusk where "snipers" were concealed in the trees. I left my machine and walked some distance down a lane and could hear the bullets hitting the trees, etc., all along. Can you fancy me walking and running with dead and wounded lying about on each side? My machine was hit with a piece of shell which I picked up and am keeping as a souvenir. I had my first hot bath last week in a large brewer's tub; it was fine. Then we washed our shirts, socks, etc., and put on clean ones the same night. I had to go a thirty mile ride just after 1 a.m. Last Saturday I had my narrowest escape (so far) from being knocked over. I was standing talking to one of our orderlies with a horse. We heard a shrapnel shell coming and both ducked our heads, but the poor fellow got hit and died in half an hour, and the horse was killed. Both were buried in the afternoon, and it was a most impressive sight with the guns firing all around. I can tell you it gave me a bit of a shock at the time, but in about half an hour I had forgotten all about it. Anyhow, the fellows said I was one of the lucky ones that day.

October 29th, 1914.

My word! this is war with a vengeance, going at it day and night. The last two or three days the roads have been terrible,



Some British despatch riders serving with the Expeditionary Force amid ruins—the handiwork of German artillery. The machines, it will be noticed, are Douglases.

and as we are not allowed any lamps at night, we have been relieved a little by mounted men.

I have just ridden up to a brigade, past the French guns, about twelve in a row; they fire very rapidly and make an awful crack—sort of wakes you up riding past. I am with a brigade which has pushed a long way ahead, and have been quartered in a small stable all day, and I must say this is the warmest place I have ever struck. They started shelling

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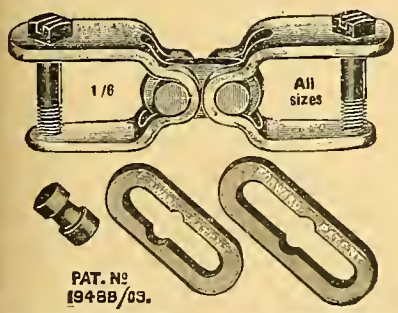

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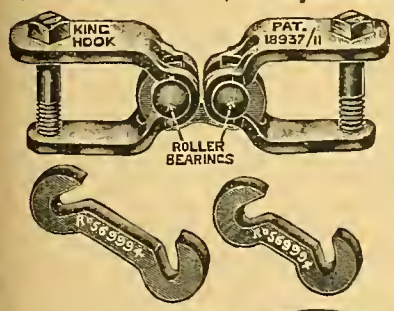

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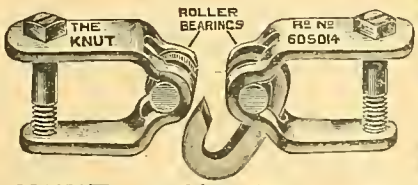

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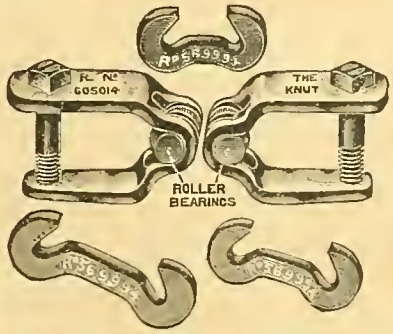

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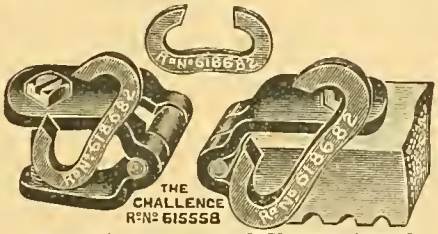

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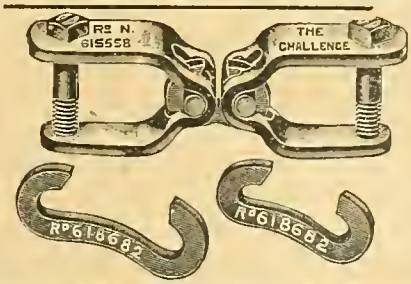

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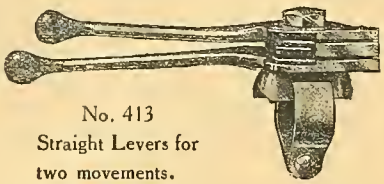

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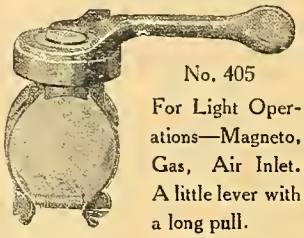

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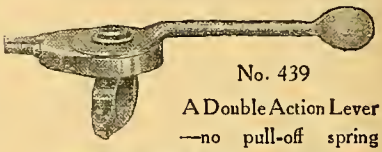

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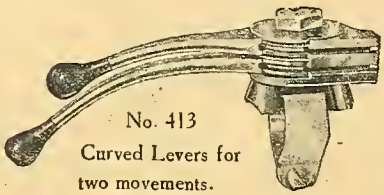

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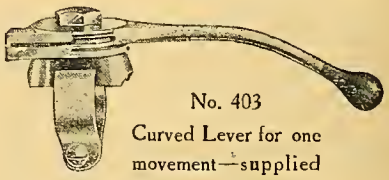

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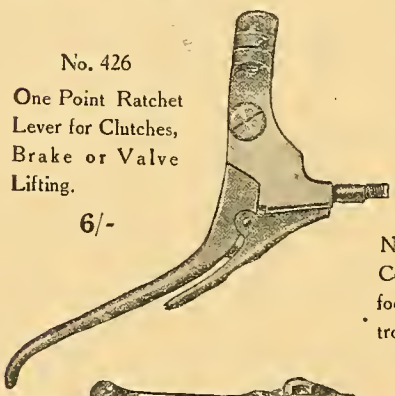

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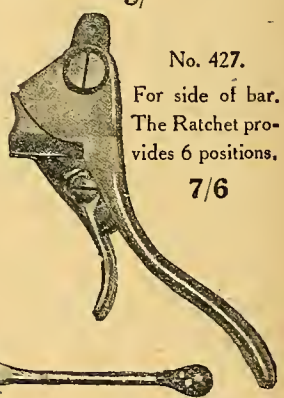

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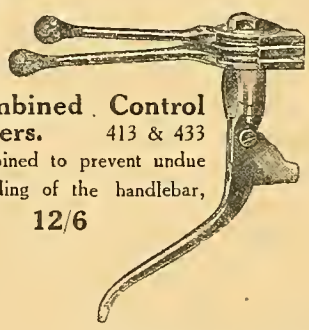

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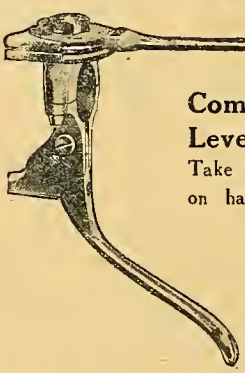

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Godbold.

us this morning at dawn with high explosives and "Jack Johnsons," and have kept it up off and on since. Up to the present this house has not been properly hit, but has been very near it. Two houses within twenty yards have been blown to pieces, and the shells have made holes in the ground all around big enough to bury a horse in.

Four big shells! My word, we have just had a fright. One got this roof and has made a large hole in it; one fellow was wounded in the leg. I have now had orders to stand by, so am now going to pack up. There are some French guns near us—that is what the Germans are trying for. Just imagine about twenty of us orderlies to different regiments being boxed up in this place. When we were asleep last night, the bullets came through the roof, in one side and out the other. Four more shells—too hot to write more now.

(1.) G. Boyton, who was the first private owner to finish in the 1914 Senior T.T. Race. The machine is a Triumph

October 31st, 1914.

Am glad to say we moved our quarters last night about three hundred yards down the road. Yesterday's casualties, two horses and one pig; not so bad considering the number of shells. One of the fellows who was in the Boer war said more shots and shells were fired yesterday than in all the South African war put together—he says it is not war, it is murder. We are now in a large farm house, one of the few left intact round here, and although by no means safe, we all feel more comfortable, as we are at the back of the house behind the enemy's fire. They have started again, but are still popping them around the place we left yesterday. We are replying with our "heavies," which are directly in front of us. They don't half make a report, and shake the very house.

I am writing this behind a hedge, with the bullets from German snipers in the trees in a wood close by whizzing over the top, just one mile from our trenches. Two of us managed to ride our machines up here, but goodness knows how we shall get back, what with the mud up to the spokes, etc.

November 5th, 1914.

Once again I am spared to write you a few lines, and when I say this you may take it that I really mean it from the bottom of my heart, for I have seen sights this last week that would sicken any human being Three days ago we had shells in a large château, our headquarters, killing, I think, six staff officers, besides wounding many others. Yesterday I took a message to A.H.Q., and was putting my machine on the stand (luckily about fifty yards away) when two shells landed right in the house, and two motor cyclists were killed (fellows we knew) and three others wounded. I jumped into a ditch, and

(2.) Howard Newman (the well known Ivy rider) mounted on a Douglas in Armentieres.

(3.) Not a tragedy of the war, but motor cyclists resting—after night work.

heard the bits falling all around. Returning back again along the main road I saw a large shell hole, which was not there when I made my outward journey. Such is the way we jog along day after day.

I am out at the —— Guards Brigade with a fellow named Barlow, and last night (after we had done a bit of riding in the rain, and had gone through roads a sea of mud) we made ourselves comfortable in a tobacco drying shed. What with straw and water-proof sheets we had quite a nice night (except for a pig waking us up once). After cooking a good breakfast of bacon, jam, and tea with milk (a real luxury), and having had the first wash for three days, we both felt in the pink of condition. To-day, we are about a mile from a large town, which they started to shell yesterday, and it is absolutely wicked here to see the damage being done to the Cathedral, shops, houses, etc., and then to see the inhabitants leaving, not knowing which way to turn, some carts going one way and some another. I had to go through it last night, and went in one house (not a sound). Things were just as the occupants had left them, tea on the table, nice fire, kettle boiling, etc. I sampled the bread and jam, but, of course, touched nothing else. On my way back a jolly great black shell hit a house a hundred yards behind me, filling the street with brick, glass, and smoke.

Just a word about the villages round here. Believe me, there is not a single church or house left; whole windmills and churches especially are smashed up as they harbour observation stations. Also the streets come in for it as well, great holes being made by these "Jack Johnsons," and we have to pick our way through these at night without a lamp! Just started the fireworks again; can hear the maxims at it and shells going

(4.) Sergeant Tozer enjoying breakfast in a stoneyard.

clean over where I am sitting into the town.

November 8th, 1914.

It is really quite a treat to be free from shells and bullets for a day, although I must not speak too soon. We are now in a farm yard a mile out of a large town, and up to the present the aeroplanes have not discovered our whereabouts, as we have our motor cars, motor cycles, and horses under cover. I believe I told you about the bombarding of this town. Well, last night it caught fire in several places, a special kind of shell being fired at it. Our engineers had to blow up the surrounding houses to prevent the whole town being burnt. I had to go through about eight o'clock, and it was a bit "warm," I can assure you. I am off to the —— Brigade again to-night with Barlow, so expect to be right amongst it. They have had a very rough time of it lately. There is some talk of our division being relieved for a bit, but I cannot say if there is any truth in it. We can all do with a rest, as I should say the old 2nd has just about done its share.

SIDECAR DRIVING IN IRELAND.

A Trip taken by Two Brothers on a Single-speed Bat.

ALTHOUGH perfectly conversant with the mechanism of motor cycles, and quite at home in the saddle of a solo mount, the writer had never attempted to handle a sidecar outfit until a short time ago.

The necessity arose whilst staying in Cork, as I was anxious to have an opportunity of judging for myself whether the scenery in the land of Erin really deserved the many laudatory epithets which are showered upon it. At the same time, I was totally unacquainted with the various routes from this famous city, and therefore decided to hire a motor cycle and sidecar, and share the driving with my brother, who fortunately knew the island fairly well.

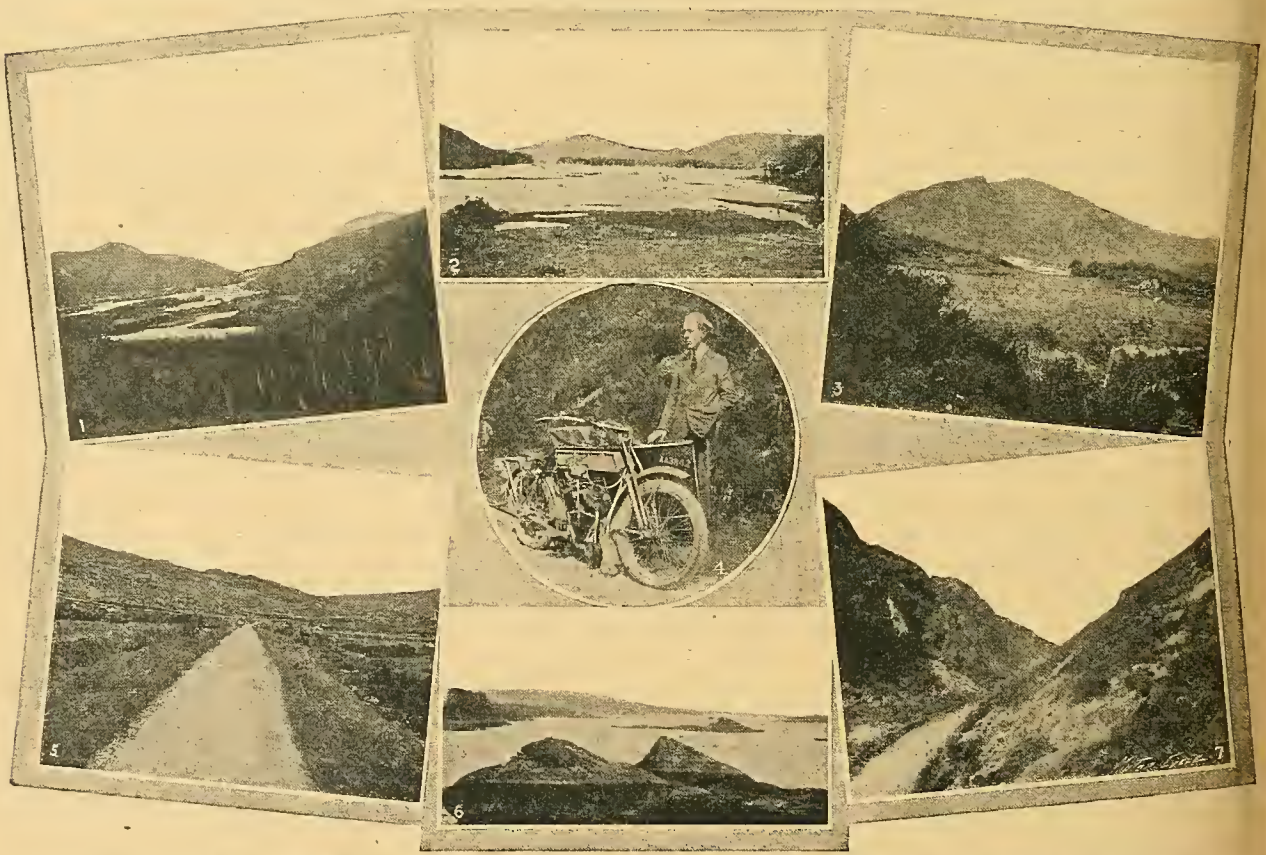
My first difficulty was to find a dealer from whom I could procure the necessary machine, but eventually an agent carrying a large stock of second-hand motor cycles was discovered, and from this source I obtained an old model 8 h.p. Bat with a coachbuilt sidecar.

Apparently the sidecar had been attached by a novice, for it was sadly out of alignment, and showed a distinct tendency to run into the gutter on the left of the road when being pushed out of the narrow lane which connected the garage with the main road.

To my dismay I found that there was neither clutch nor gear, and the only way to start up was to rush madly down the road until the engine began to fire and then leap into the saddle before the affection for the left kerb (already mentioned) had caused any inconvenience to pedestrians. Having gained this position, I discovered that it was impossible to throttle down below fifteen miles per hour without stopping the engine, and, as we were without any artificial means of giving warning of our approach, we caused no small amount of interest by our exceedingly hurried journey through the city, the streets of which were speedily cleared by our vocal activity.

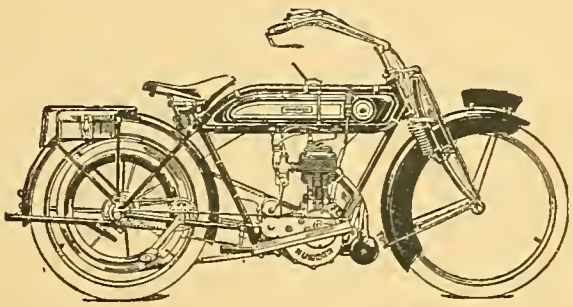
The double turn between St. Patrick's Street and St. George's Street convinced me of the fact that sidecar driving is quite different from solo riding, for, having forgotten the attachment for a brief moment when turning into the Grand Parade, I found that my passenger was taking an involuntary short cut across the pavement to the consternation of the citizens. In this connection I would suggest that there should be more give and take between pedestrians and vehicles, for, although the inhabitants of the city of Cork evidently prefer the roadway to the path, they strongly resented our unintentional encroachment on to their preserves.

When we eventually reached the end of Western Road, I heaved a sigh of relief, and determined to



(1) Panorama of the lakes at Killarney, on the road from Killarney to Kenmare. This is the best view obtainable of the lakes, showing almost the whole collection at once. (2) Mountain scenery at Killarney, showing snow-capped mountain on right. (3) Torc Mountain, Killarney. (4) The writer with the twin-cylinder 8 h.p. Bat and coachbuilt sidecar. (5) A typical mountain road near Killarney. (6) The harbour, Glengarriff. (7) The Pass of Keim-em-Eigh—a rough mountain pass between Inchegeela and Bantry.

The 1915 Humber $3\frac{1}{2}$ h.p.



THE outstanding features of the Humber "$3\frac{1}{2}$" are—first and foremost—Reliability, Economy, and Simplicity.

AS the Specification shows, it carries every modern improvement, and is the best value $3\frac{1}{2}$ h.p. 3-speed Motor Cycle on the market.

THE SPECIFICATION is remarkable at the price, and includes $3\frac{1}{2}$ h.p. Engine of 84×90 mm. Bore and Stroke; "Kick" Starter; Sturmey-Archer Three-speed Gear; Brown & Barlow Carburetter; Bowden Wires; Heavy Rubber-studded Dunlop Tyres; and Lycett Pan Seat or Brooks B 170 Saddle.

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£57 10s.

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1915 AWAKENING

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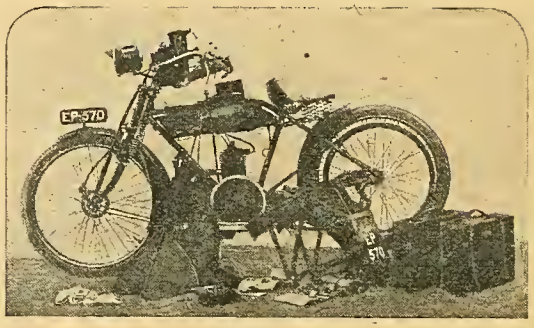

ALL DETACHED IN 4 MINUTES AND FIXED IN 5

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CAR

YOUR FRIEND'S HOUSE IS YOUR HOUSE. SUCH IS PERFECT

NO SIDECAR GIRL COULD GIVE HER LOVER A BETTER XMAS PRESENT —— HALF THE BENEFIT WILL BE HERS IN THE SIDECAR (DON'T LET HIM SEE THIS).

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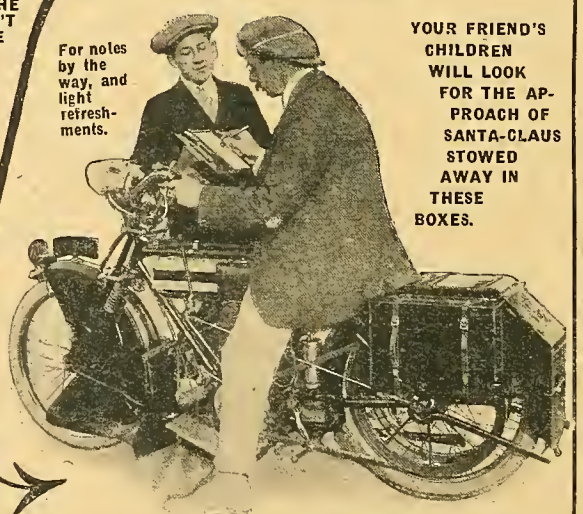
CONVENIENCE is that something which makes life go so pleasantly

COMFORT Turns every rider into a 200-mile man.



For notes by the way, and light refreshments.

YOUR FRIEND'S CHILDREN WILL LOOK FOR THE APPROACH OF SANTA-CLAUS STOWED AWAY IN THESE BOXES.

IN FULL TOURING EQUIPMENT

1) 2) TOOL HOLDERS BOOK FORM.

3) 4) SPARES BOXES 5½ x 3½ x 1¾ inches.

5) 6) PANNIER BOXES 14 x 11 x 4 inches. INSTANTLY FIXED AND DETACHED.

7) 8) KNEE-GRIP-BOXES 5½ x 3½ x 1½ inches.

9 SPACE IN SEAT 13 x 8 x 1 inches.

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YOU SELECT THE BOX OF THE RIGHT SIZE, PUT IN YOUR PARCEL AND GLIDE OFF. YOU ARRIVE AS YOU STARTED — PERFECTLY CLEAN AND CONTENTED NOTWITHSTANDING THE STORM YOU HAVE PASSED THROUGH

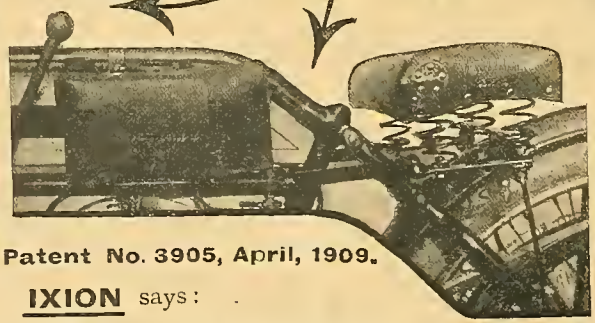
THE DEVASTATING MUD TRAPPED AT LAST!

June, 1914.

Dear Sirs,—It is with pleasure I have to record the efficiency of Waigh's patent Front-wheel Mud-Shields you fitted in March to my 6 h.p. "A.J.S." with sidecar.

I find them thoroughly practical and efficient in keeping both mud and dust off the rider. The one and only drawback to my mount (1913) was the fearful mess I got in when riding in bad weather at speed. Both driver and passenger were liberally sprinkled, but that is now a thing of the past. The guards (Waigh's) really do guard; not even my boots get splashed now, whereas in the old days you could not see them for mud. Incidentally, one can now enter a friend's house after a ride in bad weather with a clear conscience and clean boots, a not inconsiderable advantage the guards give. Yours faithfully,

A. UPSON J.P., Maidenhead.



Patent No. 3905, April, 1909.

IXION says:

"They are quite extraordinarily comfortable."

THE PASSING OF A MOTHER *is a sad event, BUT ALL THINGS DO CHANGE. For 15 years the CHILD—the motor-BICYCLE—has been devoted. It is now in its young manhood—the MOTOR-bicycle with vigour and endurance hitherto unknown to the world. It is BRITISH to the core, but poor. Its mother could bequeath it only two things—perfect BOOTS and a robust FRAME. It stands UNCLOTHED a prey to every storm and the tar-man. We have watched its development for the last 5 years under the guardianship of the A.C.U. in a hundred trials under awful climatic conditions training it to Herculean manhood. It but requires the clothes of preservation and the trappings of usefulness to make it the MOTOR-bicycle CAR to go anywhere, at any time and do anything.*

A WARNING. *Let us be thankful for the ROBUST FRAME. Don't abuse it. Already it has been cut away at the back to make room for an antiquated pedal-cycle saddle to get a low-riding position. AND NOW the frame is threatened with further weakening by springing by introducing a multitude of working parts and weight. All this can be carried out through the seat springing and a new method of riding — KNEE-GRIP-SEAT — A NEW METHOD APPLIED TO COPE WITH NEW REQUIREMENTS of great pace and vibration. ALL MUST FEEL SORRY FOR THE MOTHER—the PEDAL-CYCLE-SADDLE. BUT ALL THINGS DO CHANGE.*

THESE PATENTS FITTED TO YOUR MACHINE WILL **SAVE YOUR WAR TAXES**

Sidecar Driving in Ireland.—

exchange places with my brother, who seemed remarkably calm and cool, and quite unaffected by the indelicate titles conferred upon us by unfortunate people who had suffered inconvenience on our account. Accordingly I stopped the engine and proceeded to give minute instructions about the various little eccentricities of this terrible piece of mechanism before entrusting myself to the care of an "amateur," for by this time I considered that I was qualified to dictate to anyone on the subject of sidecar driving, regardless of the fact that my worthy brother is a practical engineer and could drive a car almost as soon as I could walk.

Owing to the liberal amount of luggage in the shape of suit cases, petrol tins, funnels, etc., which was stowed in the sidecar, the passenger was obliged to sit with his feet projecting over the end of the body-work, but a fair amount of comfort was possible even in this position, and I lay back and smoked peacefully as the telegraph poles flashed by in a continuous and hurried procession.

The Charms of Glengarriff.

The route which we had planned was through Ballincollig, Innishannon, and Bandon to Dunmanway, at which point a halt was called for the purpose of replenishing "the inner man" and the petrol tank. Up to this point the road had been exceedingly pretty but not really exceptional; however, after about an hour's run Bantry Bay came in sight, and we then turned north to Glengarriff, where we found the most charming spot I have ever seen. Honeymoon couples were in great evidence, and I cannot imagine a more delightful place for a holiday than this little town situated in the Bay, and enclosed by the Caha Mountains on one side and the sea on the other.

The charms of this spot nearly overcame us, for we were sadly tempted to stay there instead of proceeding on our way; but, after the refreshing influence of a bathe and a good meal, we decided to continue our journey and set out across the mountains towards Kenmare. No difficulty was experienced in taking the steep gradient which lay before us, but I must own that I felt somewhat apprehensive when some two miles from Releagh we arrived at a point where the mountain appeared to rise perpendicularly to a height of about eighty feet above us; and the idea of climbing this precipice with a single gear, which at the best was not a low one, seemed to me an impossible task. On rounding a sharp bend, however, we discovered a tunnel cut through the side of the hill, and after the dazzling sunshine to which we had become accustomed the gloom of this subterranean passage made a curious contrast, it being no easy task to steer a straight course towards the small gleam of light ahead which marked the exit.

Kenmare in Darkness.

From this point the day's hill-climbing practically ceased, and an easy run for about ten miles brought us into Kenmare, where we decided to halt for the night.

In this town the electric lighting is run by water power, but owing to the drought previous to the time of our visit, the entire place was deprived of its customary light, and candles or oil lamps were in great demand. The effect of this method of lighting contrasted curiously with the brilliant illuminations to which one so naturally becomes accustomed, and it was amusing to find that the chief ironmongery store relied entirely upon the dismal efforts of a single tallow candle for the double purpose of exterior and interior lighting.

A Cow in a Hardware Shop.

I have mentioned this particular store as it was the only one which I patronised, and also because of an incident which happened on the threshold. I was about to enter the doorway when an apparition loomed up in front of me, and I found myself *vis-à-vis* with a well proportioned cow, which, regardless of the ordinary rules of etiquette, forced its way through the door and compelled me to retire to a respectful distance whilst it contemplated in which direction it should take its evening stroll. I have since heard that it is customary in many parts of Ireland to allow animals free access to any of the dwelling rooms, but at the time I was much surprised at the proceeding.

Fortunately, this experience did not affect my slumbers that night, and after an early bathe in the Kenmare river next morning, we again set out. The weather was perfect, and as we picked our way along the mountainous road which runs beside the river, through Parknasilla and Sneem, it seemed difficult to believe that parts of this same island should be in such a critical state of unrest. From Caherdaniel we turned northwards to Waterville, at which town we had decided to lunch; and, as we reached the summit of the hill overlooking the valley in which this little place is situated we obtained a wonderful view of Lough Currane on the east and Ballinskellig Bay on the west, as the ground dividing the two is scarcely threequarters of a mile across.

Again replenished, we took the steep hill out of Waterville at a speed which evidently astonished the natives, and proceeded by a kind of loose bridle path to Cahirciveen, where we were obliged to stop for the purpose of tightening up the various nuts and bolts which had been shaken loose by the terrible state of the road just traversed.

Dingle Bay and Killarney.

Our route now lay on the south side of Dingle Bay through Glenbeigh to Killorglin, at which point we turned eastwards to Killarney, and arrived at that renowned watering place just before dark.

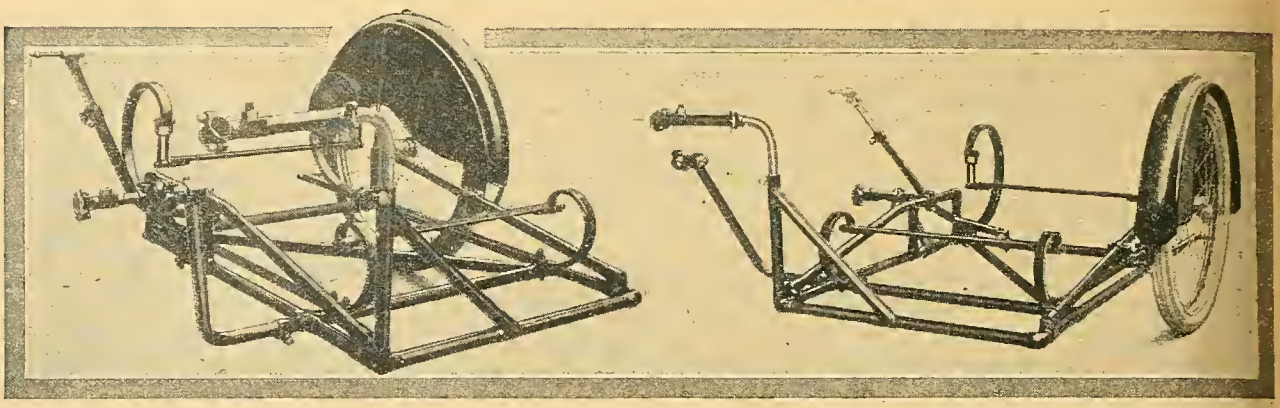
There is no doubt that Lough Leane deserves all the praise which the poets have thrust upon it, but Killarney town does not appeal to me as an ideal spot, and I was not loth to set out again next morning.

Up to this point we had been extremely fortunate in every way, but a flat tyre on the sidecar wheel announced the beginning of a day of woe, and between Killarney and Fermoy we managed to collect punctures in each tyre. This delayed our progress considerably, and we therefore curtailed our tour by turning south to Cork instead of taking in Lismore and Youghal as we had previously intended.

The total distance covered in the three days was practically three hundred miles, and there is no doubt that it would be difficult to find a more picturesque trip than this little corner of Ireland afforded.

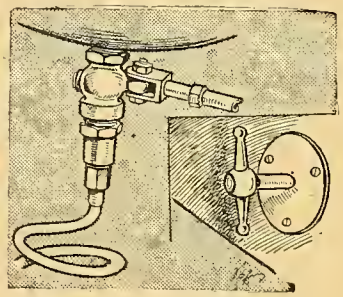
H.B.E.

The New Dunhill Sidecar.



A sturdy design of sidecar chassis by Alfred Dunhill. Ltd

MESSRS. DUNHILL, LTD., have lately introduced a new form of sidecar chassis, which is specially designed to be attached to a powerful motor bicycle. A glance at the photographs will show that the girder form of frame construction is employed wherever possible, and that immense strength and rigidity have been obtained thereby. Especially noteworthy are the duplex stayed side members, the diagonal tube which runs from one end to the other of the main frame, and the strong stays supporting the pillar carrying the attachment to the down tube. Particular care has been exercised in designing the method of attachment of the mudguard, which, it will be noticed, is valanced as fully as possible, and is attached direct to the frame at four points, consequently there should be no trouble with the stays becoming strained and breaking. Another interesting feature is the provision of long shackles at the rear of the C springs, which render the riding comfortable and easy. The particular type illustrated is the first model turned out, and future models will be even an improvement upon this.



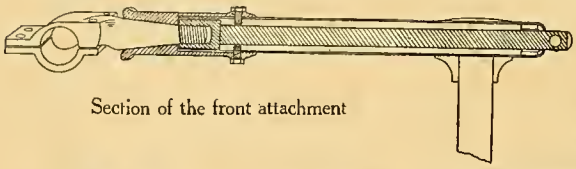
Petrol tap operated from the dash of a Morgan. On cycle cars it is often necessary to dive under the dash to turn off the petrol This is a neat alternative.

A lighter model will also be supplied, which has a three-point instead of a four-point suspension, which is intended for the lighter types of machines, and this particular sidecar will fit the spring frame Indian

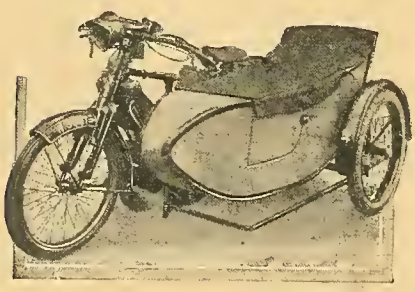
It will also be apparent from the illustration that the attachment to the chain stays is adjustable laterally. Altogether we were exceedingly well pleased with the design, and consider it to be one of the most practical we have yet seen.

A Lever Spring Sidecar.

THE Henderson sidecars are made in several patterns for 1915. We illustrate Model D. No C springs are used in this chassis, but a registered design of lever springing, adjustable for height, with coil springs (also adjustable). The great advantage of this type of springing is the entire absence of roll. Coil springs are also employed in front. The body can be made to turn up in front to enable the rider to get at the left side of the engine without detaching the whole sidecar; also an interchangeable sidecarrier body can be fitted. The chassis is constructed of straight tubes throughout, and carried out at the rear to form a luggage grid.



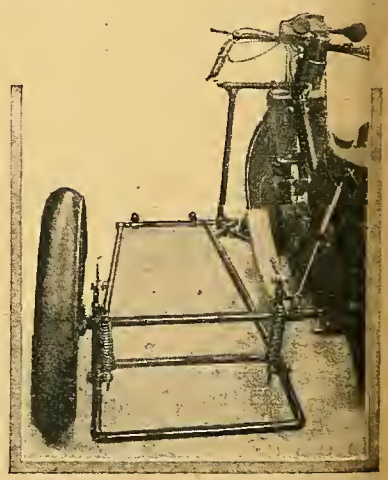
Section of the front attachment



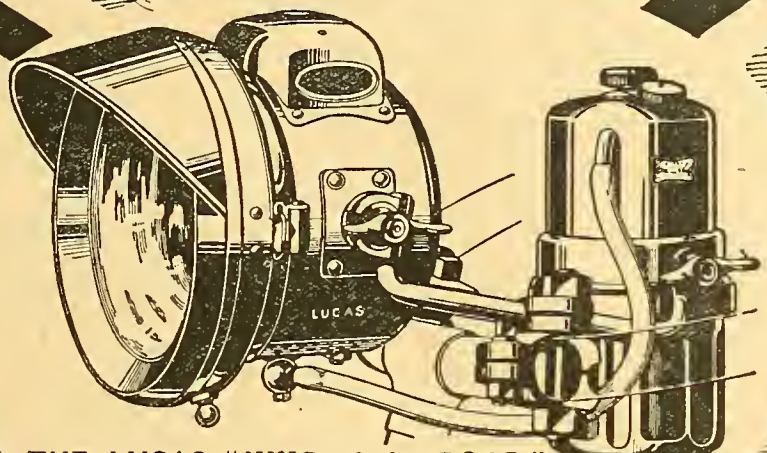
Henderson sidecar attached to a Scott

Model A is specially made for lightweight machines, and Models D and B are also made to fit the spring frame Indian.

The method of fixing the front of the chassis will be clearly understood by reference to the accompanying line drawing. It will be noticed that the securing nut is attached to a rod which runs through the frame and is operated by a tommy-bar. It is so arranged that the shoulder of the lock-nut bears upon the set-screws before it is quite unscrewed, thus forcing the cone out of the tapered sleeve.



Chassis of new Henderson sidecar Model D, showing methods of springing and attachment.



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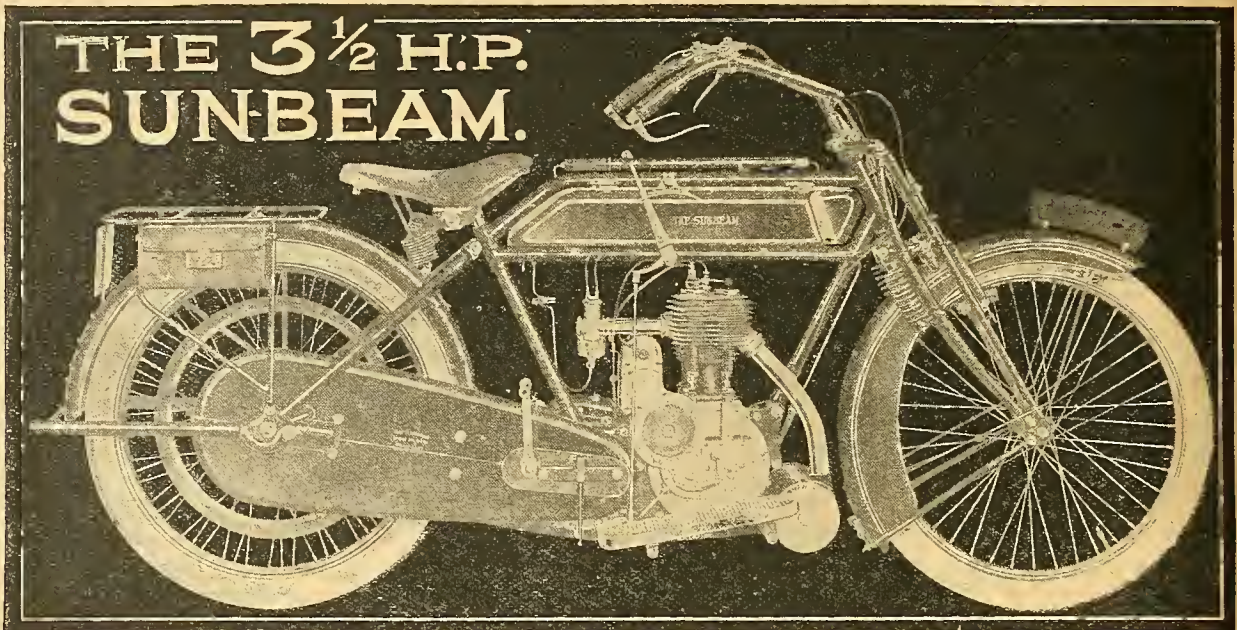

The above has the Sunbeam Patent Oil Bath Enclosed Chain Drive (beware of useless imitations) and many patented improvements. The splendid workmanship and finish also place it in a class of its own. It has proved itself to be the most reliable and easily-controlled Motor Cycle of the day.

Preliminary leaflet giving detailed specification will shortly be ready, and sent on application to:

J. MARSTON, LTD., 11, Sunbeamland—Wolverhampton.

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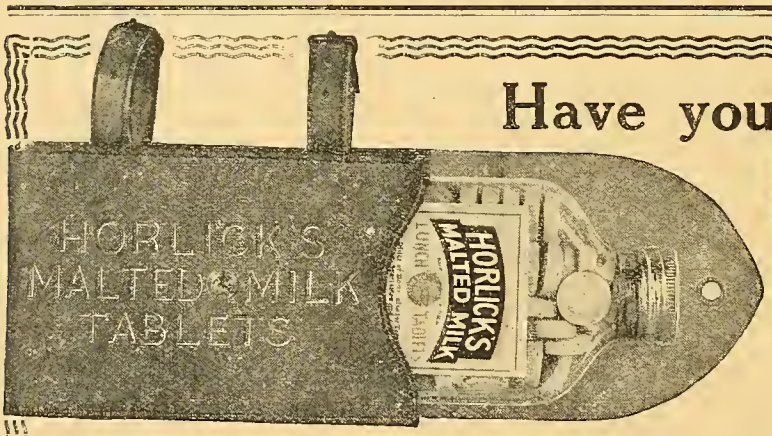


Have you one of HORLICK'S CYCLE CASES attached to your machine?

May be attached to handle-bars or frame by means of the two neat straps. Actual size of case closed is 3¼in. by 5in. by 1¼in. deep.

Horlick's Malted Milk Tablets need no introduction to "The Motor Cycle" readers. These nourishing, invigorating, and sustaining food confections should be carried at all times, as they render one independent of delayed or hasty meals. The case illustrated above is made of strong leather, light brown in colour, and exactly fits a flask of Tablets. It can be easily attached to the frame or handle-bars of a motor cycle by the two leather straps, and the flask can be readily removed without dismounting.

IS YOUR FRIEND AN ARMY MOTOR CYCLIST?
IF SO, SEND HIM A CASE AND FLASK OF TABLETS.

Prices: Case and Flask complete, 2/6. Cases separately, 1/6 each. Flasks of Tablets, 1/- each.
And in Sterilised Glass Bottles, from which these may be refilled, 1/6, 2/6 and 11/-, at all Chemists and Stores.

Send Postal Order to—HORLICK'S MALTED MILK CO., SLOUGH, BUCKS.

Liberal Sample of Horlick's Malted Milk Tablets sent post free for 3d. in stamps.

Question & Replie

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply.

Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Depreciation.

Q. Would you be kind enough to give me some idea as to what percentage should be allowed for yearly depreciation of a motor cycle? I might add this is my first year as a motor cyclist, during which time I have been a very interested reader of your paper.—J.H.K.

A. The best idea can be obtained from our advertisement columns. It is impossible to give any definite percentage, because the depreciation varies so enormously in different makes. For example, a first-class machine would only depreciate £10 in one year, while a machine with a lesser reputation will depreciate probably double that amount.

Acetylene Lamps.

Q. Could you or any of your readers kindly inform me of the pressure of gas in an ordinary motor cycle acetylene gas generator when it is giving best results and fitted with a standard burner? What is the pressure of gas required for the standard burner for acetylene gas lamps for motor cycles?—D.D.G.A.

A. The pressure in an ordinary generator cannot exceed three inches of water, namely, about 1¾ ounces to the square inch, in excess of the atmospheric pressure, otherwise the gas blows off through the water. An acetylene gas burner works at a little more than atmospheric pressure.

Taxation and Registration.

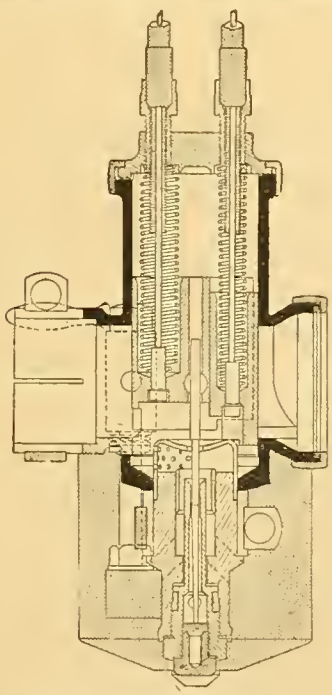
Q. I paid the £1 registration fee for my sidecar combination at the beginning of the year. I have now exchanged it for an A.C. Sociable, and on applying for new numbers for the A.C., the L.C.C. require me to pay another £1. Is this right? I thought the A.C., being a three-wheeler, would be covered by the sidecar registration fee, and, if not, that, anyhow, it would only be half-fee to the end of the year.—C.H.W.

A. You are confusing the local taxation licence with the registration fee. The £1 paid for your sidecar combination is the local taxation licence, and if you have got rid of this machine it entitles you still to keep a motor vehicle for which the licence is the same until December 31st. The registration fee for your sidecar combination was only 5s., but the registration fee for the three-wheeler is £1, as it weighs over 3 cwt. A registration fee is paid once only for each machine. The other tax is payable yearly.

How to Remove the Cylinder.

Q. Would you kindly inform me the best way to take off the cylinder of a 1910 Ariel? I have removed the exhaust pipe, plug, compression tap, and carburetter, and still I cannot get it over the piston. Will the engine have to be removed from the frame?—J.P.

A. We think that if you make sure that the piston is at the bottom of its stroke, lift the cylinder slightly, and rock it either backwards or forwards according to the position which will give a sufficient amount of clearance, you will be able to lift it off completely. There should be no necessity for you to remove the engine.



Sectional drawing of 1915 model B. & B. carburetter, a feature of which is the pilot jet, which is seen (partly dotted) on the left side of the carburetter. *(Described in "The Motor Cycle" of Oct. 29th, page 494.)*

Flames from the Exhaust.

Q. When I am running, my machine seems to pull well; but there is a constant fire in the silencer, and the flames jut out of the perforations fully an inch long. I feel sure this must mean extra petrol consumption. I shall be most pleased if you can tell me of a remedy for this fault.—W.P.

A. If you remove the exhaust pipe from any machine it is no uncommon thing to find a flame six inches long issuing from the exhaust ports. A red-hot silencer is usually an indication that the exhaust valves require grinding in, or that the spark is too much retarded.

Leave Well Alone.

Q. I have decided to take my motor bicycle to pieces. Would you kindly tell me what is the best thing to do with it? I have just taken the wheels out. Do you think I will have to take the engine down? I have let all the air out of the tyres; ought I to take the covers off, or will they keep all right as they are?—SUNSET.

A. The best thing you can do with the tyres is to pump them up again, and hang the wheels on a wall in a dark and fairly cool place. By all means take the engine down if you think it requires it, but you do not say why you wish to take the machine to pieces, unless it is for a general overhaul. It is generally best to leave well alone. If you decide to dismantle your machine, first arm yourself with copies of our handbooks.

Bad Hill-climbing.

Q. I have a 3 h.p. Rover motor cycle. It is an old machine with accumulator ignition, plain coil, and 1913 B. and B. carburetter. I can get forty miles per hour out of the machine on the level with ease, but it slows up at the slightest hill, and the majority of hills it refuses to climb. I have tried several sized jets, but with no success. I had new piston rings some time ago, but the compression is weak after having given the rings time to grind in. All the ignition wires are new. Also, could I fit an adjustable or variable pulley without and mechanical alterations?—C.F.B.

A. We should say that you have too high a gear, but possibly the trouble may be due to weak valve springs. These require to be renewed occasionally. There is no reason why an adjustable pulley should not be fitted to your machine.

Oil in Carburetter.

I have a two-stroke engine, and when it has been standing two or three days it blows back through the carburetter a few times before it will start; then, when it gets away, I have no more trouble that day. I have replaced the sparking plug for a new one and cleaned the carburetter. What do you think is the cause?—J.W.

The trouble you mention is not uncommon, and you will probably find that a simple cure will be either to drain your float chamber when you come in from a run, or to turn off your petrol about a quarter of a mile before reaching home, so that the float chamber is emptied. The cause of the trouble is usually that the petrol in the float chamber evaporates, leaving a layer of oil, which is inclined to choke the jets on starting up, but disappears in a few minutes. This, of course, only applies to engines lubricated on the petroil system.

Carburetter Adjustment.

My carburetter is a B. and B. with variable jet. When I start the machine, as the carburetter is now set, I have to put the air valve on about the same as the throttle; but when the machine has got under way it will not take more air according to the extra opening of throttle—that is, I work the control levers about level, or equal. My question therefore is: Should not the throttle lift control the necessary air, both for starting and normal running, without using the air valve at all? If so, what should I do to adjust the throttle to do this? Does it mean that I have the needle too high? I have no engineer to whom I can apply for proper adjustment advice, and with my present petrol consumption I fear I am not getting the best results. —J.P.

There is not much wrong with the adjustment of your carburetter, but if you wish to be able to use more air you should raise the needle slightly. This carburetter is only supposed to be automatic up to about 14-20 miles per hour. Beyond these speeds the air lever should be operated as required. It would, of course, be possible to fix the air and throttle slides together, and so operate them with one lever, but personally we should not be inclined to do this.

Top Speed Running.

By retarding the magneto almost to vanishing point, I can keep on top gear and still go slowly (5 or 6 m.p.h.) without knocking, either on the level or in traffic. Is this harmful to the engine (gears 4.9, 8.2, and 13.7), or should I change down to 8.2? I have ridden 4,000 miles (3,000 of this with sidecar). Would you advise putting in a new spring link for safety, even though the existing one is not much worn? The chain is a Renold $\frac{5}{8}$in. × $\frac{3}{8}$in. Is there much chance of this chain breaking before 10,000 miles, having stood the test so far? Which is more likely to prevent "pocketing" of valves—truing up valves on lathe, or grinding them in with rough compound and finishing with fine? Which do you recommend?—L.T.

So long as the engine does not labour or overheat, there is no harm in continuing on top gear, but, personally, we should prefer to change down. We should imagine that the ignition is on the slow side. A new spring link is unnecessary if the rivets are not worn or loose. The chain should not break at any time, but it will, of course, gradually stretch until the proper pitch is lost and a new chain is required. Pocketing is best prevented by truing the valves up on a lathe; they can afterwards be finished in the engine with a fine compound.

THE LADIES' MOTOR CYCLE CLUB OF SOUTH AUSTRALIA.

Mrs. H. R. Corpe,	Miss F. W. Matthewman,	Miss I. Mylius,	Miss E. Wood,
President	Secretary	Captain	Vice-captain
(5-6 h.p. Clyno and sidecar).	(2 h.p. Humber).	(5-6 h.p. Clyno and sidecar).	(2¾ h.p. Douglas).

Improving an Engine.

I have been engaged in fitting caps to the gear cover bushes of my 1912 f.e. Triumph, and I seek your assistance. When the maker fitted these oilproof bushes this year they deemed it necessary to fit a release pipe to allow the oil to blow through into the gear case as before. I am afraid the aluminium is too thin for me to fit such a pipe, but if I tried a small one, $\frac{1}{8}$in. diameter, *(a)* Would this be large enough? *(b)* would burring over the end suffice to hold it firmly in the aluminium? *(c)* Do you think such a pipe is advisable or essential? *(d)* Would it be satisfactory to plug up the oil ducts to the crank case and lubricate with graphite grease or thick oil through the tappet guides about every 2,000 miles when cleaning the cylinder? *(e)* Since I had the connecting rod rebushed and a new piston fitted last May, the engine, especially at the beginning of a ride or working hard up stiff hills, occasionally catches now and again as if suffering a momentary seizure. Personally, I am quite unable to account for the hitch and it is far too momentary and occur too early in a run to be a seizure of any kind. *(f)* Is shellac or seccotine on a brown paper washer the best preventive of oil oozing from the timing case cover joint?—B.T.V.

(a) A $\frac{1}{4}$in. bore for this pipe would be on the small side, but it might be worth while trying the effect of running without any such fitting, which could do no harm though the effect should be watched to see if it causes oil leakage elsewhere. *(b)* Burring the end of the pipe would be a doubtful solution to the matter if you wish to fit the device. We would suggest that you cut a fine thread on the pipe and screw it into the aluminium. Great care should be taken not to overscrew, as a fine thread in an aluminium casting would strip very easily. *(c)* We do not believe that such a pipe is essential, though there is probably some reason for the maker fitting it. *(d)* We should not advise you to plug up the oil ducts to the crank case as it is infinitely better to lubricate with a comparatively thin engine oil, which reaches all bearings more satisfactorily. *(e)* The catching you mention sounds as though it were due to some form of pre-ignition; possibly there is some slight roughness on the new piston head, or more likely you have changed your make of sparking plug, thus causing pre-ignition due to red hot points. *(f)* Seecotine or boiled linseed oil and brown paper will be found the most satisfactory job.

EXPERIENCES WANTED.

"A.B." (Edinburgh).—Morgan Run about. Skidding, vibration, ease of starting, slow running on high gear, wear of tyres, and general comfort.

"F.H." (Holmfirth). — Philipson and Grado pulleys on two-speed sidecar combination.

"J.B." (Ayrshire).—Brough horizontal twin with two-speed gear. Wearing qualities, silence, reliability, speed, consumption, hill-climbing, and general capability.

ZENITH

The ONLY Motor Cycle which has

The GRADUA GEAR, never known to go wrong. Fancy! No gear troubles.

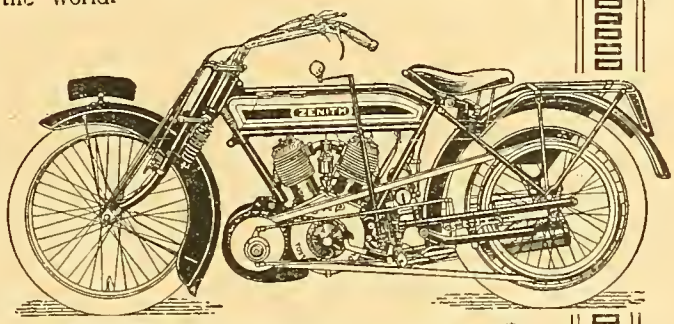
The COUNTERSHAFT, giving the longest belt drive: 6,000 to 8,000 miles with one belt!

The REPUTATION, backed by a thousand successes in all parts of the world.

Here are the Models:

		Gns.		Gns.
3½ h.p.	A. Standard	54	B. C/shaft	59
4-5 h.p.	C. „	56	D. „	62
6 h.p.	E. „	66	F. „	72
8 h.p.	G. „	67	H „	73
3½ h.p.	1-cyl, W. (W.O. Model)	-		53

With the new finish: black, panelled and lined with grey—smart, yet absolutely weatherproof.



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Wires—"Zenith. East Molesey." Catalogue on Request. 'Phone—Molesey 169.

Spares stocked in London by Robertson's, Great Portland Street, W.

THE DINE IDEAL TRANSMISSION

FOR MOTOR CYCLES.

MARK 10. Four Speeds.

Amongst others the following British makers are now fitting Mark 10 as standard.

Abingdon Ecco Co.
Bayliss, Thomas & Co.
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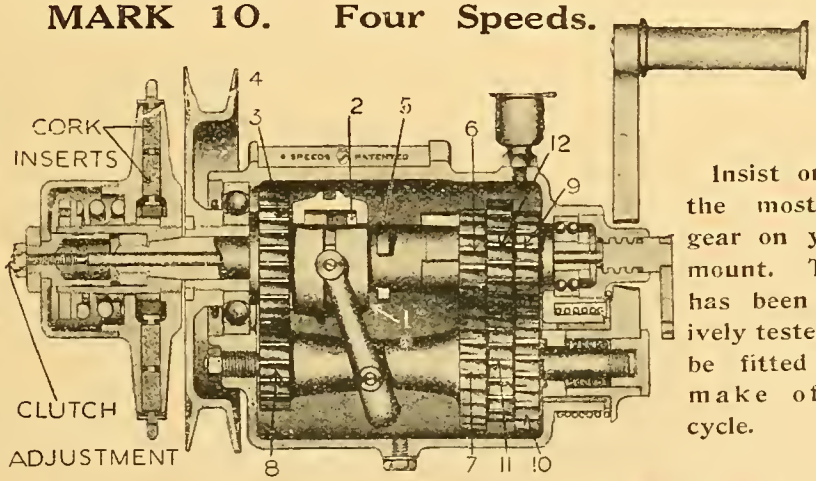


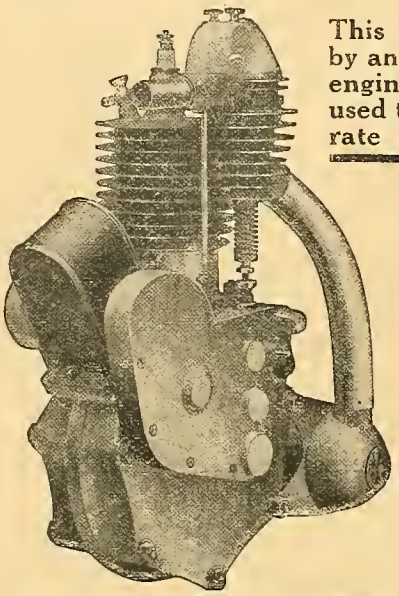
Insist on having the most perfect gear on your next mount. This gear has been exhaustively tested and can be fitted to any make of motor cycle.

FOUR SPEEDS. KICK START. CHAIN and BELT DRIVE.

17 OTHER MODELS TO CHOOSE FROM—CATALOGUE ON APPLICATION.

JARDINE, - - NOTTINGHAM.

The "BURMAN" LIGHTWEIGHT ENGINE . . . .



This is a new comer, made by an old-established firm of engineers who have been used to high-grade and accurate machining since 1871.

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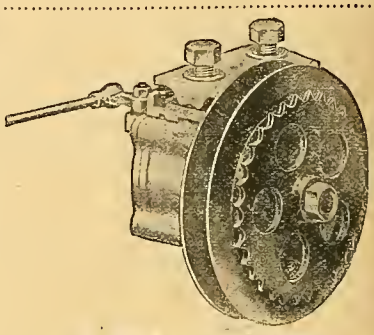
Overhead Inlet Valve, totally enclosed. Solid Crankshaft. Big end Bearing, Loco type. Can be removed without detaching Flywheels.



THE BURMAN TWO-SPEED COUNTERSHAFT GEAR.

OF FIRST-CLASS DESIGN, AND CRAM FULL OF SOUND AND HONEST WORKMANSHIP.

Further particulars and prices from the Manufacturers—

BURMAN & SONS, LTD.,
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SAVE FIFTY PER CENT.

in the wear and tear of your ENGINE & TYRES by using a

Toroga Two or Three Speed Gear

ADAPTABLE TO ANY MOTOR CYCLE.

Can be fitted in a few minutes by any novice

Enquire prices of above (Sole Agency), also SIDECARS, all MOTOR ACCESSORIES, GRAMAPHONES, MOTORS, and PARTS from

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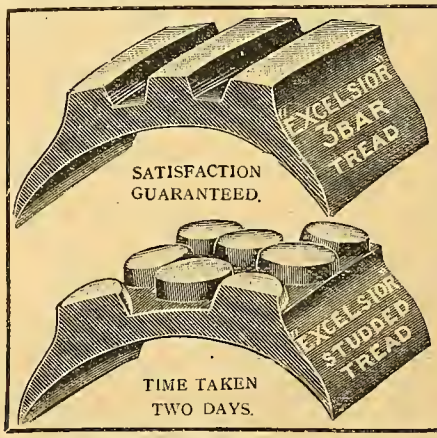

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THE OLDEST FIRM IN THE WORLD SPECIALISING IN TYRE REPAIRING

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THE LIGHT NEAREST to DAYLIGHT.

Many motor cyclist despatch riders are utilizing the D.A. System.

The Outfit comprises a small cylinder of ready-made Acetylene.

SOLE MANUFACTURERS:

Particulars free on application **The Acetylene Illuminating Co., Ltd.**
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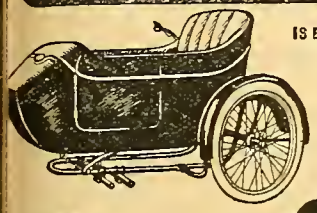

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Canoelet SIDECAR

RIDERS SHOULD WRITE TO-DAY FOR OUR ART BOOK THAT TELLS ALL ABOUT IT.

The Sidecar of exceptionally perfect design and patented construction, which gives the most satisfactory results on the roughest roads and under the severest riding conditions met with overseas.

THE COACH-BUILT SIDECAR UNEQUALLED FOR SMART APPEARANCE, LUXURIOUS SEATING, SAFE LOW TRAVELLING POSITION, PATENT UNBREAKABLE CHASSIS, PERFECT VIBRATIONLESS SUSPENSION AND SPRINGING.

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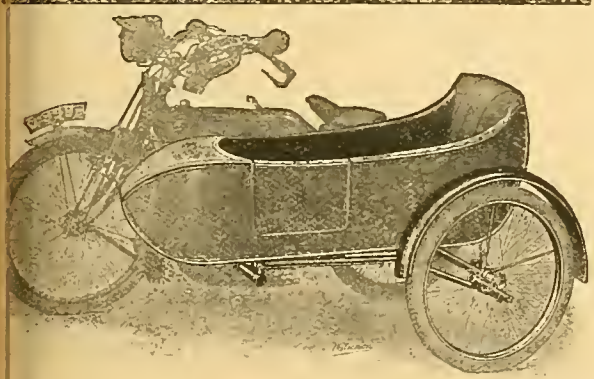

Model H. Weight 55 lbs. Price £10

Owing to its great strength, weight, comfort, high-class finish, and very quick and simple attachments

This Sidecar is now being extensively used by Army Officers in His Majesty's service.

Full List of over 30 Models with pleasure.

THE WATSONIAN SIDECAR Co., Ltd.,
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THESE 8 MACHINES

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AT GREATLY REDUCED PRICES.

1914 2¼ h.p. Calthorpe Jnr., 2-speed, only run 100 miles **£22 10**

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Any of the above machines can be purchased on Selfridge's Deferred Payment Plan—one-fifth of price as deposit, balance in 12 monthly payments with a charge of 2½% on the balance only.

List of Sidecars at reduced prices on request.

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MISCELLANEOUS ADVERTISEMENTS.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, the issue of "The Motor Cycle" for Dec. 24th, must be closed for press earlier than usual. All copy and instructions for paragraph advertisements in that issue must therefore be in our hands not later than first post on Thursday, Dec. 17th.

PRICES.

ADVERTISEMENTS in these columns First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

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A.J.S., 1915 Models.—2¾h.p., 47 gs.; 4h.p. twin, new model, 64 gs.; 6h.p., 72 gs.; all complete, with detachable wheels; immediate delivery; exchanges considered.—The Great A.J.S. Specialists, Walsall Garage, Wolverhampton St Walsall [X2962

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For the same or less you get better MOTOR CYCLES, SIDE-CARS, and LIGHT CARS, new or second-hand. The lowest unbeatable prices for better later models in better condition; in a word, better value than you can possibly get elsewhere. Call and choose from Britain's largest bargain show. Every machine in perfect order, ready for the road, and fully guaranteed.

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4 h.p. 1914 3-speed **TRIUMPH**, with coach-built Gloria Sidecar, lamps, horn, speedometer, and large quantity of accessories	£65 0
4½ h.p. 1914 2-speed **SINGER** Combination, shop-soiled	£69 0
4 h.p. 1914 3-speed chain drive **B.S.A.** and coach-built Corvette Sidecar, all acces.	£65 0
6 h.p. 1914 3-speed chain driven **REX** Combination, shop-soiled	70 gns.
6 h.p. 1913 2-speed **ENFIELD** Combination, fully equipped	50 gns.
7 h.p. 1914 2-speed **INDIAN** and de luxe Sidecar, fully equipped	£65 0
4 h.p. 1914 3-speed **TRIUMPH** and coach-built Gloria Sidecar, all accessories	50 gns.
3½ h.p. 1912 2-speed **P. & M.**, with 1914 P. & M. Sidecar and all accessories	40 gns.
6 h.p. 1914 2-speed **ENFIELD** Combination, fully equipped	£65 0
8 h.p. 1913 2-speed chain driven **BAT** and Sidecar	£48 0
6 h.p. 1911 2-sp. **MATCHLESS** and Sidecar	30 gns.
8 h.p. 1913 2-sp. **MATCHLESS**, chain drive, and Matchless Sidecar, with accessories	50 gns.
3½ h.p. 1911 6-sp. **BRADBURY** Combination	£32 10
3½ h.p. 1914 **RUDGE** Multi, with Sidecar and all accessories	£42 10
6 h.p. 1913 2-speed **V.S.-J.A.P.** and Sidecar	40 gns.
6 h.p. 1913 3-speed **CLYNO** Combination, fully equipped	£67 10
4-5 h.p. 1914 3 speed **HAZLEWOOD** and Canoelet Sidecar, all accessories	£65 0
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8 h.p. 1913 **HUMBERETTE**, hood, screen, all fittings, equal to new	£85 0
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8 h.p. 1914 **CROUCH** Cycle Car, hood, screen, lamps, tools, etc., shop-soiled	£110 0
8 h.p. 1914 water-cooled **HUMBERETTE**, hood, screen, lamps, horn, tools, etc., new	£125 0
6 h.p. **ROVER** Car, 3 speeds and reverse, hood, Stepney wheel, and tools	£25 0
7 h.p. 1911 **SWIFT** Cycle Car, hood, screen, lamps, clock, horn, Stepney wheel and tyre, tools, pump, etc.	£115 0
8 h.p. 1911 3-speed **CHATER-LEA** and new coach-built Sidecar	£47 10
8 h.p. 1912 **ZENITH-GRADUA** and Montgomery Sidecar	£43 0
8 h.p. 1913 air-cooled **WILLIAMSON** Combination	£50 0
6 h.p. 1913 2-speed **N.S.U.** and new coach-built Sidecar	£50 0
3½ h.p. 1913 3-speed **SINGER** and new coach-built Sidecar	40 gns.
3½ h.p. 1913 2-speed **BRADBURY**, belt and chain drive, with Millford Pinnace Sc.	£40 0
4½ h.p. 2-speed **FAFNIR** and Sidecar	£25 0
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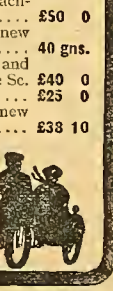

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 2¾h.p., 1912, 2 speeds, just overhaule Dunlop tyre on back; £28.—Andrews, 9, Bro Ludlow. [115

HALIFAX.—A.J.S., 1911, 2¾h.p., 2-speed, f gine; cash bargain, £18/10.—Motor Ex Westgate, Halifax. [33

A.J.S., 1914, new 6h.p. combinations, motor b and sidecars for delivery from stock; excha extended payments entertained.—Wauchope's, 9 Lane, London. [170

A.J.S., 1913¾, 6h.p., new tyres, Oowey, Binks, horn, spares, spare cover and tube, with 1 and I. sidecar; cost complete £112, accept £60 den, Barrow-in-Furness. [16

1914 A.J.S., 6h.p., and sidecar, with hood, detachable wheels, etc.; original price £9 shop-soiled, reduced to 80 gns.—Julian, Bros Reading. 43 years' reputation [172

A.J.S., 1913, September, 6h.p., 3-speed gear, and kick-starter, large P. and H. lamp set, speedometer, Lucas sidecar lamp, Bramble coa sidecar, splendid condition throughout; £52 c easy terms.—Elce and Co., 15, Bishopsgate Av., mile St., E.C. [15

Alldays

ALLDAYS, 1914, 3½h.p., 3 speeds, kick starte drive: £35.—Baines, 5, Cheapside, Bradf [13

2¾h.p. Alldays, Bosch mag., splendid running 24 £7/10.—Baines, 166, Belgrave Gate, Leic [16

Ariel.

1911 3½h.p. Ariel, with a variable gear; £110. Baines, 166, Belgrave Gate, Leicester. [16

1912 3½h.p. Ariel, really nice condition thro £18; appointment.—20, Chaucer St., Le [17

ARIEL 6h.p. Combination, quite new; £79 to E.P. proposal entertained.—Lamb's, 151, St., Walthamstow. [15

3½h.p. Ariel, 1910, variable gear, free engine, 2 seat-pillar, good tyres, fine condition, good car machine; £16/10; would consider lightwt Parker, 21, Clarendon Rd., Blackpool. [34

Auto-Wheels.

AUTO-WHEEL, only ridden 50 miles; £10.—Ear 18, Exeter Rd., Exmouth. [94

AUTO-WHEEL and 10 gn. Premier, 2 months new; £17.—Auto Mart, 133, Hammersmi W. [94

AUTO-WHEEL for sale, perfect order, nearly new £18/18 machine for £10.—Box 6,977, *The Cycle* Offices, Coventry. [13

AUTO-WHEEL, 1913, perfect running order with Hammond's shock absorber, spare tyre £8/8.—John Murgatroyd, 16, Regent St., Barry [16

AUTO-WHEELS, 1915 models, now ready; imm delivery; £14/14 and £15/15. Trade supp Wilkins, Simpson and Co., 11 Hammersmith Rd don. [94

AUTO-WHEEL, just overhauled, with 2-speed attached, well equipped and in excellent tion; 12 gns.—Tedworth House, Northland Southampton. [95

Bat

BAT, 1914, 6h.p., 3 speeds, kick starter, co as new; £55.—P. J. Evans, John Bright S. mingham. [16

BAT, 8h.p., T.T. roadster model, 1911-12, can car, good condition, fast lot; trial; bargain, 36, Southwark Park Rd., S.E. [35

7h.p. Bat, pair of metal studded tyres, just new about £2/5 spent upon it; must sell; what —Jeffery, High East St., Dorchester. [17

BAT Spring Frame, Michelin tyres, Bosch m and B. carburetter, in good order; £5/10.— 28, Lower Addiscombe Rd., Croydon. [16

BAT, 1912, 3½h.p., spring frame, in very good tion; £22.—The Exeter Motor Cycle and Car Co., Ltd., 7, Bath Rd Exeter, and 28 T Rd., Plymouth. [16

BATS.—A few good, sound second-hand 1914 models, fitted with 6h.p. J.A.P. engines £45 each cash, or extended payments.—Wauche Shoe Lane, London. [17

Bradbury.

BRADBURY, 1912, 4h.p., free engine, excelle dition throughout; £24 cash.—Sanders, Ha [4

BRADBURY, 3½h.p., 1912, perfect condition excellent; £21.—406, Garratt Lane, Ea S.W. [5

BRADBURYS.—New 1915 horizontal 3½h.p. cyl. motor bicycle, 3-speed gear, and chain price £64; immediate delivery; exchange or ex payments.—Wauchope's, 9, Shoe Lane, London. [17

MOTOR CYCLES FOR SALE.

Bradbury.

Bradbury and coachbuilt sidecar, 4h.p., free engine, 2-speed, and all accessories; £35.—H. R. 25, St. John's Hill, Battersea, London, S.W. [9509

4h.p. Bradbury, 2-speed, nearly new; owner going to the front; first offer secures; seen by Mit.—R. Pistor, 95, Bethune Rd., Stamford [9528

Bradbury, 3½h.p., 2-speed, free engine, Bosch Mag., B. and B., lamp, horn, fast, powerful, and solid condition; £18/10.—127a, Stoke Newington [9538

Brough.

GH, marvellous motor cycle, nothing else like it—Tweedale Armstead Motors, Ltd., Magdalen St., [0581

GH, 1914, 3½h.p., horizontally opposed 2-speed in, condition absolutely as new, picked engine, and powerful, won gold medal last London-ch, hardly ridden since; stringent expert ex-n invited; £40. a real bargain.—Lovegrove, Wharncliffe Rd., Boscombe. [9445

Brown.

N Bi-car, in good condition, 3-speed, and free ine, handle or foot starting, tyres in good condi-p and horn, etc.; greatest bargain ever offered; ry few miles; must sell at once, £14.—Julian, t., Reading. Biggest dealer in the South. 43 putation. [X4331

B.S.A.

1915, 4¼h.p., model K, for immediate delivery. S.A. Agents, The Morris Garages, Oxford. [8746

1915, 4¼h.p., model H, for immediate delivery; exchanges.—Maude's, 136, Gt. Portland St., W. [0628

1915 Models now in stock; exchange or extended payments arranged.—Wauchope's, 9, Shoe ondon.

Have a Few Good Second-hand B.S.A. machines omplete with sidecars to offer; inspection in-bove. [X4701

1913½, F.E., 2-speed, and Phœnix sidecar, fect order and condition; £45.—Byfleet Auto , West Byfleet. [9508

1915 models, ready for immediate delivery; ond-hand magneto machines from £15.—Parker n, St. Ives, Hunts. [9548

1912, 3½h.p., T.T. roadster model, had careful usage, excellent order, Miller lamp set, Lucas 25.—Layton's, Bicester, Oxon. [X4676

1915 Models in stock, Call and inspect. xchanges; easy payment terms.—Elce and Bishopsgate Av., Camomile St., E.C. [0597

1915 Models, ready for immediate delivery; enty second-hand combinations between £20 and nted in part payment.—The Walsall Garage, [X2963

1914, model H, 4h.p., 3-speed counter-shaft r, shop-soiled only; catalogue price £63, Lay-sh price £52/10.—Layton's, Bicester, Oxon. [X4677

late 1913, chain drive, 2-speed, and Millford chbuilt sidecar, 3 lamps, 2 generators, spares, 2½ Kempshalls, looks like new; £42.—Wright, nove Rd., Stoke Newington, N. [9546

1914, 3½h.p., 3-speed countershaft, with gn. art cane sporting sidecar, load of accesridden little of 1,000 miles; £63, or £20 d 9 monthly instalments.—Lamb's, 151, High lthamstow. [9511

Calcott.

OTT Gamage) 2½h.p. Lightweight, good condi-n; £17.—9, Lancaster Rd., Belsize Park, Lon-W. [X4596

Calthorpe.

HORPE, 2¾h.p., free engine, like new; £20.—McFadyen, Cotton St., Castle Douglas. [9597

Calthorpe Junior, 2 speeds, P. and H. lamp, horn, pare belt, etc., perfect condition, little used; —Ellis, Littlecote, Jarvis Brook. [9439

HORPE Junior, 2 speeds, F.E., climb anything, ght new in July, condition perfect; photo; up-carriage paid), deposit £17/10.—J. Hill, Bare-Hailsham. [9410

HORPES, 1915 Models, in Stock.—2-speed nior, greatly improved, 25 gns.; 2-stroke, 24 gns., speeds £28/10; 2¾h.p. J.A.P., 25 gns., with 2 0 gns.; easy payments, £5 down.—R. D. Storey, Portland St., W. [9214

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ION, 2-speed, free, June, 1914, lamp, horn, 300 es, as new, perfect; £15.—33, Archdeacon Lane, r. [9525

ION Cycle and Sidecar, 1912, 4h.p. J.A.P. engine, P. and M. gear, everything in good order, r, torpedo cane body, lamp, horn, spares; £25, ; must sell.—Jubb, 29, Norfolk Lane, Sheffield. [X4560

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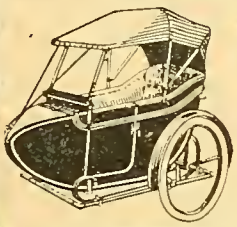

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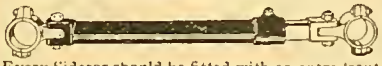

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CENTAUR, 3½h.p., 2-speed, free engine, late 1913, splendid condition, accessories; £27/10.—76, Naunton Crescent, Cheltenham. [9414

Chater-Lea.

CHATER-LEAS, new and second-hand. No. 7, 8h.p. J.A.P. engines, 3-speed gears, and chain drives, and free engines, from £50, complete with sidecars.—Wauchope's, 9, Shoe Lane, London. [X4702

CHATER-LEA, 1913, 8h.p., No. 7 combination, in splendid order, 3-speed gear box, chain drive, 1914 sidecar chassis and gear box, all accessories, complete; £45; guaranteed; any trial.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0479

Chater-Rex.

2¾h.p. Chater-Rex, low, nearly new tyres, in good running order, Hellesens; £9.—Photo, R. Shepherd, Crockerhill, Swanley, Kent. [9486

Clarendon.

3½h.p. Clarendon, less mag.; £4.—Baines, 166, Bedgrave Gate, Leicester. [X4601

Clyno.

1912 5-6h.p. Clyno, 2-speed, chain-driven, with £17/17 Turner sidecar; accept £45.—Parker and Son, St. Ives, Hunts. [9554

CLYNO Combination, 1912, beautiful order, sidecar chassis, eminently suitable for box or hamper; £35; take half down.—Bunting, Harrow. [X4733

CLYNO, 1914 (July), 2-speed, 2-stroke, ridden 2,000 miles, speedometer, unpuncture Dunlops, perfect; £33/10.—Loyd, Cranbourne Lodge, Winkfield, Windsor. [9496

CLYNO, 1912, 6h.p., and coachbuilt sidecar, accessories; £39/10, or £15 down and 12 monthly instalments of £2/4/2. — Lamb's, 151, High St., Walthamstow. [9512

CLYNO, 2½h.p., 1914, 2-stroke lightweight, 2-speed, free engine clutch, Lucas lamp and horn, new 2¼in. back tyre, unscratched, perfect condition; £35, no offers.—Stewart, Heathermere, Northgate Av., Bury St. Edmunds. [9426

1913 5-6h.p. Clyno Combination, with No. 6 sidecar, 3 speeds, free engine, kick starter, generator, horn, tools and spares, only run 2,000 miles, in good running order; price £60, cost £91.—Hunts, Ltd., 117, Long Acre, London, W.C. [X4724

Connaught.

1914 Connaught 2-stroke, cost £33/10, in every respect as new, fitted with Michelin tyres, horn, etc.; 22 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3728

Douglas.

1912 2-speed Douglas, in good condition; £23/10.—29, Broadway, Bexley Heath. [9501

DOUGLAS, 1913, 2¾h.p., good condition; 25 gns. cash.—Drew, Union St., Aldershot. [X4644

LATE 1913 Model R Douglas, in very fine condition; £35.—Walker, Fishburn, Ferryhill. [X4285

DOUGLAS, 1915 models, for almost immediate delivery.—The Morris Garages, Oxford. [0617

1913 T.T. Douglas, 2-speed, all accessories, fast; bargain, £29.—Toms, Catherine St., Leicester. [X4721

2¾h.p. Douglas, 1911, tyres, belt good, fixed engine; what offers.—41, Thornhill Rd., Barnsbury. [9510

DOUGLAS; all models supplied, cash or easy terms.—Turpins, 22 and 29, Preston Rd., Brighton. [0509

LATE 1914 T.T. Douglas, almost new condition; accept £37/10 cash; any trial.—Else, Daisy Bank, Matlock. [X4633

DOUGLAS, new 1914 models, V and W, in stock.—Eastern Garage Co., 418, Romford Rd., Forest Gate, E. [X4593

DOUGLAS Motor Cycle, 1911, good condition, new tyre and belt; £16/10.—Tattersall, 6, Claremont Terrace, Blackpool. [X4661

DOUGLAS, 1910, thoroughly overhauled, a beauty, new lamp, set; £12, lowest.—Purleydene, Brighton Rd., Purley, Surrey. [9492

DOUGLAS.—All models for immediate delivery; trade supplied.—Rex, 378-384, Euston Rd., and 173, Gt. Portland St., London, W. [9419

DOUGLAS, 1912½, 2-speed, clutch, kick starter, splendid condition, fast; £27/10.—Oglesby, 1, Victoria Rd., Upper Norwood, S.E. [9578

DOUGLAS, 2¾h.p., 1913, 2-speed, kick starter, very little used, complete with accessories; £30.—M., 2, May Rd., Gillingham, Kent. [9450

DOUGLAS, 1912, 2¾h.p., in perfect condition, T.T. bars, lamp, horn, spare belt; £18, no offers.—Chauffeur, Norbiton Hall, Kingston. [9461

1914 Douglas, model W, as new, with Miller lamp set and horn complete; £42, or nearest offer.—Thomas, Penyhuarth, Bethel, Carnarvon. [X4021

1911 Douglas, 2-speed, just overhauled (cost £7); £22; exchange 1912 P.M., cash adjustment.—Broadbent, 13, Brunswick Place, Leeds. [X4754

DOUGLAS, 3½h.p., 1914 pattern, 2-speed gear, kick-start, footboards, ridden once only, really brand new; £56.—Robinson's, Green St., Cambridge. [6865

MOTOR CYCLES FOR SALE.

Douglas.

DOUGLAS, 1913, 2¾h.p., 2 speeds, excellent condition, spare tube, tools, and accessories; £33.—H.W.W., Derby House, Trewsbury Rd., Sydenham. [9459

3½h.p. Model T.T. Douglas, brand new, only run 300 miles; selling cheap, less accessories.—F.W. 10, St. Alban's Villas, Highgate Rd., London, N.W. [9603

DOUGLAS, 1911, single gear, splendid order, £15; also Mark III. Armstrong wheel complete, £4/10.—Box 6,995, *The Motor Cycle* Offices, Coventry. [X4547

DOUGLAS Machines.—A few second-hand machines on offer from £17/10; also a good, sound lady Douglas at £25.—Wauchope's, 9, Shoe Lane, London. [X4703

1914 Douglas, 2-speed, free engine, absolutely as new, fitted with large head light, Hutchinson tyres in good condition, good kit of tools; 37 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3726

DOUGLAS Motor Bicycles.—We are still in a position to give immediate delivery of all the latest pattern 2¾h.p. and 3½h.p. models; trade supplied. T.A.: Bicycles. Tel.: 388.—Robinson's, Green St., Cambridge. [6864

DOUGLAS, 1914, model W, original Pedley belt and Hutchinson tyres, not worn, in perfect condition, also Eclipse lamp and horn and rear light, condition as new, ridden a few times only; £43.—Robinson's, Green St., Cambridge. [0612

2¾h.p. Douglas, late 1912, specially overhauled last September, excellent condition, complete with lamp, horn, tools, and usual accessories, insurance (available until May, 1915), transferable; accept 29 gns.—Box L6,499, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0622

Enfield.

ROYAL Enfield Twin, 1910, splendid condition; trial; owner enlisted; offers.—Isham, Brackley. [X4328

ENFIELD Twin, 2½h.p., 1911, Bosch, Drnids, fine order; £14/10.—45, Church Rd., Acton. [X4756

ENFIELD, 2¾h.p., 1912, new 1913, 2-speed, clutch, very little used; £25.—65, Hampton Rd., Forest Gate. [9482

6h.p. 1914 Enfield Combination, coachbuilt sidecar, tyres good, machine perfect, little used; £62.—Walker, Fishburn, Ferryhill. [X3826

ENFIELD 6h.p. Combiaation, 1913, in perfect condition, all accessories and spares; £57/10.—Colmore Depot, 31, Colmore Row, Birmingham. [X4563

ENFIELD 1913 6h.p. Combination, Enfield cane sidecar; £44/10; do not miss this bargain.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [9457

ENFIELD, 1913½, 6h.p., coach combination, mileage 3,000, faultless, 2 head lights, speedometer, spares; £55; take solo mount part.—Sinclair, East Molesey. [X4712

ENFIELD New 1915 6h.p. Combination, coachbuilt sidecar, exactly as listed in 1915 catalogue at £84, £70 cash.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9563

1912 Royal Enfield, painted grey, plating and enamelling good, just overhauled, tyres in good condition; 22 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3724

ENFIELDS.—1915 6h.p. combinations for immediate delivery from stock, also 3h.p. twins; price £84 and £52/10 respectively; exchanges entertained, also gradual payments.—Wauchope's, 9, Shoe Lane, London. [X4698

ENFIELDS, two, 1914 combinations, ridden 1,000 and 1,800 miles, one full of accessories, other without; £65 and £55 respectively, or on easiest terms, both great bargains.—Lamb's, 151, High St., Walthamstow. [9516

2¾h.p. Late 1912 Enfield, overhauled by makers this year, 2-speed, kick start, chain drive throughout, Lucas lamp, watch, and cyclometer, and all spares; sacrifice £26, or exchange higher power, Rudge preferred.—Harper, Craven Arms, Salop. [X4728

1914 Enfield and sidecar, just been overhauled, and guaranteed in perfect condition, tyres, enamel, etc., like new, complete with special sprung handle-bars, head and rear lights, horn, and all tools; any trial; £63; no exchanges.—133, Gladstone Rd., Watford. [9585

F.N.

2¾h.p. T.T. F.N.; £11.—Baines, 166, Belgrave Gate, Leicester. [X4602

F.N., 1913, 2-speed, 2½h.p., splendid condition.—Newnham, 223, Hammersmith Rd., W. [9465

F.N., 5-6h.p., 4-cyl., clutch, new coachbuilt sidecar, new tyres, all accessories; £30.—Auto Mart, 133, Hammersmith Rd., W. [9473

4½h.p. 4-cyl. F.N. Motor Cycle, mag., good tyres, in running order, wants new rings and carburetter; accept lowest £8/10, or exchange for tools or anything useful.—Apply, Stamper, Bradford-on-Avon. [X4579

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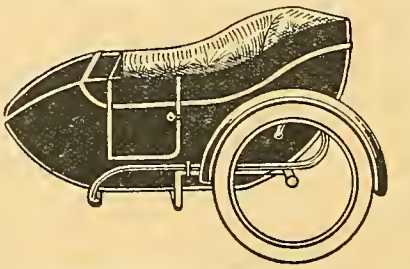

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1912 3½ h.p. 2-speed **BRADBURY,** coach Sidecar..	£32 10
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1911 3½ h.p. tourist **REX,** spring forks	£19 10
1911 3½ h.p. **LINCOLN-ELK**	£21 10
1911 F.E. **PREMIER,** almost as new	£21 0
1910-11 5-6 h.p. 2-speed twin **REX**	£25 10
1910 **V.S.,** 7-9 h.p. 2-speed, and Sidecar	£29 10
V.S., 6 h.p., P. and M. gear, and Sidecar	£27 10
CHATER-LEA-J.A.P., 8 h.p., 3-speed, chain drive, Turner coach-built Sidecar	£39 10
PEUGEOT, 5-6 h.p., 3 speeds, twin.....	£29 10
MINERVA, 3½ h.p., magneto	£15 10
N.S.U., 3 h.p., magneto, fine condition	£14 10
N.S.U., 3 h.p., 2-speed, nearly new condition	£22 10
EXCELSIOR, 3½ h.p., 3-speed, free engine	£24 10
REX, 5½ h.p., 2-speed, magneto	£24 10
REX, 1909, twin, de luxe, and Sidecar	£24 10
REX, 3½ h.p., Roc clutch	£19 10
REX, 5½ h.p., twin, magneto, and Sidecar	£19 10
REX, 5½ h.p., magneto, 1908 model	£19 10
3½ h.p. **VINDEC,** magneto ignition	£15 10
JAMES, 1910, 3½ h.p., magneto	£12 10
Twin **KERRY,** 6 h.p., and Sidecar	£15 10
3½ h.p. **HUMBER** Tricar, chain drive	£6 15
ROVER, 3½ h.p., 2-speed, and Sidecar	£17 10
DE DION w.c. 2-speed Runabout	£8 15
ANTOINE, 3 h.p., battery ignition, runs well	£6 15
2¾ h.p. **BRADBURY,** battery ignition	£6 15
AVON 26×2 Studded Covers for Douglases	11/9

Lists on application. Trade enquiries welcomed. Cash offers wanted.

1915 DOUGLASES. EASY PAYMENTS AND EXCHANGES QUOTED.

Collier's Motories, WESTGATE, HALIFAX.

MOTOR CYCLES FOR SALE.

Humber.

HUMBER, 1911, 3½h.p., 2 speeds; £17/10.—M St. George's Mews, Primrose Hill.

HUMBER 1914 2¾h.p. Twin, 3-speed, nearly £36.—Looms, Cross St., Market Harboro

2¾h.p. Humber, mag., new chains, tyres good, did order; £9.—8, Clarendon Mews, Hyde Square, W.

HUMBER, 1912½, 3½h.p., 2-speed, Roc, ju turned overhauled from works; £30, or exc part Douglas.—Hulme, Prospect Terrace, Douglas.

HUMBER, 1912, 3½h.p., 2-speed gear, M wicker sidecar, P. and H. lamp set, guara sound condition; £28.—Elce and Co., 15, Bisho Av., Camomile St., E.C.

HUMBERS.—Several new shop-soiled 1914 cooled and water-cooled Humbers, with 3 gears, to clear; price of air-cooled machines £45, cooled £55, usual price £52/10 and £63.—Wauch 9, Shoe Lane, London.

Indian

INDIAN, 1911-12, 7h.p., complete with Lucas and horn, tyres nearly new; £34/10.—P Grimsby.

1913 7-9h.p. T.T. Indian, lamp, horn, speedo splendid condition; £40, or near offer. Anerley Rd., London, S.E.

INDIANS, 1914, shop-soiled bargains; standar £70, accept 60 gns.; road racer, list £59, £49.—P. J. Evans, John Bright St., Birmingham.

1914 7h.p. Indian, complete with Indian coa sidecar, electric lighting, etc., practically £58, or nearest.—107, Creek Rd., March, Cambs.

INDIAN, 7h.p., 2-speed, 1914 model, with co electric equipment, brand new; list £70, £61.—Hebden's Motor Mart, St. James' St., Bi

INDIAN 1915 Models; earliest deliverics; ca change, or easy payments.—Best terms Elce and Co., 15, Bishopsgate Av., Camomile St

INDIAN, 1914, special model; list price £80, soiled; £70.—The Exeter Motor Cycle and Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Ta Rd., Plymouth.

1914 Indian Combination, electric lighting outfi cover, all accessories, everything in perfe dition; owner gone to the front; price £55.— Mills Motors, Ltd., 4, Wood Side Parade, North ley. 'Phone: 1745 Fiachley.

1913 Special Tourist Trophy Racing Indian, single-cyl., 2 speeds, low, light, very fas used for T.T. race, purchased October 23rd, 191 Indian showrooms, as new; £35, near offer.—4, wark Park Rd., Bermondsey, London.

INDIANS.—Several standard 1914 models, speeds and free engine, cost £70, price ne £62 each to clear; also a good second-hand co tion, 1914, fitted with de luxe coachbuilt sidec —Wauchope's, 9, Shoe Lane, London.

1914 7h.p. Hendee Special and Gloria s electric equipment, speedometer, usual sories, little used, cost £103, accept £65; 191 T.T. Indian, F.E., speedometer, lamp, generat full tool kit, only run 2,000, accept £42/10.— Bambers, Liverpool Rd., Birkdale, Southport.

Indomitable.

INDOMITABLE, 3½h.p., water-tight Bosch, B., fast, good; £11.—Slater, 1, Wood's Lane,

Ivy.

1914 4¼h.p. Ivy-Precision, less than 2,000, a £32, close offer.—Breeze, 96, Victoria Rd., shot.

4h.p. Twin Ivy-Precision, Bosch mag., Dualop Brooks saddle, Stunmey-Archer 3-speed gear, horn, etc., purchased May, not used since July; joined forces; £29 cash.—Box L6,587, *The Moto* Offices, 20, Tudor St., E.C.

Ixion.

1914 Ixion, 2-stroke, 2½h.p. Villiers, braa offers.—Wigfall, Hillsbro, Sheffield.

James.

JAMES 1915 Models; earliest deliveries; ca change, or easy payments.—Best terms fro and Co., 15, Bishopsgate Av., Camomile St., E.C.

JAMES, 1914, 4¼h.p., and Canoelet sidecar, tion excellent, just overhauled by James Co. or near offer.—Gilburt, Audrey House, Ely Place don, E.C.

JAMES 3½h.p. T.T. Twin, July, 1914, done fast and powerful, Cowey, Klaxon, Lucas lene, accessories; owner going on military service or new T.T. Douglas and cash £4.—Hippisley Lodge, Sidcup, Kent.

J.A.P.

4h.p. J.A.P., overhead valves, Bosch, B. a Saxon forks, Chater frame, good order; £1 change considered.—Carter, 17, Webster St., heys, Manchester.

THE MOTOR CYCLE
ESTABLISHED IN 1903
AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

SIX HUNDRED AND TWELFTH CONSECUTIVE ISSUE.
Subscription Rates: Home 6s. 6d.; Canada, 8s. 8d.; Foreign, 17s. 4d. per annum.

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An index to advertisements will be found on the page facing the back cover.

Clubs and Affiliation in War Time.

FOR some time we have expected that an announcement would be made by the Royal Automobile Club and the Auto Cycle Union with regard to the question of affiliation in 1915.

It is the experience of practically every club that its ranks have been seriously depleted by the call to arms of the King and country, that hardly any competitions are being held, that nobody is touring, and consequently the attractions and benefits to be derived from affiliation with the governing bodies are no longer an inducement to join. Special circumstances call for special arrangements to meet them, and we feel sure that the parent societies, the R.A.C. and the A.C.U., are just as much alive to the conditions obtaining in the motor world at the present moment as are the various constituent club executives, as each has so many individual members at the Front or undergoing military training. Quite apart from the fact that practically no club management would ever dream of exacting the yearly subscription from its members who are serving at the Front, there is also the fact that the membership of a club would be unlikely to be maintained while the war lasts.

But there is a much more serious side to the question than this. It is the experience of a number of clubs that a good many members who may not be serving their country are resigning membership evidently in the spirit of economy. This action may not be wholly attributed to the war, and, consequently, to prevent an extension of the resignations, it seems to us only right that the R.A.C. and A.C.U. should come forward with some new sympathetic scheme to tide over the period of hostilities.

Many clubs exist on the proceeds of successful competitions, but, in view of the fact that competitions are cancelled for the time being, a good many clubs without bank balances are being hard hit. We have already explained that the privileges of affiliation and associateship of the governing bodies no longer form an attraction, and, as the benefits to be derived from associateship are no longer needed, it would seem only right that an announcement should be forthcoming to relieve club executives of the anxieties of an inactive period beset with liabilities. The only alternative will be that clubs will be forced to cancel their affiliation with the governing bodies and release themselves from liabilities, and such an action would be deplorable from every point of view, as it would mean that the great federation of clubs which has been so carefully and laboriously built up would be destroyed or so weakened that recovery would be very difficult if not impossible.

Our Increasing Exports.

ONE of the most refreshing items of news to the motor cycle world in particular and the country generally is the great increase in the exports of British motor cycles and parts during November as compared with the corresponding month of 1913. The value of machines and parts exported in November, 1913, was £87,549 as compared with £95,233 for November, 1914. If anything were needed to indicate the present healthy state of the industry and Overseas markets, surely these figures would suffice.

EXPORTS OF MOTOR CYCLES AND PARTS.

July, 1914	£125,860
August, 1914	£77,121
September, 1914	£63,875
October, 1914	£84,474
November, 1914	£95,233

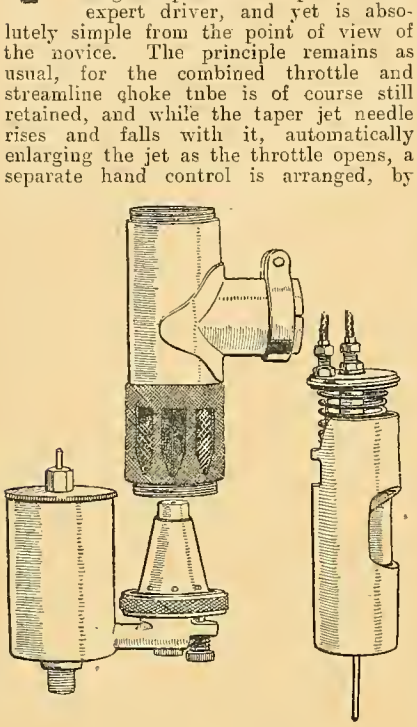
The steady recovery will not escape the observant.

In October trade generally brightened up; people were becoming used to war conditions, firms adopted the motto "carry on," and the motor trade showed a considerable improvement. Let us hope that it may continue to improve whatever the length of the war.

CARBURETTER DESIGN IN 1915.

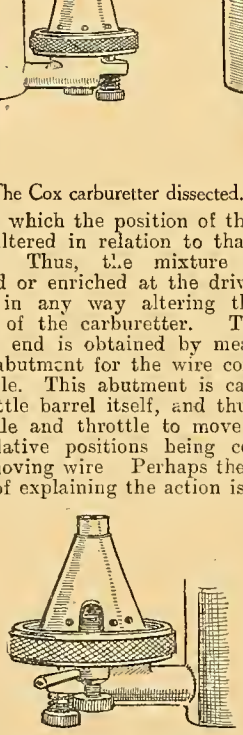
The Cox Streamline.

THE latest form of Cox streamline carburetter should give the largest possible scope to the expert driver, and yet is absolutely simple from the point of view of the novice. The principle remains as usual, for the combined throttle and streamline choke tube is of course still retained, and while the taper jet needle rises and falls with it, automatically enlarging the jet as the throttle opens, a separate hand control is arranged, by



The Cox carburetter dissected.

means of which the position of the needle can be altered in relation to that of the throttle. Thus, the mixture can be weakened or enriched at the driver's will without in any way altering the automaticity of the carburetter. This very desirable end is obtained by means of a moving abutment for the wire controlling the needle. This abutment is carried on the throttle barrel itself, and thus causes the needle and throttle to move as one, their relative positions being controlled by the moving wire. Perhaps the clearest method of explaining the action is to state



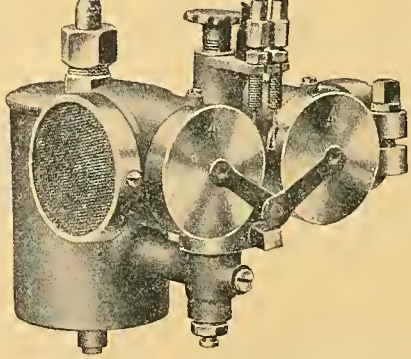
Air cone and throttle stop of Cox carburetter.

that though a movement of the throttle lever always controls the needle position, yet the needle may be moved by its control lever without affecting the throttle.

The main air holes consist of specially shaped slots around the body of the carburetter covered with a gauze sleeve, these slots being gradually uncovered by the rise of the throttle barrel. A refinement is introduced by the fitting of a small screw in the base, by means of which the throttle can be kept from shutting fully, so that the engine will remain just ticking over when running light. A second milled edge screw provides a very fine adjustment for the bottom air holes.

A New Model Everest Carburetter.

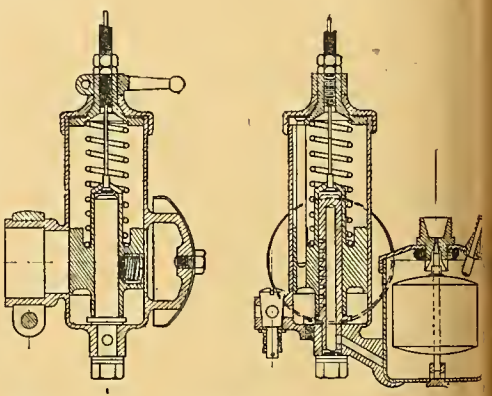
ONE of the first automatic motor cycle carburetters manufactured by Mr. Everest was offered to us for trial, and after being fitted and tuned up to a 6 h.p. single-geared motor cycle underwent a season's hard work on the road. So satisfied were we with the results, both as regards flexibility and petrol consumption, that our next machine (a three-speed twin with sidecar) was at once fitted with a similar device. The results were astonishing, for an engine that would either race or stop when running light was converted to a tractable power unit which would tick over or roar away at a touch of the single lever. All this was obtained without sacrificing petrol consumption; in fact, the best mileage we ever obtained from this particular mount was obtained with the carburetter in question. In its latest form the carburetter is modified in detail only, the action being similar. The throttle barrel and jet cover are now made in one piece, and the spring saddle which keeps the cover petrol-tight has been considerably simplified. The top of the body is now arranged so that it can only be replaced correctly, and a single pin, instead of two, connects the barrel with the air adjusting lever. Thus the whole mechanism has been simplified, and a very neat refinement, consisting of an additional fine air adjustment for slow running, has been added. This consists of a small tap at the base of the body, which can be clearly seen in the sectional drawing.



The B.S.A carburetter is one of the best known two lever devices. Among its many strong points are the quickly adjustable jet orifice, its top feed float chamber, and the special arrangement of throttle and air barrels which cause the incoming air to pass over the jet in the most efficient manner in every position of the levers

The float chamber now has a top feed and can be swung about the centre of the body so as to obtain the most suitable position. A very neat form of dust shield is attached to the body by a single screw. It is interesting to note that the jet outlets are drilled in a special manner, so as to prevent choking the actual jet, though small in diameter being so short that there is little chance of any obstruction lodging therein. Readers of *The Motor Cycle* will remember that the principle of the carburetter is very simple, for a movement of the single lever raises the combined throttle and air valve, and gradually uncovers a series of suitably spaced orifices in the central jet body.

The Everest Automatic Carburetter 12, Paradise Street, Coventry, are the makers of this instrument.

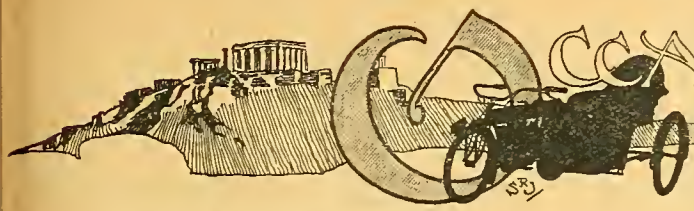


Sectional views of the Everest.

The Senspray with Pilot Jet.

THE Senspray carburetter has always been noted for its speed-giving properties, but, hitherto, some unskilled riders have found it difficult to get their engines to run really steadily at slow speeds. The new pilot jet arrangement, which we described on the 3rd inst., should prove a boon to such riders, and enable them to get that quiet tick over which is so useful.

New Senspray carburetter with pilot jet attachment. Below is an enlarged view of the pilot jet on which screws a cone for air adjustment.



OCCASIONAL COMMENTS

BY "IXION"

Graphite and Ball Bearings.

A good many riders are employing Oildag (which contains deflocculated graphite) for engines fitted with ball bearings, and many drivers of cycle cars are employing lubricants of, roughly, similar constituents for gear boxes with ball bearings. There is a persistent rumour abroad to the effect that graphite is utterly deleterious to ball bearings. I have tackled two or three technicians of my acquaintance without securing an authoritative verdict. Will Mr. Brooker or some other expert on lubrication kindly clear the air for us?

A Good Oilskin.

Some years ago I announced my complete conversion to the use of oilskins. I coquetted timidly with them during the reign of shapeless black jackets and yellow drain pipe trousers; but I fell an easy victim when I first encountered the light grey, green, and fawn oilies emanating from the house of Barbour at South Shields. Since when I have worn no others. I am now using a Barbour jacket which was purchased early in 1913 and is still stormproof. The original leggings, I regret to say, have gone the way of all waterproof leggings, *i.e.*, they caught on the corner of the rear number plate during a hurried mount inspired by a loose bull. If only some genius would invent an "oily" as unwearable as a rubber belt! In other respects, the Barbour stuff is absolutely "it."

Silence.

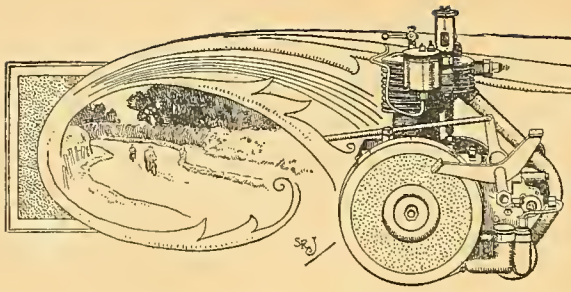
I see my old friend, B. H. Davies, is being sternly taken to task by some of our readers for omitting to press more efficient silencers on the trade. The omission is, if I remember rightly, prominent in each of his annual "letters to the trade," and I am probably at one with the bulk of our readers in commending the omission. Here and there one meets a rider who uses his machine mainly to increase the diameter of an area surrounding his home in which he can commune with Nature. Now and again the most hardened speed merchant resents the raucous rattle of his exhaust when he is traversing alone some gorgeous landscape which breathes a spirit of peace. Then the landscape seems to be wounded and insulted, not only by the clatter of an engine, but even by the smell of its exhaust, for honeysuckle and charred lubricant go ill together. One might even feel in a sensitive mood that the mere presence of a hard technical invention grated on the whole tone of a lovely valley in autumn; and in such moods men may sigh for the silent odourless polished nickel 30 lb. motor cyclettes of H. G. Wells. Contrariwise, most of us use our machines for comparatively utilitarian purposes, threading our irritated way through crowded cities, dodging stupid cattle, waking drowsy vanmen; and for the bulk of our riding we want a machine that can be heard as it comes. Beyond question the standardisation of perfectly silent motor bicycles would send the traffic casualty list soaring up to formidable figures, until the public had learnt to rely more on their eyes and less on their ears for judging the safety of the streets and roads. No doubt in time the public will undergo the required education, and all motors will become noiseless; but it is essential that the process should be gradual. Nevertheless, Mr. Davies might reasonably have complained of the frightful noise emanating from some of the modern baby two-strokes; their exhaust is positively ear-splitting, and makes even a hardened offender like myself glance upwards, expecting to see a 100 h.p. seven-cylinder Gnome aeroplane engine in full blast. I wonder if the silence of the Scott machines had anything to do with their being selected for the machine gun batteries? But there—as Charles Jarrott once retorted to S. F. Edge's eulogy of the six-cylinder—does the "silence" of the modern motor ever amount to more than "*continuous* noise"?

The New Lodge Plug.

Any unfortunate wight afflicted with a "plug-eating" engine should try the new Lodge mica pattern. This present season brought me a couple of engines afflicted with such a colossal appetite for r.p.m. that a hard spell of work on one of the lower gears usually cost me one or more sparking plugs. Further, one of them appeared to imagine that the real function of the lubricating oil was to cool the top of the cylinder head, so that, if it did not burst its plug's insulator, it carborised up the electrodes. The Lodge directors must have suffered untold things with sister engines; at any rate, their new mica plug appears to be very reasonably leak and soot proof, several thousand miles having failed to wring the faintest semblance of a misfire from my sample set.

A Sideslip Test.

Arising out of an argument anent the liability of various types of machine to sideslip, I made some interesting experiments the other day. The roads outside were covered with a half-dried film of peculiarly atrocious grease. My capacious shed chanced to house a baby two-stroke, a 3½ h.p. with hub gear and belt drive, a 3½ h.p. with chain-cum-belt drive and countershaft gear, and a 7 h.p. chain-driven twin with 3in. tyres. I performed various evolutions on the worst greasy corners in the neighbourhood, riding each machine in turn. The evidence obtained was hardly conclusive, for I am more at home on two of the machines than on the others, and the hub-geared 3½ h.p. had rather worn treads. But I have no doubt in asserting that the "baby" was by far the safest and most docile of the quartette under the conditions, and that the big-tyred heavyweight took the most managing. Of the two medium weights I fancied very definitely that the hub-geared machine was the hardest to keep erect. The big twin ran very slowly, balanced nicely, and steered beautifully; but its somewhat broad and flabby tyres evinced a marked tendency to "skate."



Detachable and Interchangeable Wheels.

ANCIENT AND MODERN.

Second and concluding instalment. By ERIC W. WALFORD.

WHEN we come to consider modern constructions of detachable wheels designed for motor cycle work, it is not surprising to find that most of the important features are common to the old constructions produced for pedal cycles.

Probably one of the earliest motor cycle designs is that of the Clyno shown in fig. 1. Here the hub A is mounted

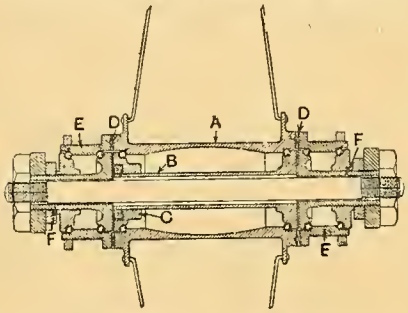


Fig. 1.—Lamb-Clyno.

upon bearings on a sleeve B. This is provided with a collar at the right-hand end which forms a ball cone, whilst an adjustable cone C screws on the other end. Each end of the hub is provided with dog clutch teeth or the equivalent at D, which gives it a driving connection with a short sleeve E. One of these sleeves carries the belt pulley, and the other the pedalling sprocket or brake drum. Each of these sleeves is mounted upon a small hollow spindle F, which resembles closely the part B. Passing through the parts F B F is a bolt, and by the removal of this the chain stays can be sprung slightly apart, disengaging the teeth at D and allowing the hub to drop out, leaving the two sleeves E supported, one from each fork end.

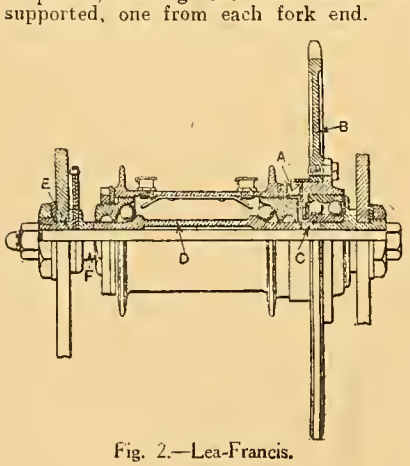


Fig. 2.—Lea-Francis.

The Lea and Francis construction, taken from their patent specification, is shown in fig. 2. Here again the hub shell is provided with dog clutch teeth at one end A, through which it receives its drive from the chain sprocket B. The sprocket is carried on bearings of its own on a short supporting hollow spindle C attached to the fork end; the hub bearings are mounted upon a sleeve D. Between this sleeve and a tubular nut E lies a distance piece F. Passing through the centre is a long bolt, and when this is removed the distance piece F can be withdrawn, allowing the hub to be moved to the left to disengage the clutch teeth A, which permits the hub to be removed. The distance piece F is attached to the nut E so that it cannot be lost, and is easily put into place.

One of the latest constructions is that of the Bradbury shown in fig. 3. The left hand end of the hub shell at A is formed of hexagon shape and fits into a corresponding hole in the centre of the chain sprocket, which provides the chain sprocket is carried on a short, hollow spindle B secured in the fork end by its own nut C. The hub bearings are

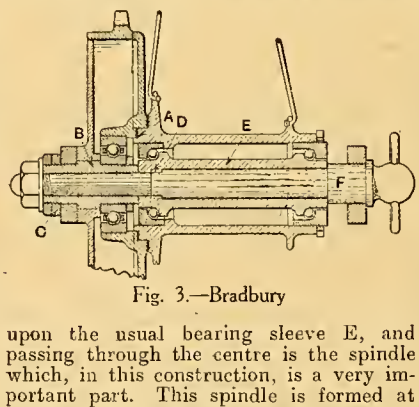


Fig. 3.—Bradbury

upon the usual bearing sleeve E, and passing through the centre is the spindle which, in this construction, is a very important part. This spindle is formed at D with flats which prevent rotation of the bearing sleeve E, and it is enlarged at F, this enlarged part performing somewhat the duties of the distance piece in the Lea and Francis construction. On unscrewing the spindle and drawing it out to the right the whole hub can be moved to the right to disengage the driving connection at A, when it is free to be removed, leaving the chain sprocket carried on the hollow spindle B.

In the A.J.S. construction, shown in fig. 4, a distance piece A is used as in the Lea and Francis, and also a bearing sleeve B, which carries the hub bearings. The spindle in this case is in two parts, the major part C, which is withdrawn when the hub is to be removed, and a minor part D, which remains in position and carries, on plain bearings, the chain sprocket. The driving connection between the sprocket and the hub shell consists of a number of pins E on the sprocket, which enter holes in the hub shell, whilst

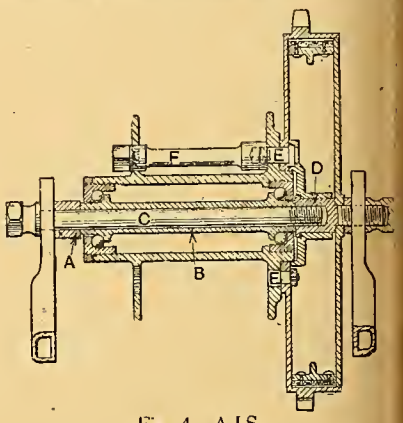


Fig. 4.—A.J.S.

one of the pins is screwed and is engaged by a long nut F, which, when screwed up, prevents any shake in the driving connection. In some of the other constructions some freedom of movement is purposely allowed in this driving connection to prevent binding in the bearings, which, in this instance, is prevented. One important point about this construction, in which a distance piece A is used is that on removing the spindle and the distance piece a space is left through which a tyre tube or cover can be passed so that it is not necessary to remove the wheel to change a tyre. The wheel at such times remains supported by the bolt F.

The Dene (fig. 5) also employs a two part spindle, the larger part A being re

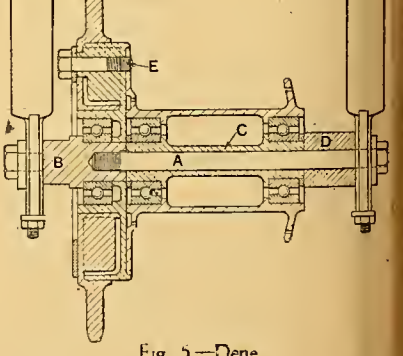


Fig. 5.—Dene.

tachable and Interchangeable Wheels.—
ovable and the smaller part B remain-
g in place. There is the usual bearing
eeve C and distance piece D. The
iving connection between the chain
rocket and the hub sbell is constituted
r the studs E which secure the chain
rocket. The chief feature of difference
tween this and other constructions is
at the bearings employed throughout
e of the "annular" type.

In the Humber system (fig. 6) the hub
ns on bearings on the usual bearing
eve A, and is connected with the chain
rocket by a dog clutch at B. At D
ere is a distance piece, and through
e centre passes the bolt E. By remov-
g this, and swinging the distance piece
ide, the hub can be drawn to the right
disengage the dog clutch teeth, and it
then removable. It will be noticed
at annular shields have been arranged
F to prevent lubricant being thrown
t through the space between the dog
tch teeth.

The Sunbeam construction (fig. 7) differs
m those previously described in employ-
g a spindle made up in three parts.
e right-hand part A carries on a pair
annular ball bearings the chain
rocket, the interior of which forms a
um for the expanding brake. This
llow spindle part is to all intents and
rposes a fixture. The centre spindle

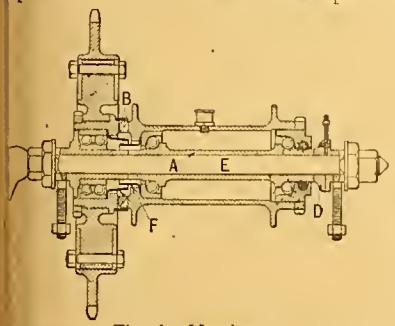


Fig. 6.—Humber.

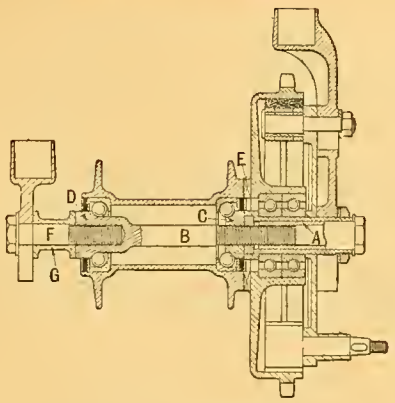


Fig. 7.—Sunbeam.

portion B screws into the hollow spindle. It carries at the right-hand end an adjustable cone C for the right-hand hub bearing, whilst the left-hand end is enlarged at D, and the outer surface is formed with a cone for the hub shell. This has a driving dog clutch connection at E with the sprocket. Screwing into the enlarged part D of the centre spindle is the left-hand spindle portion F, which is carried by the fork end. On this is a distance piece G. On removing the parts F and G a new cover or tube can be fitted without removing the wheel, whilst by removing the spindle parts B and F the wheel can be detached and interchanged with either the front or sidecar wheel.

In the Matchless construction (fig. 8) there are no loose parts beyond the spindle A. The hub shell is mounted on the usual bearing sleeve B, which is loose on the spindle. The chain sprocket runs on roller bearings C on a hollow spindle D attached to the left-hand fork end. The hub shell is connected with the chain sprocket through a dog clutch, the teeth of which are visible at E, and it will be clear that the hub shell must be moved to the right to disengage these clutch teeth. This is prevented by an enlargement F on the spindle, which corresponds in a sense to the distance piece used in the Lea and Francis construction, except that it is not loose, and to the enlarged spindle part in the Bradbury arrangement. The enlargement in this case is oblong, and when the left-hand spindle nut is removed and the spindle turned through a right angle by means of the short lever G the enlargement lies longitudinally with regard to the slotted fork end, and can pass through the fork and slots. Consequently, when the spindle is removed the distance piece F comes away attached to it. The hub shell is then moved to the right to disengage the clutch teeth, and is therefore detached without disturbing the chain wheel.

The shaft-driven F.N. has a special arrangement, which, after the brake and gear case have been partially disconnected, permits the wheel to be removed without touching the bearings.

It should be pointed out that the drawings of the Clyno, Lea and Francis, Bradbury, and A.J.S. constructions are taken from patent specifications and do not necessarily illustrate the actual constructions in use. It is quite possible that the latest constructions show improvements over the arrangements illustrated in the patent drawings.

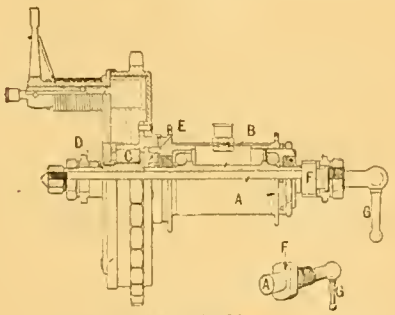
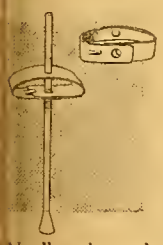


Fig. 8.—Matchless.

THE 1915 WALL AUTO-WHEEL.

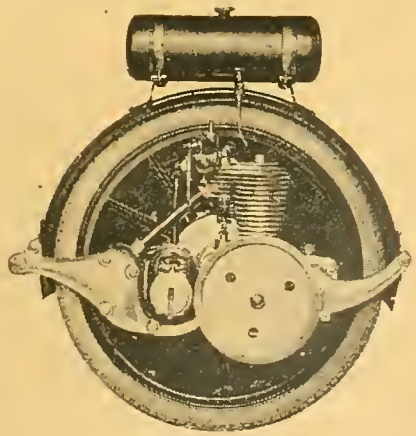
HE new Wall Auto-Wheel does not possess any startling improvements, but has been altered for the better in detail in one or two
itances. The lugs holding the crank
e on to the frame are now made of drop forgings instead of malleable iron, and greater strength is thereby obtained. A small but important improvement is shown in the accompanying illustration of the carburetter needle valve. In former models the float was kept in position by means of a split pin, which, however, did not allow of any adjustment in case of wear. Naturally, the needle valve wears its length of
ement is increased, and so the level of
petrol is altered. To overcome this
iculty a portion of the spindle of the needle is threaded, and over it there is a spring clip, consisting of a strip the ends of which are bent over and holes are drilled through. The holes in the bent-over portion are not concentric, and the spring tends to pull one piece against the other, thus forming a tight clamp, the threads, of course, serving to act as an anchorage.



Needle valve and
at chamber of the
ito-Wheel car-
retter.

We are enabled to illustrate the American Smith's motor wheel, which is manufactured in the United States under licence from the English Auto-Wheel Co. The device is fixed to the near side of the bicycle, is gear driven, and has a live axle, while it will be noticed that a disc wheel is fitted. There is no frame proper, the mudguards having supports attached to each end of the extremities of the base chamber, while the tank is fitted to the mudguard itself. The engine, like its English prototype, has an automatically operated inlet valve, but is provided with the well-known American Schebler carburetter.

It is interesting to note that a further improvement of the already ingenious system of lubrication in force in the Auto-Wheel will shortly be introduced, though the details are not ready to be made public at present.



Smith's motor wheel.

1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

THE LATEST RADCO MODEL.

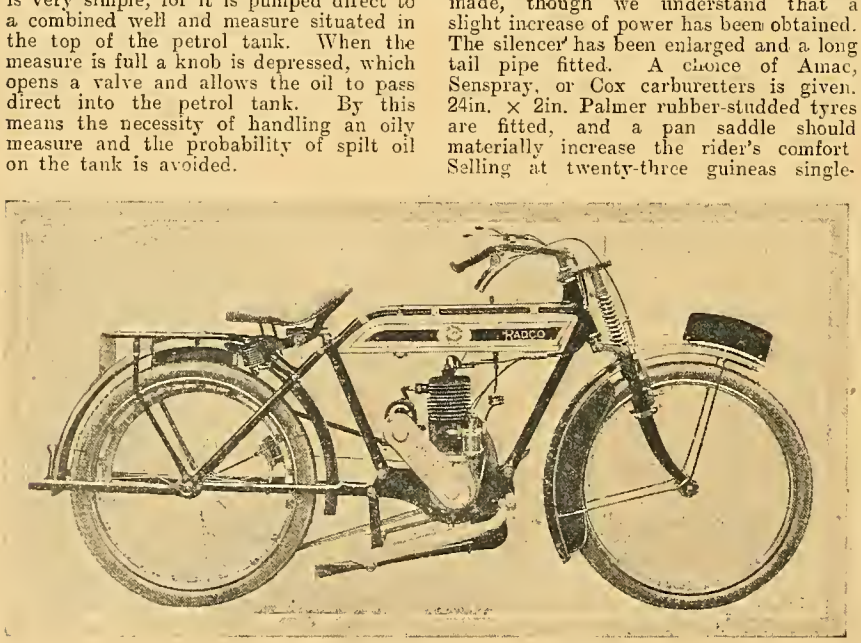
A GLANCE at the new 2¼ h.p. Radco is sufficient to show that considerable alterations have been made to the frame. Not only has the engine been dropped several inches, but a very much lower saddle position is obtained, partly by the dropped top tube, and partly by general design. The appearance has been improved by the change, and the machine is strikingly neat in its lines. The length of the head lug has been increased by one inch, which, besides affording easier steering, allows more motion in the spring forks. The forks are, of course, the Radco patent, giving an easy motion both vertically and horizontally. Frame fittings have been somewhat modified, the carrier being stronger, neater, and rigidly fixed to the rear guard. The number plate forms an additional point of attachment, and gives great rigidity. Besides this the rear stand clip has been improved, a very neat metal covered tool-bag fitted, and comfortable cast aluminium footboards can be supplied.

Injecting Oil into the Petrol.

The method of mixing the oil and petrol is very simple, for it is pumped direct to a combined well and measure situated in the top of the petrol tank. When the measure is full a knob is depressed, which opens a valve and allows the oil to pass direct into the petrol tank. By this means the necessity of handling an oily measure and the probability of spilt oil on the tank is avoided.

The engine has proved so satisfactory that practically no alterations have been made, though we understand that a slight increase of power has been obtained. The silencer has been enlarged and a long tail pipe fitted. A choice of Amac, Senspray, or Cox carburetters is given. 24in. × 2in. Palmer rubber-studded tyres are fitted, and a pan saddle should materially increase the rider's comfort. Selling at twenty-three guineas single-geared, or twenty-nine guineas if fitted with the Albion two-speed, the Radco is sure to attract an ever-increasing market, especially as the greasy roads and winter weather encourage a light handy type of machine, and such undoubtedly is the Radco.

Oiling arrangement on Radco, showing the plunger at the top of the oil measure.



The latest model 2¼ h.p. two-stroke Radco

EDITORIAL NOTE.

ALREADY many full descriptions of 1915 models have appeared in these columns, and as a guide to readers we give below the dates upon which the different descriptions were published:

Sept.	3rd.	Henderson and Levis Popular.
,,	24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct.	1st and also 29th.	Three-speed shaft-driven Rex.
,,	8th.	Radco and Ahingdon.
,,	15th.	Ivy, Vindec, and 4 h.p. Brown.
,,	22nd.	J.A.P. engines, Calthorpe, Lucas dynamo.
,,	29th.	Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and two-stroke Ariel.
Nov.	5th.	Sparkbrook, Lady's Metro, 2¼ h.p. and 6 h.p. Enfields, Omega, and 4 h.p. A.J.S.
,,	12th.	6 h.p. Humber, Sun Vitesse, and Levis.
,,	19th	Diamond, B.S.A., 6 h.p. twin P. and M., Indian, Royal Ruby, Velocette, 6-7 h.p. Sunbeam, James, Rover, twin-cylinder two-stroke Premier, and New Hudson.
,,	26th.	Rudge, O.K. Junior, Wooler, New Imperial, J.H., Lady's Radco, Wulfruna, Bradbury, and Hazlewood.
Dec.	3rd.	Norton, Grandex, Connaught, Brown, Clyde, Brough, and Lady's Ivy.
,,	10th.	Allon two-stroke, Wulfruna, Premier two-stroke, O.K. two-stroke, A.J.S., and Velocette.

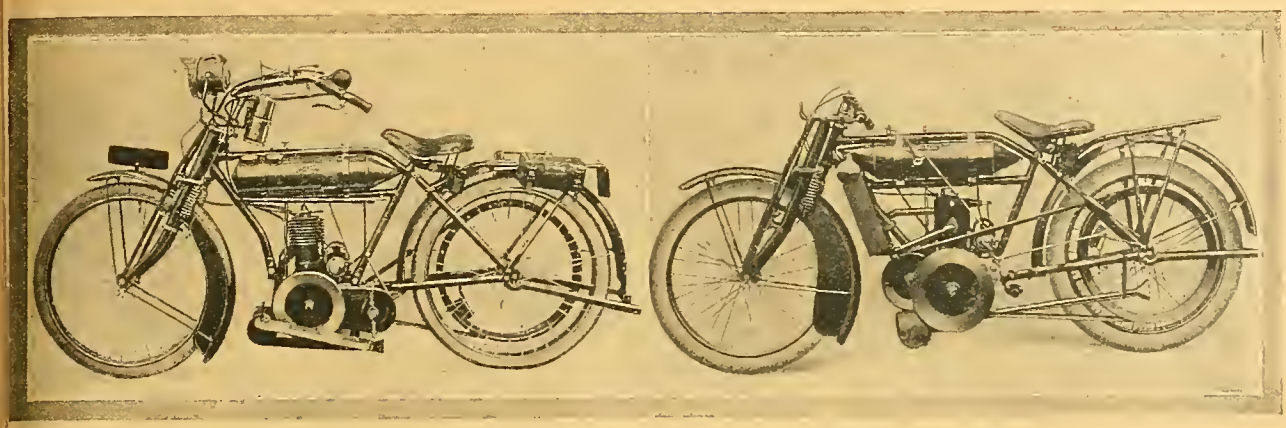
THE 1915 PARAGON.

THE Portway-Cooper Manufacturing Co. are a firm which pin their faith in the two-stroke engine. The machines are called the Paragon, and the first of the models to which we wish to draw attention is the 2¼ h.p. ladies' model, fitted with a Paragon two-stroke engine, 64 mm. × 70 mm. (= 235 c.c.). Lubrication is by the petroil system. The transmission is by combined belt and chain, the latter being adequately protected, while the two-speed gear box is attached to the counter-shaft. The pattern of the forks should be noted, since they are of the single type, and their design is somewhat of a departure from standard practice.

Another model is the 3 h.p. machine fitted with an engine of 73 mm. × 83 mm. (= 346 c.c.). Like the first-named, it is fitted with an outside flywheel. It will be noticed, however, that Druid sprung forks are provided. The gear is slightly different from that fitted to the ladies' model. It is of the double chain type operated by two gun metal expanding ring clutches, giving a direct drive on both gears. A kick-starter is also supplied.

A Water-cooled Two-stroke.

Then there is the 4 h.p. model, the engine of which is water-cooled; the cylinder dimensions are 84 mm. × 86 mm. (= 495 c.c.). It has an outside flywheel and is fitted with automatic lubrication



TYPICAL PARAGON TWO-STROKES. The 3 h.p. machine (left) and the 4 h.p. water-cooled model.

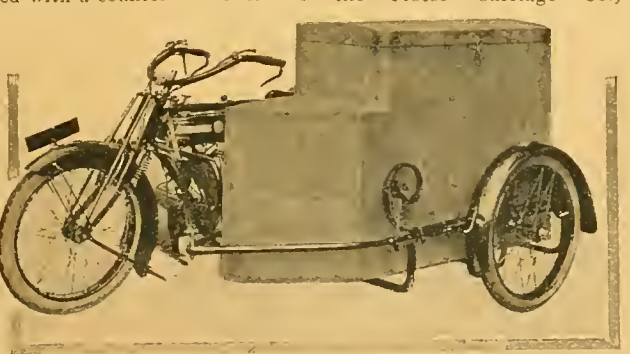
he oil being taken through suction from he sight feed lubricator to the side of the ylinder. A circular recess at the base f this distributes the oil on to the sur- ace of the piston, the surplus lubricant eing led through gutters to the main nd big end bearings. An auxiliary pump also fitted to give an extra supply of l when desired. The same type of two- peed gear is fitted as to the 3 h.p. achine, but the gear box is carried, in his case, in front of the engine instead f behind it. In every respect this model esembles the 3 h.p. machine, except, of ourse, as regards the fitting of water ooling. This is, as may be expected, ranged on thermo-syphon principle, a diator of the honeycomb type being nployed.

MODIFICATIONS ON THE NEW REX-JAPS.

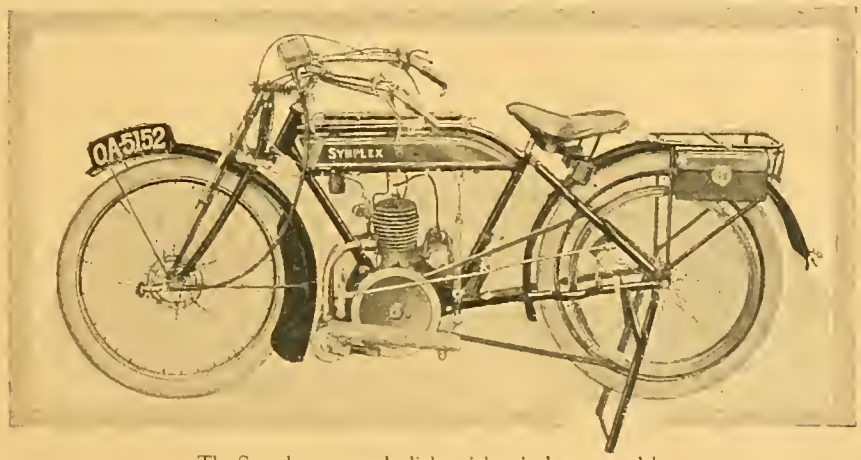
THE Premier Motor Co., Ltd., of Aston Road, Birmingham, are continuing, for 1915, the two models which they have listed ring the year now concluding. These e both twin-cylinder machines, being ted with 6 h.p. and 8 h.p. J.A.P. gines respectively. With the exception the engine both machines are abso- ely identical, and very few alterations ve been made, since the 1914 models ve given such satisfactory service.

Both machines are fitted with a counter- ft three-speed gear, closed chain drive, d kick starter. The r ratios are 4½, 8, d 13 to 1, but for commercial car- , which the manu- turers list, lower ios are recom- nded. The design the gear box cast- has been altered, that the kick rter is included in gear box instead working in a cket bolted to the me, as has hitherto n the practice fol- ed by the makers. other improvement connected with the change-speed is the operating lever, which now works in a gate with a positive stop for each gear. A larger plug for inserting oil is now fitted. Attention is also drawn to the strength of the steering head, which is made in one piece. Standard tyres are 650×65 Kempshalls, but 28in. × 3in. wheels are also fitted.

A commercial sidecarrier has been standardised. It has been made to the order of the Motor Carriage Co., Chichester Street, Belfast. The box body is 5ft. × 3ft. × 2ft., and is fitted with a lid on top and a door at the back.



One of a fleet of Rex-Jap commercial carriers for express delivery work in Belfast. Note how the body is cut away at the forward end to allow of free play for the handle-bars.



The Symplex two-stroke lightweight, single-gear model.

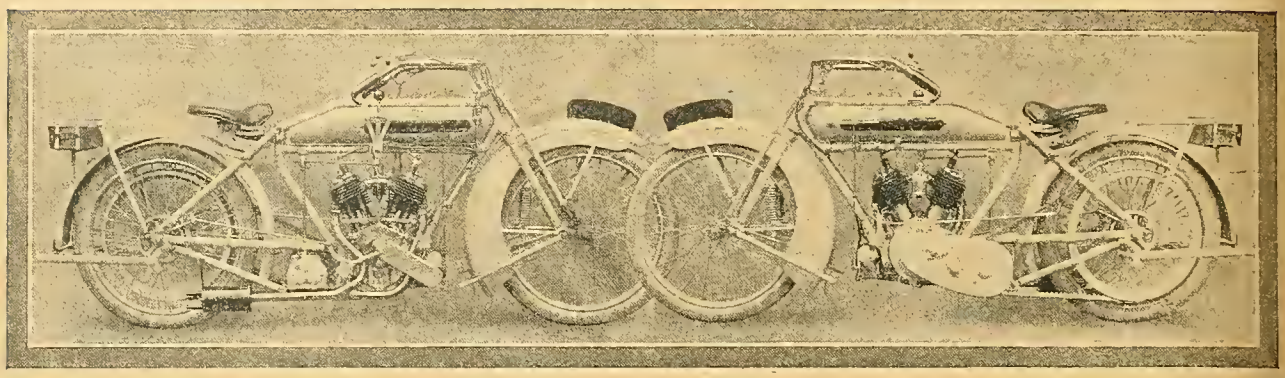
THE SYMPLEX LIGHT-WEIGHT.

THE Symplex two-stroke has many attractive features, and should prove a very popular model. The engine, which has a bore and stroke of 73×76 mm. (318 c.c.), is of the four-port type. The crankshaft is of large diameter (⅞in.), running in white metal bearings, and the piston is fitted with three rings. The U.H. magneto is placed on a platform cast with the crank case, and is chain driven. The lubrication is by the petroil system, or by direct feed to the cylinder wall, whence the oil runs to the main bearings. The spring forks are Brampton's Bi-flex. The tank is capable of holding one and a quarter gallons of petrol and two pints of oil. Hutchinson 26 × 2in. tyres are fitted, and a really comfortable saddle, viz., Brooks B180. The carburetter is an Amac.

The two-speed model is fitted with the Albion two-speed gear box, also, a three-speed gear and clutch can be supplied at an extra cost. The makers are the Symplex Motor Cycle Co., 150, Alma Street, Birmingham.

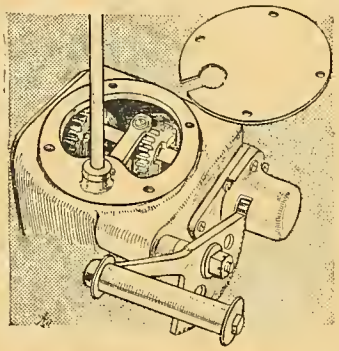
THE BAT IN 1915.

Machines of Handsome Appearance; Spring Frame Improvements.



Both sides of the new 4 h.p. twin-cylinder Bat. Drive is by chain to a three-speed countershaft gear and thence by belt.

WHILE there are no very startling changes in the 1915 Bat to record, there is progress noticeable which goes towards making, if possible, for greater comfort and reliability. There are three models, as follows: 4½-5 h.p., 70 mm. × 76 mm. (= 584 c.c.); 5-6 h.p., 76 mm. × 85 mm. (= 770 c.c.); and 7-8 h.p., 85 mm. × 85 mm. (= 964 c.c.) All have twin J.A.P. side-by-side valve engines. The two first models have chain and belt drive; the 7-8 h.p. is completely chain driven, the chains being enclosed.



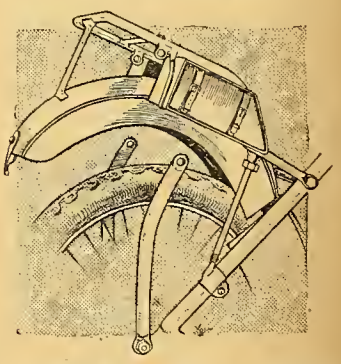
Bat three-speed gear box with cover removed. The location of the kick starter is also indicated.

The first point of interest in the two larger models is the spring frame, though the principle is one which has been in vogue for the past twelve years with the Bat Co. As now adapted, it gives a much easier movement, the saddle pillar moving as one with the footboards. The spring is fitted horizontally, one end fixed to the main frame, the other, by a lever, to the seat pillar, affording a lower saddle position. For a very heavy rider there are added two extra small springs from the top links to the frame.

Gear Improvements.

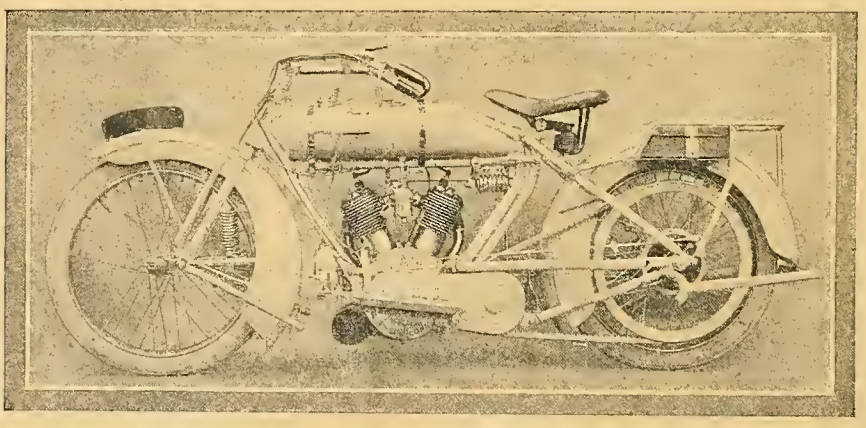
Another new feature is the adoption of a gate change for operating the three-speed gear. The gear is very substantial, being of the countershaft pattern. The gears of the first ratio are in mesh, the second slides on a square shaft, and the third is direct. The box is provided with a removable cover, which consists of a flat round plate secured by four screws. This is easily removed, and facilitates inspection when occasion arises for adjustment or alignment; thus the possibility of the wheels being only just in mesh (a fruitful cause of broken teeth) can easily be avoided by periodical examination.

The ratchet and quadrant kick starter is new; it actuates on the gear box shaft, with which it forms one unit.

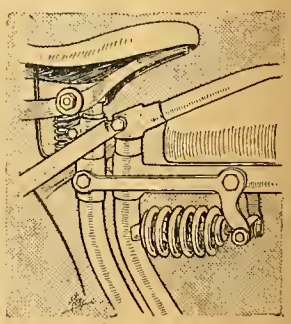


Mudguard and luggage carrier lifted up from tyre and held in position with bolt.

The efficient mudguarding of the back wheel—at the same time providing for ease of inspection of tyre and wheel—has been effectively accomplished by hingeing from the back stay the rear half of guard with which is combined the carrier. By the withdrawal of a bolt from the guard stays, the guard-carrier can be swung up clear of the wheel and dropped in such a position by



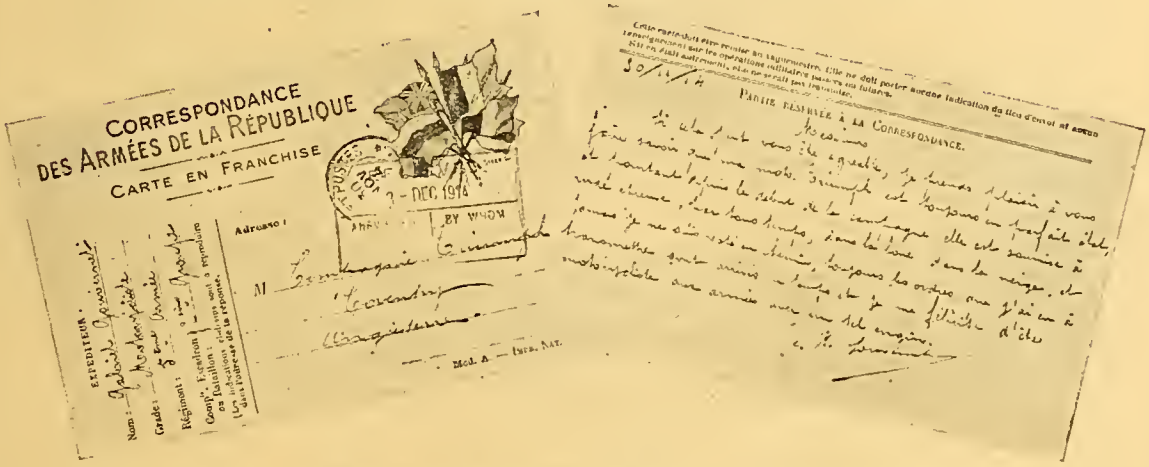
The 5-6 h.p. Bat showing springs fore and aft and chain-cum-belt drive through a three-speed countershaft gear.



New method of suspending seat pillar on the new Bat-Japs.

Always at the Front!

The Triumph "Four" does splendid work with our Allies



From the well-known French Competition Rider, M. Gabriel Gouvernet, now serving as Despatch Rider with the French Army.

"If it is agreeable to you, I have pleasure in letting you know that my Triumph motor is always in perfect condition, although since the beginning of the war it has been subjected to brutal tests in all weathers, in the mud and in the snow, and never have I been delayed on the road. I have been able to deliver all the despatches I have been called upon to carry in time, and I am happy to be a motor cyclist with the army with such an engine."

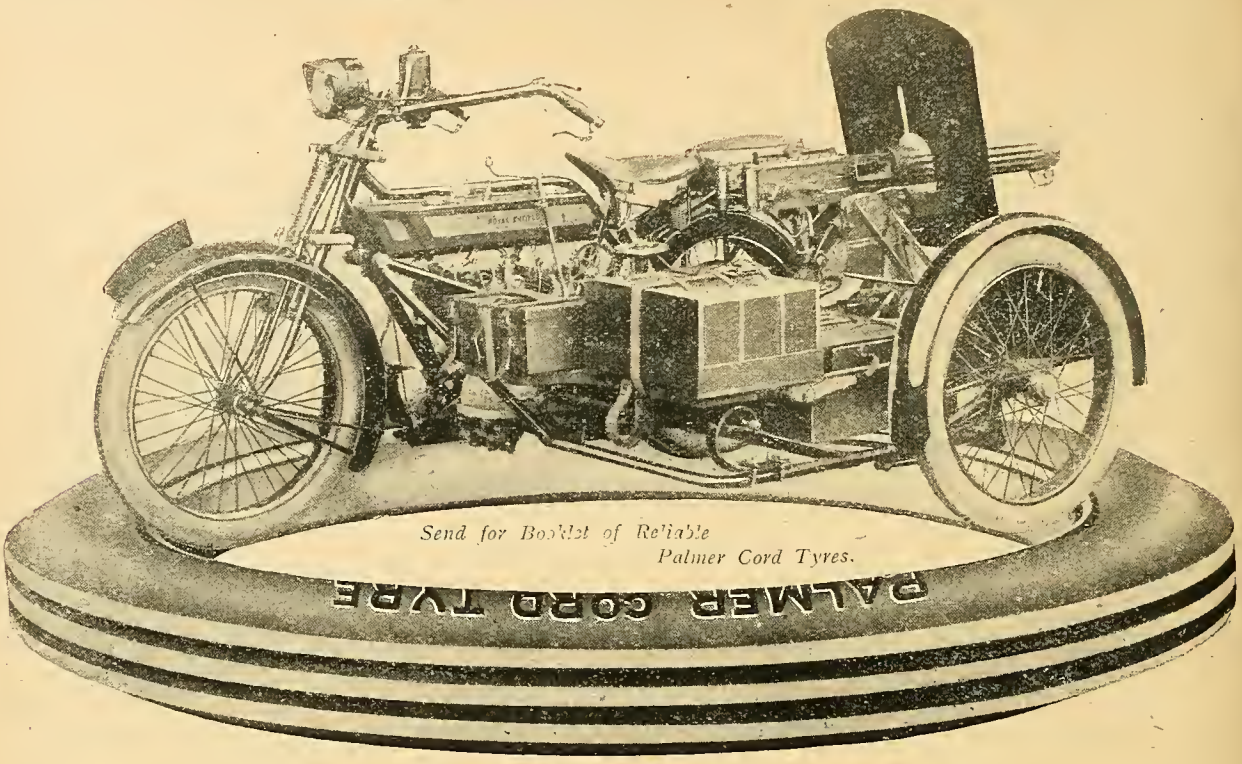
Another French Rider's Experience — M. Vormese.

"Where I am at present there is a large number of English, French, and Belgian motor cyclists, and notwithstanding the terrible paved roads my Triumph is going splendidly and without any trouble, after having covered some 25,000 kilometres (15,525 miles).

The speed gear acts admirably in spite of the bad treatment meted out to it. We follow the convoys at a speed of 3 to 9½ m.p.h., principally on low or middle gear."

Triumph Cycle Co., Ltd., Coventry.

TRIUMPH



THE Tyres for the Expeditionary Force.

THIS week we illustrate another Armoured Motor Cycle fitted with Palmer Cord Tyres.

This is one of a number of 6-8 h.p. machines supplied to the War Office, which are fitted with 26 x 3 in. Palmer Cord Tyres on the Back wheels, and 700 x 80 Palmer Cord Tyres on the Front and Sidecar wheels.

This is a war of petrol and rubber, and it is a distinct compliment to Palmers that they should have been selected above all other tyres for this strenuous work. If their performance under exacting competition tests, and their splendid behaviour at the Front are any criterion, Palmers should prove a valuable factor in bringing this war to a successful end.

PALMER

(ORIGINATORS OF THE THREE-RIB TREAD)

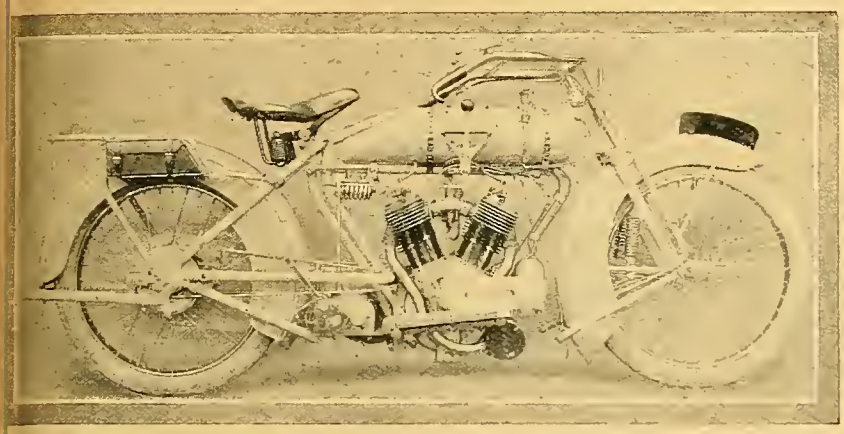
CORD TYRES

THE PALMER TYRE, LTD., 119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

Motor Cycle Tyre and Repair Department—103, ST. JOHN STREET, CLERKENWELL, E.C.

'Phone: City 1485 and 1486 (2 lines). Telegrams: "Inwheeling, Smith, London."

In answering this advertisement it is desirable to mention "The Motor Cycle."



The big 8 h.p. twin-cylinder Bat. Like the 5-6 h.p. machine, both front and back are spring suspended. This model is chain driven throughout.

he bolt so removed being placed between arrier framework and back stay; thus o necessity arises for unloading the arrier when tyre repairs happen to be equired

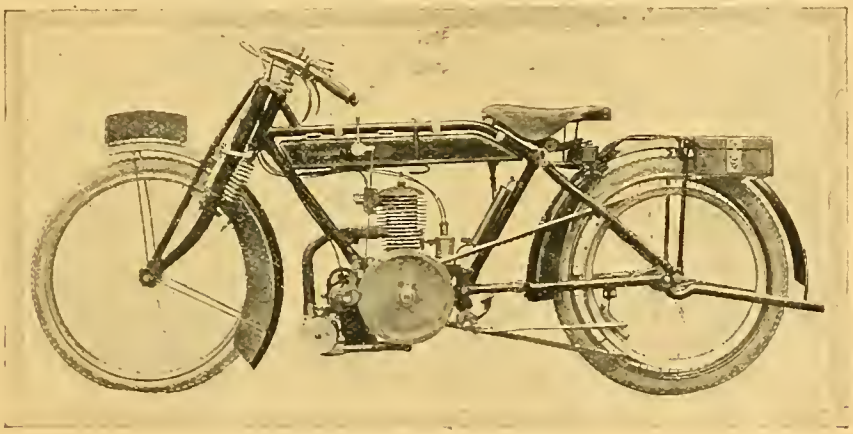
On each of 7-8 h.p. and 5-6 h.p. odels the back brake has been enlarged; herwise it is the same—external band nd internal expanding. The clutch is xpanding as formerly, *i.e.*, a phosphor ronze centre against hardened steel.

Amac carburetters and Kempshall yres are standard on all models.

It is interesting to recall that the akers of the Bat are one of the oldest anufacturing firms in the country, the at with the torpedo-shaped tank being s familiar to riders ten years ago as is to-day. What is of further interest, owever, is the fact that they have lways specialised on a spring frame, the esult being that what they do not know bout the suspension of motor cycles is ot worth knowing.

A NEW CONNAUGHT.

THE most striking feature of the 1915 Connaught programme is the introduction of a low-priced popular model, which is likely to ave a large sale owing to the excep- onal value offered. The bore and stroke emain as in previous and existing odels (73×70 mm.), but the engine is altered in many details. The cylinder fins are arranged to give the cylinder a pear-shaped appearance, and the inlet port is formed in the side of the cylinder instead of directly below the exhaust port, as is the usual Connaught practice.



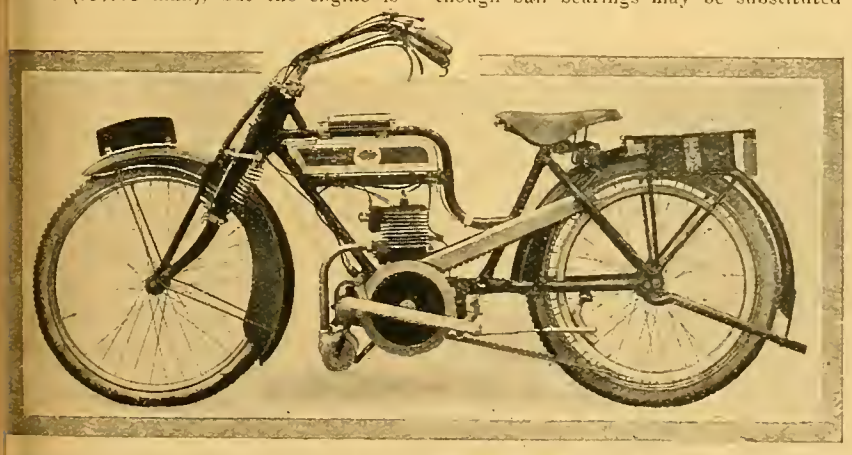
A new design Connaught sold at a low figure.

In addition to this, the transfer port leads from the crank case instead of through the piston. The crankshaft is fitted with phosphor bronze bearings, though ball bearings may be substituted at a slight extra charge. All models are now supplied with a cover to the release valve, which protects the rider from oily vapour.

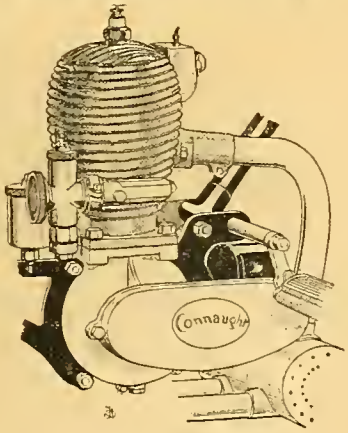
The engine is mounted in a frame having a dropped top tube, and this, in combination with the 24in. wheels, gives a very low saddle position. Girder forks are used, for, though the machine is light, it is not skimped, and is intended for a serious touring machine as well as for a runabout. A two-speed countershaft gear may be fitted as an extra, in which case a combination drive is employed, and a large oil measure is carried in a convenient position on the saddle tube. The new model sells at 25 guineas, and should command a large market among such as require a handy and reliable mount obtainable at a moderate outlay and capable of hard work.

A Ladies' Model.

Other Connaught models remain much on the lines of their predecessors. Ball bearings are fitted to the crankshaft, and a few detail improvements have been carried out which make the machines even more attractive. An improved heel brake has been arranged on all models, and a striking open frame type is now marketed for ladies' use. This is thoroughly well fitted up, and is a mount particularly adapted for the fair sex, having a belt guard and footplates.



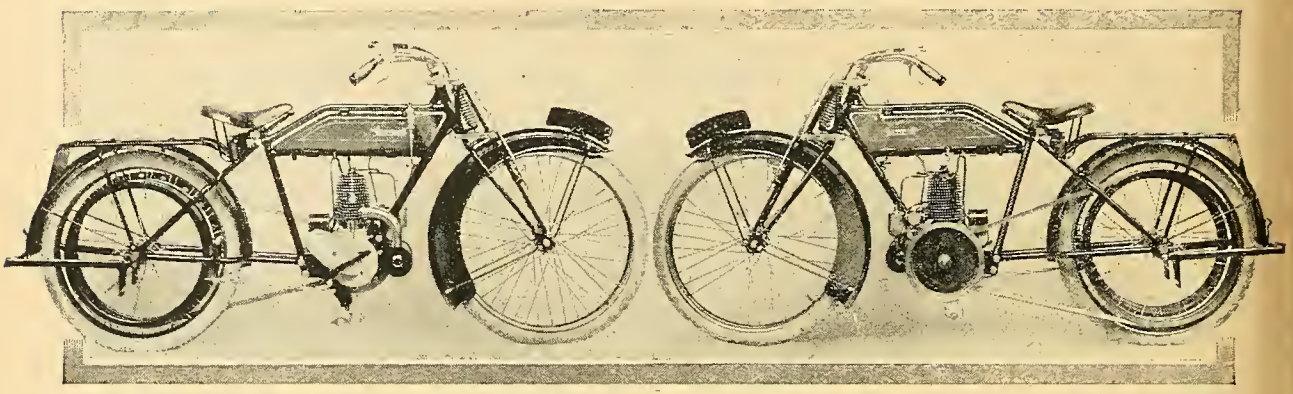
The lady's model Connaught, which, like all machines made by this firm, has a two-stroke engine.



Engine unit of new Connaught, showing position of ports.

A TWO-STROKE QUADRANT.

Long-stroke and a Mechanical Exhaust Valve.

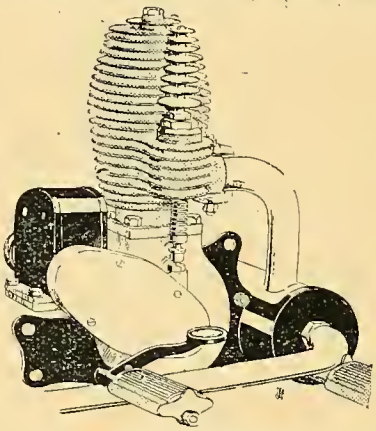


Both sides of the new two-stroke Quadrant.

THE name af Quadrant has of recent years been associated chiefly with machines of considerable size, the big 4½ h.p. single having earned a particularly good name for sidecar work. Consequently, it is interesting to note that the latest model to be added to the Quadrant list is a comparatively light two-stroke. The engine incorporates two unusual features, for its long stroke of 100 mm. against a bore of 70 mm. is distinctly uncommon in two-stroke design; while the most striking departure from standard practice is the fitting of a mechanically operated exhaust valve, which is timed to close at such a period as will prevent the escape of the incoming charge by way of the exhaust port.

In construction, the engine is somewhat similar to the usual type of three-port two-stroke, except that the exhaust port is set relatively high up as regards the piston travel. After passing through the usual port, the exhaust gases are controlled by the action of a mushroom exhaust valve operated by a cam on the crankshaft; thus on the upstroke the valve is timed to close before the incoming charge has time to pass out and so be wasted.

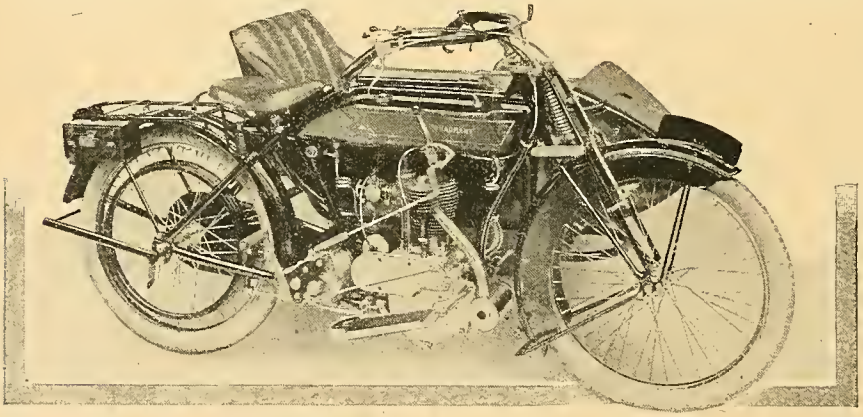
The lubrication is on the well principle, oil being fed from a sight feed drip to a well formed in the top of the crank case casting. Into this well the piston dips at the bottom of the stroke and carries oil up the cylinder walls. The surplus flows through ducts to the main shaft bearings, and thence through the drilled crankshaft to the big end. All bearings are plain, except for an additional ball race on the driving side. Behind the crank case a Dixie magneto is mounted and driven by a train of gears from the crankshaft. The arrangement of cylinder fins gives a distinctive appearance to the engine, and the exhaust valve cap is fitted with a copper cooling device, though experiments are being carried out with water-cooling for the exhaust port, as it is believed that this may increase the efficiency of the engine. The frame is a sound straightforward piece of work, and the fittings, which include Quadrant spring forks, excellent mudguards, and stout stand and carrier, are well carried out. 26in. × 2in. wheels are fitted.



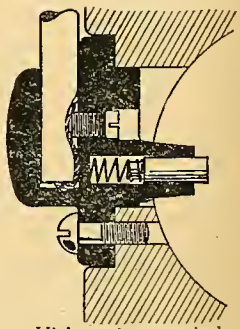
The Quadrant two-stroke engine. The exhaust valve and its special heat radiating cap will be noted.

The Big Single.

The big 4½ h.p. single-cylinder engine remains much as before, but the cycle to which it is fitted now carries a B.S.A. three-speed counter-shaft gear, and the chain drive is thoroughly enclosed throughout. The black finish of the machine is very handsome, and, with a comfortable sidecar, forms a most attractive proposition at a strictly moderate price.



The new single-cylinder Quadrant sidecar machine, the chief feature of which is the all enclosed chain-drive. It is a particularly well finished turn out.



High-tension terminal and carbon brush of the Thomson-Bennett twin-cylinder magneto.

THE 6 h.p. BRADBURY.

The makers of the Bradbury motor cycle inform us that when sending us particulars of their 1915 models for the Buyers' Guide they gave the wrong price for the 6 h.p. twin-cylinder. It should be seventy guineas.

Unequalled.

By Appointment.

ANGLO - AMERICAN
OIL COMPANY, Ltd.,
36-38, Queen Anne's Gate,
WESTMINSTER, S.W.

AGAIN! AND YET AGAIN!!

The success of the Sunbeam Chain Drive, which combines all the advantages of Belt or Chain Transmission, without the disadvantages of either, has again been demonstrated.

In the WEST AUSTRALIAN TOURIST TROPHY RACE
(October, 1914),

TWO SUNBEAMS STARTED

THEY FINISHED

FIRST AND SECOND

(out of a field of **26**)

Making FASTEST TIME and RECORD FOR THE COURSE (150 miles).

This, following the Team Prize in the 1914 English Tourist Trophy Race and many other victories, certifies to the Supremacy of the Sunbeam Transmission, and of every detail of the complete machine.

For Speed, Durability, Ease of Control, and Satisfaction under all conditions, nothing even approaches the Sunbeam.

Preliminary leaflet, giving detailed specification, will shortly be ready, and sent on application to

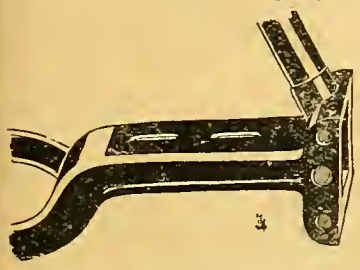
J. Marston, Ltd., 11, Sunbeamland, Wolverhampton.

London Showrooms—57, Holborn Viaduct, E.C., and 157-158, Sloane Street (close by Sloane Square), S.W.

A BIG TWIN EXCELSIOR.

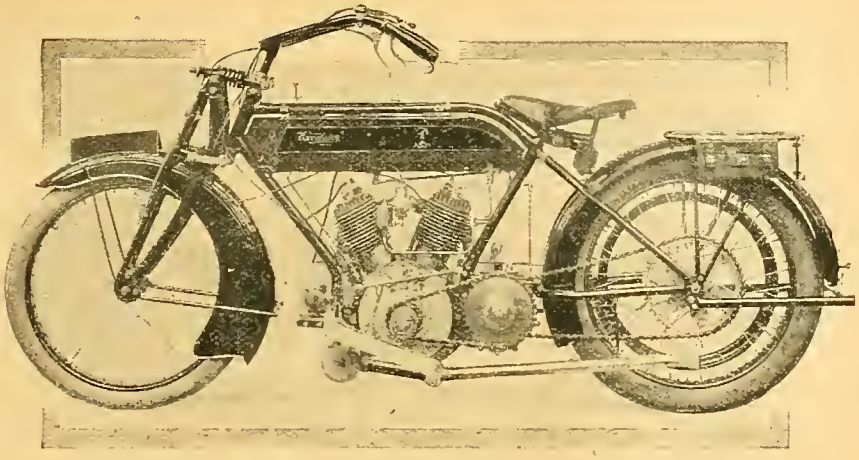
MESSRS. BAYLISS, THOMAS and Co., the producers of the well-known Excelsior, have become famous for their big single, but for 1915 they propose to market an 8 h.p. twin as an additional model. The general lines of the machine do not depart radically from the previous single-cylinder models; in fact, the frame is exactly the same, but a twin 85.5 × 85 side-by-side valve J.A.P. engine supplies the motive power. The drive throughout is by chain, the front chain being totally enclosed while the rear chain is amply protected by metal shields. The three-speed counter-shaft Jardine gear is well fitted to a steut bottom bracket, and the holding-down nuts are easily accessible for chain adjustment. This type of Jardine gear comprises an enclosed kick-starter and a large diameter cork insert clutch, while a shock absorber is fitted on the engine-shaft.

The engine is fed by an Everest automatic carburetter, which has been adopted after a year's trial on a single-cylinder



The powerfully constructed bottom bracket lug of the big twin Excelsior.

model, and oil is supplied through a Best and Lloyd semi-automatic drip feed lubricator. Not the least important item on a big twin is the tank capacity, and the Excelsior boasts a two-gallon petrol tank, with provision for half-a-gallon of lubricating oil, while a reliable petrol gauge is fitted in the top. Mudguards with deep and full valances are used, and, in combination with foot boards shielded in front and below by a neat underscreen, should keep the rider dry and clean.



Transmission side of the big twin-cylinder Excelsior. The chain cases are removed to show details of the drive.

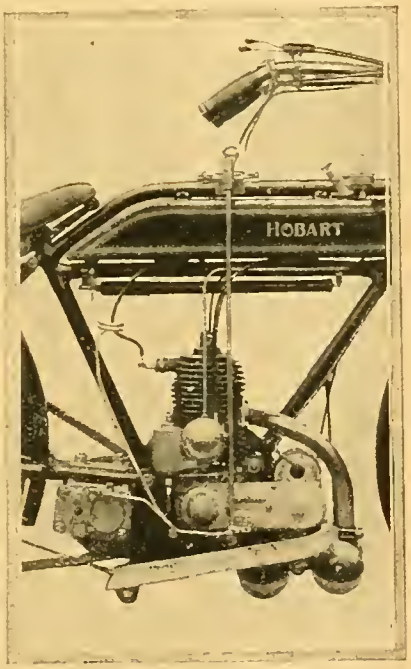
Sound Wheel Construction.

Brampton spring forks are included, and the rear brake acts on the internal V of a dummy brake rim so as to facilitate wheel removal.

The wheels themselves are fine pieces of work. Cycle car rims are used capable of taking either 2½in. or 3in. tyres, and ten-gauge spokes employed to attach them to the hubs, which are oil retaining and mud proof, and run on very large diameter ball races. The Splitdorf magneto will be carried in front of the engine, but protected by the footboard screen. Throughout, the fittings are very sturdy, and the machine looks a first-class heavy passenger vehicle and should make a good showing when trials once more come into vogue.

TWO-STROKE HOBART.

THE latest model Hobart two-stroke is a very much more complete machine than the previous baby lightweight, and is neat in appearance and workmanlike in design. The company has undergone some modification, and Mr. F. Starr, the present manager, is an enthusiastic motor cyclist, and one of the type who regularly uses the firm's products as well as undertaking the business part of the proposition. The new machine is fitted with the latest type of Villiers 70×70 mm. two-stroke engine, which drives through the medium



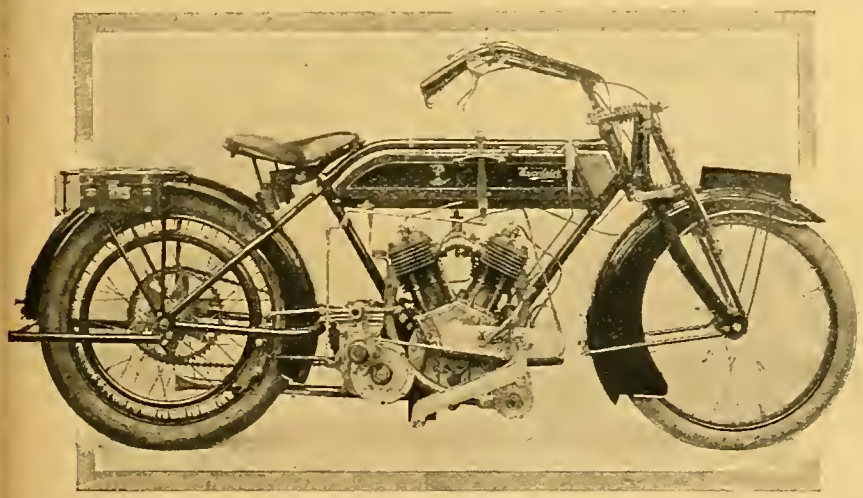
Power unit of the new two-stroke Hobart.

of a chain, and a Roc two-speed counter-shaft gear, though a single-geared model is obtainable.

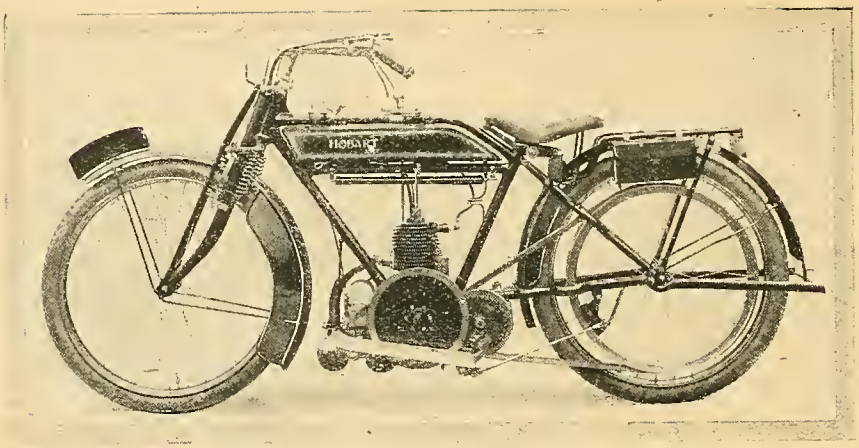
The engine is lubricated through a lead to the inlet pipe between the engine and the carburetter, the oil being fed by means of the latest pattern of Benton and Stone sight feed drip, which is fitted with a special device allowing a free flow of oil if desired.

Strong and Neat.

A very neat and substantial frame contains the power unit, and weight has not been cut down where strength is



First example of the new 8 h.p. twin-cylinder Excelsior.



The new two-stroke 1915 pattern Hobart from the transmission side, showing large flywheel and combination drive.

necessary, though the complete article scales well under 150 lb. Comfort has been carefully studied, and the pan saddle fitted is the result of practical experience, which proves that light machines are even more in need of such a device than heavy types. 26×2in. tyres are employed, and each mudguard is fitted with short side valances, the rider's feet being accommodated by long aluminium footboards. It is probable that an Everest carburetter will be standardised, as exceptional economy is claimed with this device, but at the time of writing the question has not been decided. Finished in black with a wide gold line on the tank, the machine is pleasing to the eye, and with an excellent equipment, including metal enclosed pannier tool bags, it is good value at 32 guineas. The single-geared model is listed at 27 guineas.

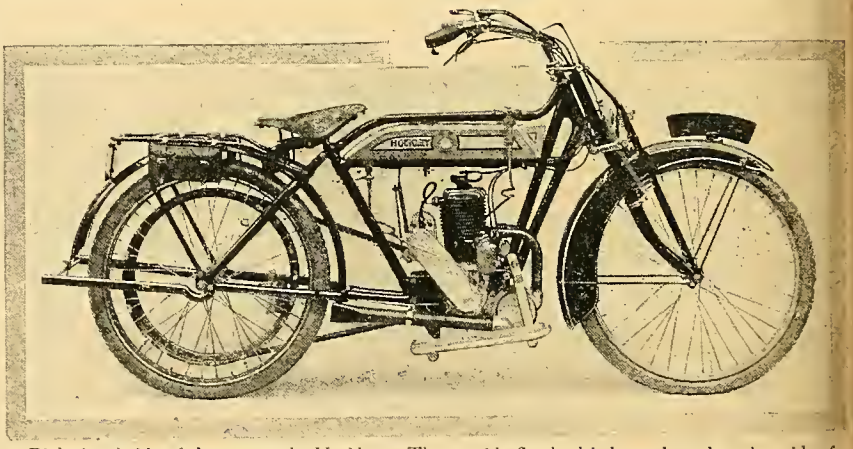
THE HOCKLEY TWO-STROKE.

YET another addition to the ranks of two-stroke manufacturers is the Hockley Motor Manufacturing Co., of Bar Street, Birmingham. The machine which this firm is producing is expressly designed for overseas work, though it is intended to market it in this country as well.

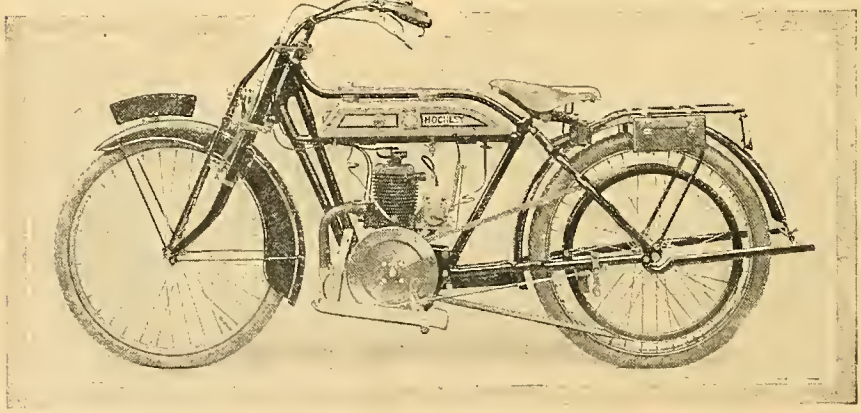
The most striking feature is the frame design, which is claimed to give such a powerful construction that it is unbreakable even when used over the worst Colonial tracks. The chief point in this construction is the arrangement of two down tubes, one from the top and the other from the bottom of the head lug, which meet at the engine carrying lug and thus strengthen the most vital part of the frame. Throughout, the machine is constructed on commonsense lines, and the big ground clearance and large tank capacity are peculiarly adapted for rough travel in countries where garages are few and far between. Saxon forks and a sturdy and sensible equipment with good mudguards help to give the impression of solidity without undue weight, and the engine is a simple and reliable unit with the magneto carried high up behind the cylinder, well out of the way of water splashes, mud, and grit. The magneto is chain-driven from the crankshaft, and the whole platform slides in a line with the drive for chain adjustment.

The Engine.

The bore and stroke are 70×70 mm., and the cooling ribs run down to the base of the cylinder casting, being neatly arranged to give the maximum cooling effect in combination with good looks. All bearings are of special phosphor bronze, and lubrication is by a sight feed drip oiler. The flywheel is outside and of large diameter, and the machine may be obtained either single-geared or with a two-speed counter-shaft gear and chain and belt drive. Twenty-six inch wheels are used, and the brake gear in particular is well carried out. Altogether, the Hockley Motor Mfg. Co. may be proud of a machine which is eminently suited to the purpose for which it was designed.



Right hand side of the two-stroke Hockley. The outside flywheel is located on the other side of the engine. A feature is the double front tube.



Flywheel side of the new two-stroke Hockley, which has been designed mainly for use overseas.

Seat-pillar lug of sporting model Diamond, showing how the drop takes place in the lug and not the tube.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Rings Sticking in Two-strokes.

Sir,—I notice that manufacturers of two-stroke motors, ven appealed to for information on the subject of stuck up ston rings, generally advise, as a remedy, a reduction in e quantity of oil used. As the owner of a two-stroke, I ve followed this advice, but the sticking up of the rings ems to become more frequent as the oil is reduced.

On consideration, I am wondering whether the advice nerally given is not based on a fallacy. I suggest that e cause of the rings sticking up is primarily due to the gine overheating. The less oil used, the more the engine erheats, with the consequence that the liability for the gs to be stuck up becomes increased.

When I take my cylinder off, I find that the rings are nt hard in their grooves. The rings and the piston are lded together, and paraffin is useless.

n the circumstances, I think that the real remedy may in increasing the quantity of oil instead of reducing it.

The above, of course, refers to the petroil system of rication. W. HILL.

The Institute of Inventors.

Sir,—In connection with the establishment in this country industries hitherto carried on in Germany and Austria, e of the most important points is to obtain accurate formation on the technical problems involved. The best ilable source of such knowledge in this country is the cellent library of the Patent Office, where the easy acces-ility of the books is a constant source of pleasure to readers. Soon after the outbreak of the war, the mptroller found it necessary to close the library in the ening, which prevented inventors and manufacturers, who engaged in the daytime, from visiting it. It will, no ubt, interest many of your readers to know that, at the uest of this institute, the Comptroller has now informed that he has made arrangements to keep the library open til 6 p.m. on Saturdays. Those who wish to profit by s concession may obtain permission from the librarian.

May I take the opportunity of informing British inventors, ho evidently form a considerable proportion of your readers, t the letter which you were good enough to publish me time ago inviting suggestions from inventors, with gard to the proposed amendment of the Patent Law, ught in so many useful and important replies that our rliamentary Committee is now in a position to deal with matter when the nation can again turn its attention home affairs. WALTER F. REID,

Chairman, Institute of Inventors.

The Conviction of A. G. Cocks.

Sir,—You will probably be aware that on Saturday, ember 5th, Mr. A. G. Cocks, the well-known Clyno rider, s tried by court martial at Hull for having in his possession Filey "component parts of wireless apparatus contrary to Defence of the Realm Act."

The President of the Court stated: (a) That no charge of mmunication or attempted communication with the enemy s being brought forward; (b) that Mr. Cocks's character s not doubted, and that no evidence as to it need be ught.

The G.P.O. witness read a letter to the court from the stmaster General stating that, as the accused was a British bject, he had no desire to press the case. The same witness a stated that the portable set in question was only capable en connected with the necessary aerial, and in its present ndition, of transmitting for one mile. The necessary aerial and station in general were, of course, dismantled in the ordinary way by the G.P.O. people at an earlier date, when all amateur wireless stations were similarly treated. The station, therefore, was "reasonably incapable of being worked." The President also stated that no importance was attached to the Morse code charts, etc., found on the premises. Mr. Cocks had only committed a small technical offence. Nothing was secret, and he had had correspondence with the G.P.O. regarding his licence for this actual set. The sentence was six months' imprisonment—four months of which was remitted owing to his already having been seven weeks in custody, thus leaving two months to be served.

The severity of Mr. Cocks's sentence is apparent also from the following facts:

A short time ago a German was sentenced to three months detention without hard labour for having a wireless station on the Essex (!) coast. The German referred to was an unregistered alien. His apparatus was connected to the mains, and was capable of sending over 100 miles. I believe also the following facts were established: The station was unlicensed (Mr. Cocks has held a licence for wireless telegraphy for several years) and had been in constant use.

J. B. TUCKER.

Why an Engine Konks.

Sir,—I am sorry again to trouble you on this subject, but I would like to answer one or two remarks made by Mr Gatehouse. This gentleman tells us that he had an engine that would not konk. This is quite possible, and can be accounted for by the ignition not being sufficiently far advanced, or either through inefficient carburation, whereby the full power was not possible. Mr. Gatehouse also mentions that he has had engines with tight pistons that would konk, and he states that they were bad engines for konking. They may have had only a very small clearance when the pistons and cylinders were callipered; but lots of cylinders are not of the same dimensions when hot—some of them take most peculiar shapes, and no doubt Mr. Gatehouse's engines that were given to konking with tight pistons had *very* loose pistons *when they were warmed up.*

Mr. Gatehouse mentions in his last paragraph that cylinder distortion may cause a konk. I should very much like to know what it is the cylinder distorts against to make such a noise, or perhaps this gentleman means that when the cylinder distorts, there is a lot of piston clearance. In that case he agrees with my ideas that it is only piston clearance that causes konking. OSBORNE DE LISSA.

Sir.—If you can spare any more space in your columns for the fruitful topic of "konking," I should like to state my experience, although I am afraid my letter will tend rather to disprove some of your correspondents' suggestions than to offer any new theory. *Re* the "pocket" theory, I had a 3½ h.p. single-cylinder machine with overhead valves opening directly into the combustion chamber, and without pockets of any kind. This was the worst offender in respect of "konking" of any machine I have ever met with—it would konk at any time, hot or cold, on the slightest pretext, although I cleaned it out at least every three hundred miles. It was a fast machine with considerable valve overlap, and ignition rather advanced though not abnormal. Your correspondent Mr. Gatehouse suggests that engines with detachable heads are practically immune from konking. This engine had a detachable phosphor bronze cylinder head. ALFRED W. TUTT.

Flywheels.

Sir,—There seems to be considerable disagreement amongst manufacturers as to whether the flywheel should be inside or outside. For instance, on November 12th you describe a new Levis with an inside flywheel, and, on the other hand, a new Humber with an outside one. In this diversity of practice regard should be had to theoretical considerations. The moment of inertia, *i.e.*, the measure of the equalising power of a flywheel, is given by the formula $I=MR^2$, where M is the mass and R the radius. Therefore, given the weight as constant, the larger the radius, consistent with strength, the greater the moment of inertia. Now it appears to be pretty obvious that, with the limited space available for machinery on a motor bicycle, a larger flywheel for a given strength can be fitted outside than inside the engine. Hitherto, outside flywheels have mostly been confined to two-strokes, but I am confident they would improve the running of four-strokes, especially the big single-cylinder variety. The success of a very popular twin four-stroke is, I believe, largely due to the fact that it has an outside flywheel. H.L.L.

Artistic Appearance.

Sir,—I hope you will allow me to express my regrets through your columns at the modern trend of motor cycle design, whereby appearance and symmetry are sacrificed (sometimes needlessly) to what is not always utility. I refer to the sloping tube.

Artists tell us that a curve is the line of beauty, but if a curve implies a real weakness there must have been many broken frames, especially Indians, whose engine rests in a curved cradle. I may say I have never heard of these frames breaking. Why, then, sacrifice beauty?

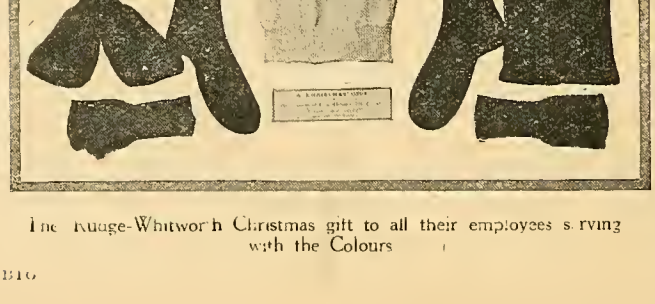
Lastly, though opportunities present themselves, why do not the majority of motor cycle makers adopt the theoretically correct position for the magneto, viz., to the rear of the engine? VULCAN.

Rudge Tommies Remembered.

Sir,—It will be remembered that a few weeks ago the Rudge-Whitworth employees sent to their *confrères* who are serving with the 7th Battalion Royal Warwickshire Regiment a number of warm garments, which were acknowledged by their Company Captain F. S. Hanson, who stated that each member of the company had had at least one garment, many of them two, and that they were keenly appreciated.

A further set of presents is now being sent. This will consist in each case of a knitted helmet, muffler, pair of socks, body belt, and pair of mittens, together with a cigarette case filled with cigarettes.

The girls, both in the offices and works, have been exceedingly busy for some weeks past with the knitting needles, and 150 Tommies will receive this little remembrance, including three who have been unfortunate enough to be interned in Germany. RUDGE-WHITWORTH, LTD.



The Rudge-Whitworth Christmas gift to all their employees serving with the Colours

Small Bushes and Drip Oiling.

Sir,—Under this heading, in your issue of December 10th, "Ixion" writes: "I learn that at least one big firm has definitely instructed its customers to open the drip valve fully, and use the pump as if no drip were fitted."

This is quite true, and can only refer to one firm, whom we will not name. For those "in the know," may we venture a friendly comment, which is that, in the particular engine referred to, no oil ducts are provided by the makers, who, we understand, do not believe in them, though nearly all the latest motor cycle engines are designed with suitable oil ways for the main bearing parts—in our opinion, an obvious advantage; but in spite of the consequent need of freely oiling, we still maintain, and the trade generally would appear to agree, that drip is much better than dumping. BEST AND LLOYD, LTD.,

JOHN H. COCHRANE, Sales Manager.

Plugs in Two-stroke Engines.

Sir,—I was much interested in the Comment headed "Thick and Thin Electrodes" by "Ixion," as this is a subject in which I have had a lot of experience, particularly with two-stroke engines, as plugs give more trouble with this type of engine than with any other.

I quite agree that a multiple-point plug, in which the points are thin, will give trouble in a "dry" engine. This is very noticeable with a two-stroke engine lubricated by the petroil system, and anyone using this type of plug will find that, after a few miles hard running, as soon as a hill has to be climbed, a peculiar trouble will make itself manifest. The machine which has been running splendidly will, when about half-way up the hill, without any warning, pull up as if the engine had seized, but after a few moments' stop will start off and run perfectly again. Now this is all caused by the engine requiring more oil than it is getting, and therefore none is left to get up *viâ* the transfer port to the cylinder head, where a quantity would get on the plug points and help to cool them. The points, therefore, get incandescent, with the result mentioned above.

While experimenting with a well-known two-stroke employing petroil lubrication on Brooklands, I had much trouble with plugs, as I was using rather a high compression, and after trying nearly all the best-known plugs on the market, found that the only one which would stand up to more than two laps "all out" was a well-known single-point plug of, I am sorry to say, German manufacture, but I have since tried and found the Lodge single-point plug quite equal. Now, suspecting the lubrication to be insufficient for racing speeds, I fitted an oil pipe from a hand pump to the crank case, and found that by giving oil in this way, so as to keep the engine smoking well, I could use several multiple-point plugs and still do the same lap speeds without "drying up" the engine. Of course, as was to be expected, on taking off the cylinder the head and plug points were covered with a film of oil, whereas, when only using petroil, the cylinder head was dry. I also tried a plug which gives perfect results on Scott machines, which may rightly be termed to have a "wet" engine, and found it would dry up after one lap with petroil lubrication, owing to it causing the engine to be too "dry," which also helps to prove "Ixion's" argument.

I think the above goes to prove that a single-point plug is the best for a "dry" engine, and this theory is pretty well upheld by the fact that I used the same Lodge single-point plug in my Clyno two-stroke right through the Scottish Six Days Trial, and never had the slightest trouble with it, though I repeatedly asked for trouble from that quarter by driving the engine all out for long distances or some of the worst hills on low gear.

In conclusion, I would like to advise your correspondent Mr. W. Edner, to fit a magneto handle-bar cut-out on his Connaught two-stroke, as I always used one on my machine of this make; he can then cut off the ignition and coast down hills with the throttle open. He will find that by doing this he will cool his engine, and at the same time let a quantity of oil into it. An alternative is to fit a two-way tap under the oil pump, and then put an oil pipe with an adapter screwed into the drain plug hole in the crank case; he can then give a charge of oil when running down hill and also when faced with a stiff hill. This pipe he will find, is a great advantage, and will make his machine a better hill-climber, though naturally he will use a little more oil per year. ARCHIE G. COCKS.

THE NEW TRIUMPHS.

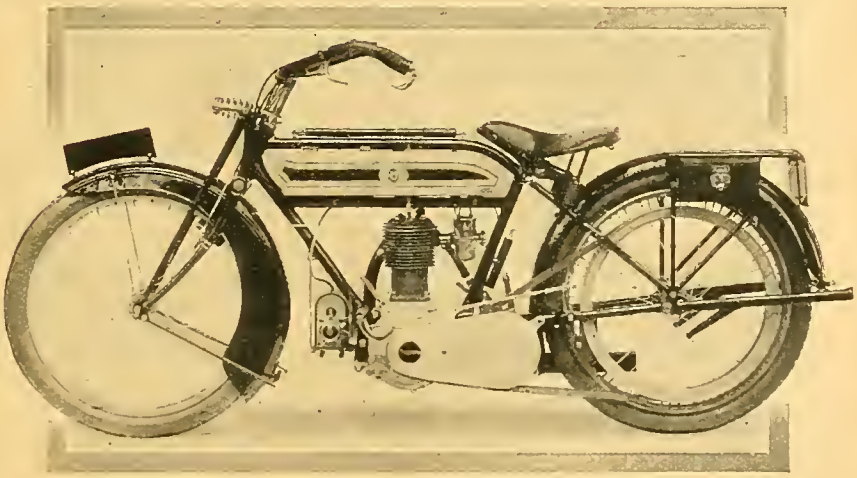
An entirely Re-designed 4 h.p. Model for 1915. Improvements to Two-stroke.

WE have already announced the fact that the 1915 Triumphs would be a considerable departure from usual Triumph practice. Our announcement occasioned a good deal of interest, as is shown by the communications we have received on the subject. It can be said that for ten years the Triumph machine has undergone but detail improvement. Year after year the little weaknesses have been eliminated and improvements embodied, all of which have helped to build up the proud position which the trusty Triumph holds. Last year a 4 h.p. machine and the introduction of a two-stroke lightweight mount were the most notable departures in the Triumph programme; but 1915 marks the appearance of an entirely new design of engine, a three-speed countershaft gear in the bottom bracket, and the increasingly popular chain-cum-belt transmission.

We will deal with the 4 h.p. model first, as more alterations are notable in the design of this machine.

The bore and stroke are 85 × 97 mm. (550 c.c.). The timing gear is of the simplest possible description. There are but two wheels, the main driving wheel and the half-time wheel, with which latter three cams are formed from the solid, viz., the decompressor cam together with the exhaust cam and the inlet cam. The horizontal rockers lap over the cams so that a direct lift is obtained.

The cylinder casting is quite new, having ample air spaces between the cylinder and the valve pockets, which is bound to result in much improved cooling. The valves on the 1915 model are of 1⅝in diameter (compared with 1 7/16in. in 1914), and have flat tops. Next year's timing gear case is circular in shape, and the cover is fixed with a spigot joint and internal lugs, resulting in a smooth exterior, rendering the cleaning process much easier



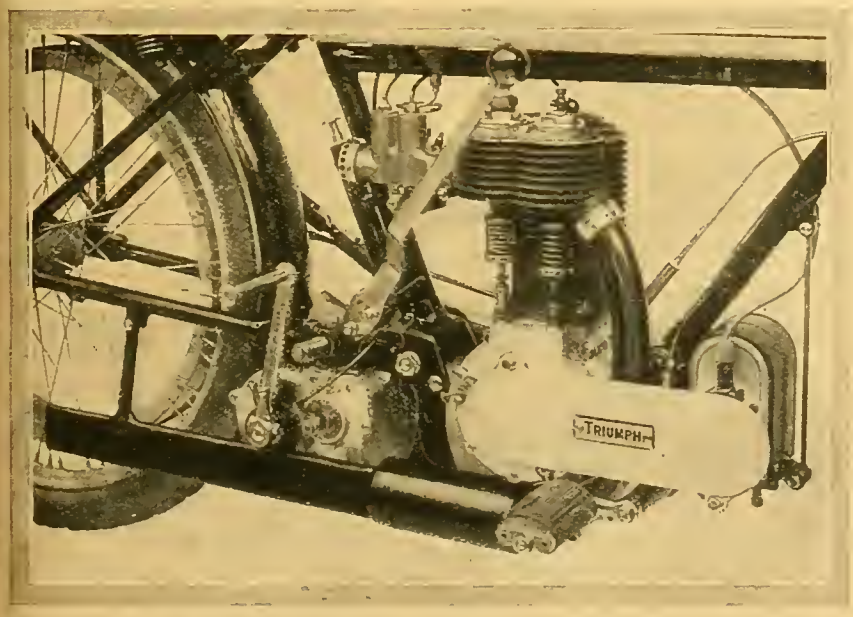
Transmission side of the new 4 h.p. Triumph—a completely new design of machine. Chain-cum-belt drive is employed.

The piston is of the flat top variety and fitted with three rings, two of small depth with diagonal slots at the top, and a deeper step cut ring at the bottom.

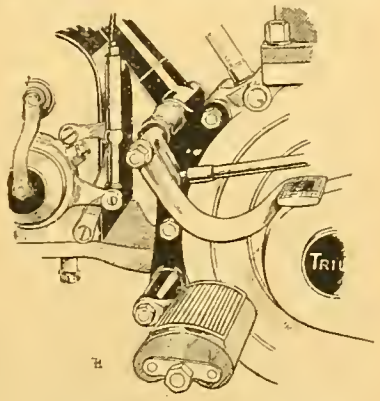
The silencing arrangement, too, has been entirely re-designed. Instead of the bracket which has usually formed the end plates for the silencer and a platform for the magneto, it will be noticed that the silencer is arranged immediately under the timing gear case, and thereafter a flat pipe conveys the gases to the rear.

To adjust the magneto driving chain a feather is formed on the platform and a corresponding keyway in the base of the instrument. Thus, it is impossible to fix in position out of alignment. The magneto, too, is 1⅛in. higher than on the current year's model.

The carburetter is of a new design, having the jet between the air and throttle barrels. It is practically automatic in action. One starts the engine with the air lever wide open, and it is only on very severe hills that it requires closing off.



Power plant and countershaft gear box of the 1915 4 h.p. Triumph, showing car type change speed lever, kick starter, and new silencer and exhaust pipe.

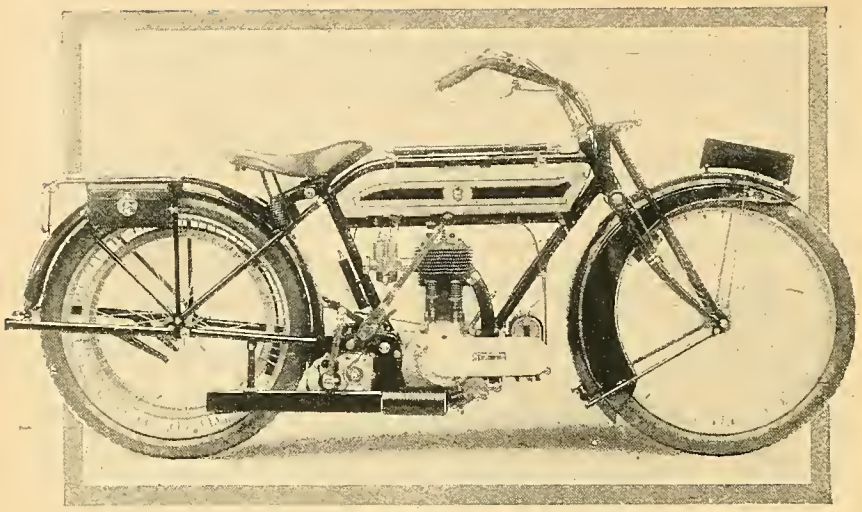


Foot-brake pedal, magneto control, and footrest of 1915 pattern Triumph

Gear and Transmission

The countershaft gear is the Sturmey-Archer three-speed, which is highly spoken of on all hands. It is of the sliding dog clutch type, the changes being effected by a round lever, and we feel sure that the operation of changing up or down will possess not the slightest difficulty even to a person experiencing his first run.

For the first time on record, the standard Triumph has a hand-operated



The 1915 model 4 h.p. Triumph, which has been entirely re-designed.

cork insert clutch controlled by a lever situated immediately in front of the valve lifter. This departure will, we feel sure, be commended by all practical motor cyclists.

A neat kick starter is embodied with the gear, the mechanism of which is entirely enclosed. The adoption of a countershaft gear and a kick starter, of course, leaves the back wheel simple and plain, and therefore readily removable. To simplify the removal process, a new type of brake has been adopted, the fibre block operating inside the groove of the belt pulley. It is just as powerful in this position as ever, which is saying much, as it will be agreed that the braking power of Triumphs has always been well studied.

The frame is similar to that in use in 1914, with a dropped top tube, but, of course, the bottom bracket has necessarily been re-designed to accommodate the countershaft type of gear. The front mudguard, too, it will be noticed, is practically the same as that used in 1913, as it has been found after extensive trial to be the most effective design.

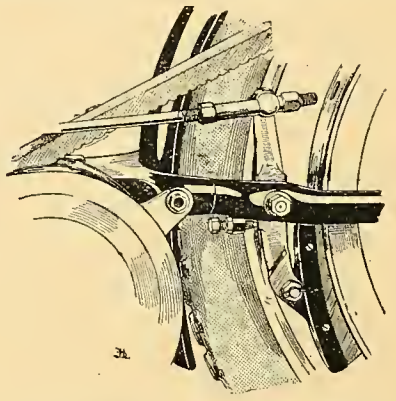
The tank now holds one and a half gallons of petrol, an ordinary enclosed lubricating pump is resorted to, and another refinement we noticed were wings fitted to the rear guard below the carrier.

We enjoyed a short spin on the new Triumph, and found it extremely controllable. It started at the first kick with the decompressor in action, and would throttle down to very low speeds even on full compression. It accelerated in remarkable fashion, and, thanks to the handle-bar controlled clutch and an easy changing gear, we at once felt quite at home on the machine.

The latest Triumph has undergone exhaustive tests for 6,000 to 7,000 miles, and has proved superior to any production of the Triumph Works. In particular it will stand hard driving for prolonged periods without a tendency to "dry up."

The Two-stroke Model.

To turn to the two-stroke, this mount for 1915 has undergone very little change, and it is interesting to observe that the main alteration is in connection with equipment, which formed the subject of criticism in a recent issue of *The Motor Cycle*. 2¼in. tyres have been standardised on this little machine, and a Brooks saddle of large size.



Showing action of rear brake on latest Triumph. It operates inside the groove.

Except for a new type carburetter with top feed and separate chambers for the air and throttle slides, the 1915 two-stroke Triumph is unaltered. The bore and stroke of this mount are 64 × 70 mm. (250 c.c.)

HEROIC DESPATCH RIDER'S DEATH.

At his father's residence, near Colchester, Essex, Corporal Eric Goodheart, who was one of the first motor cyclists to see active service as a despatch rider, has died of typhoid fever. Corporal Goodheart was mentioned in despatches by General Sir John French, and was subsequently awarded the Medal for Distinguished Conduct in the Field. He was home on short furlough.

MOTOR CYCLIST RESERVE COMMITTEE.

We are constantly asked by our readers to whom they should apply to obtain positions as motor cyclist despatch riders, and in consequence we give below a list of the secretaries of Motor Cyclist Reserve Committees in the various divisional areas.

EASTERN COMMAND—

HOME COUNTIES DIVISIONAL AREA.—Rev. F. W. Hassard-Short, Chaplain Kent Cycle Battalion, 2, Castle Street, Canterbury.

EAST ANGLIAN DIVISIONAL AREA.—Major E. Evans, D.S.O., D.A.A., and Q.M.G., 13, Northgate Street, Bury St. Edmunds.

SCOTTISH COMMAND—

HIGHLAND DIVISIONAL AREA.—Mr. J. H. Thomas, 52, Tay Street, Perth.

LOWLAND DIVISIONAL AREA.—Captain J. H. Barrie, R.E. (T.), 21, Jardine Street, Glasgow; and Lieut. J. B. Mayor, 1st Highland Field Company, R.E. (with the Scottish Army Troops Signal Company), 21, Jardine Street, Glasgow.

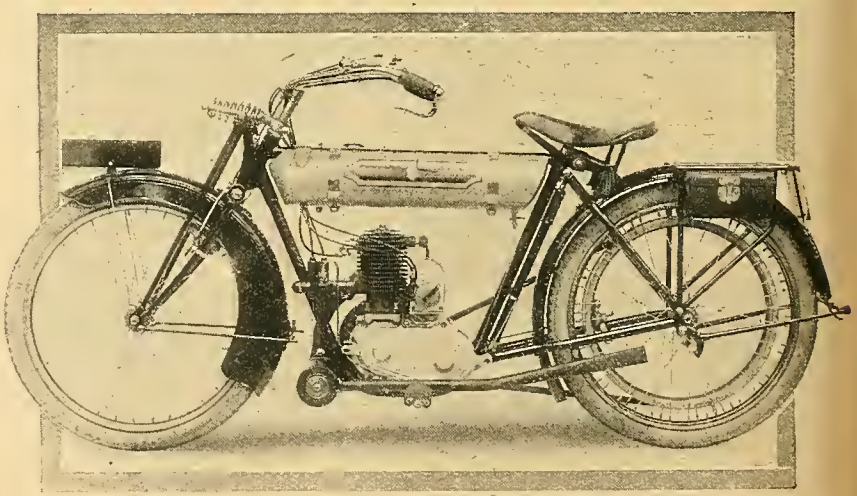
SOUTHERN COMMAND—

SOUTH MIDLAND DIVISIONAL AREA.—Mr. P. Grout, The Avenue, Keynsham, Bristol.

WESSEX DIVISIONAL AREA.—Colonel the Rt. Hon. Lord Montagu of Beaulieu, Beaulieu, Hampshire; and Lieut. W. McD. Allardice, Army Inspectors' Dept., Small Heath, Birmingham.

LONDON DISTRICT COMMAND—

Mr. T. W. Loughborough (Secretary Auto Cycle Union), Royal Automobile Club, 83-89, Pall Mall, London, S.W.



The two-stroke Triumph as it takes the road in 1915. It has 2¼in. tyres

The M.C.C. Bohemian Smoking Concert.

ON Friday last a most successful Bohemian smoking concert, organised by the Motor Cycling Club, was held at the Café Monico in aid of the Belgian Relief Fund. The burden of the organisation, which was particularly well carried out, fell upon the shoulders of Mr. W. H. Wells. The large room available for the concert was packed with people, and late arrivals had difficulty in finding seats.

The programme, from start to finish, was of the very best, and the turns, one and all, were excellent. During the interval Mr. Robert Head, the chairman, stated that he hoped that the proceeds, which would be handed over to the *Daily Telegraph* Belgian Relief Fund, would be between £50 and £60. Speaking of the club, he stated that of a membership of between five and six hundred, one hundred and sixty had joined the Colours. He made special mention of the honour conferred upon Corporal B. J. Hallowes, to whose doings we referred in the last issue of this journal, and to A. J. Sproston, the plucky rider who was mentioned in despatches. The latter had sent a message to the chairman saying that he was with them in spirit that evening, mentioning how the sporting competitions, in which he had been engaged, had contributed to his success while on active service. In conclusion, Mr. Head said that those present owed a big debt of gratitude to those of their members who were fighting for them at the present time. The health of those members of the Motor Cycling Club, who were fighting for their country was then drunk with musical honours. Among those who have been abroad we noticed Corporal F. L. Bassett, R.E., who is shortly to receive a commission in an infantry regiment, and Vernon Taylor, who has been serving with the French Army near Soissons.

On another occasion during the evening, Mr. Head rose and stated that he had been requested by the Belgian Ambassador to allow certain ladies, representing the Society for the Relief of Belgian Refugees, to make a collection that evening. These ladies then made a tour of the hall collecting contributions and selling small medals commemorating the bravery at Liège.

Almost at the conclusion of the concert, Mr. Gelder, of the F.N. Co., suggested that the accompanist should play the Belgian National Anthem. This was then played, with the whole company standing, while later the artiste, who was also an expert with the concertina, played the Marseillaise and the Russian National Anthem.

COVENTRY & WARWICKSHIRE M.C.

The roll of honour of the Coventry and Warwickshire M.C. contains many names well known to motor cyclists. This list is as follows:

MEMBERS.

G. E. Cyffe (Despatch rider)
G. I. Francis (Despatch rider)
T. E. Newsome (Motor Transport)
A. Hill (Red Cross)
E. Rotherham (Capt. 7th Royal Warwickshire Regiment)
S. A. Rowlandson (Motor Transport)
A. P. Smith (Major 7th Royal Warwickshire Regiment)
H. Trepass (Despatch rider)
C. T. Newsome (Despatch rider)
W. A. Davenport (Motor Machine Gun Battery)
J. H. Pountney (Motor Machine Gun Battery)
R. B. Ewens (Motor Transport)
J. M. Hillyard
A. Walsgrove
J. C. Humphries (Lieut. 7th Batt. Royal Worcestershire Regiment)
J. Gibson
P. W. Johnson
W. Maughan
W. F. Newsome (Motor Transport)
B. W. Shilson
W. G. Tuck
W. D. Wartnaby

OLD MEMBERS.

Capt. Mortimore
C. S. Burney (Despatch rider)
V. Taylor (Motor Ambulance)
R. W. Walker

EDWARDS CUP TRIAL.

The fourth round of the Edwards Cup reliability trials was run off on Thursday, December 3rd. All competitors made non-stop runs, and the winners were as follow: 1, F. Tustin (Triumph sc.), time error 1m. 56s.; 2, F. Thorn (Clyno sc.), 2m. 1s.; 3, H. J. Woodgate (2¾ Douglas), 3m. 15s. The best performance in the four trials was made, for the second time, by H. Petty, who will hold the cup for one year. W. H. Chapman (A.J.S.) made the second best performance in the four trials. Both have done four non-stop runs.

BRISTOL OPEN TWENTY-FOUR HOURS TRIAL.

The Bristol Motor Cycle Club has applied for a permit to hold an open twenty-four-hour trial on Friday and Saturday, January 1st and 2nd, 1915, for solo machines, sidecars, and cycle cars. The course will be Bristol, Exeter, Okehampton, Launceston, Bodmin, Penzance, Land's End, and home *viâ* Tavistock, Two Bridges, Exeter, Taunton, etc.; distance, about four hundred miles. The trial will be run whatever climatic conditions prevail.

Awards will be gold, silver, and bronze medals, with additional prizes of silver cups for the three classes of entrants, for the best performance in each class, provided a bronze medal *at least* is won.

Entry forms can be obtained from the hon. secretary of the trial, Mr. F. C. Wasley, 9, Victoria Street, Bristol. The latest date for receiving entries is Saturday, December 26th.

A group of motor cyclist despatch riders known as No. 1 Section, at present stationed at Aldershot, who will shortly leave for the front. The machines are Rudges, Triumphs, and Zeniths.

CURRENT CHAT

SPECIAL FEATURES

BUYING SECOND-HAND MACHINES.
MORE NEW MODELS.

TIMES TO LIGHT LAMPS

Dec. 17	...	...	4.49 p.m.
,, 19	...	...	4.50 ,,
,, 21	...	...	4.51 ,,
,, 23	...	...	4.52 ,,

Latest London Lighting Regulations.

The Secretary of State's Order for the Metropolitan police district and the City of London, which would have expired at the end of this month, has been superseded by a fresh order. The only new provision that affects road users is that requiring all vehicles to show a red lamp to the rear.

Reflex Lights not Sufficient.

Motor bicycles, push cycles, and band carts—in fact, road vehicles of all types—will have to carry a red tail lamp, and it is important to note that the red glass reflectors will not be considered sufficient.

To Avoid End-on Collisions.

This new lighting regulation has been brought about by the numerous end-on collisions which have occurred since the London streets have been in darkness at night. Although it only applies to London, motor cyclists in the provinces, who are in the habit of motoring to town, should at once see that their lighting outfits comply with the new regulations, which, presumably, will come into force on January 1st.

No Vacancies at Present.

The officer commanding the Second London Divisional Engineers, Duke of York's Headquarters, Chelsea, informs us that all vacancies for motor cyclists are now filled up. Those applicants who have not been successful in obtaining employment should understand that their names and addresses have been noted, and that they will be communicated with in the event of any vacancies occurring.

Drivers for the Motor Machine Gun Battery.

The short paragraph in last week's issue asking for recruits for the 5th Motor Machine Gun Battery brought in such a large batch of replies that it was quite impossible to enlist all the applicants in the positions which were vacant at the moment. All the letters have, however, been sent to the Commanding Officer of the Battery, and, as openings occur, the writers will be communicated with in due course.

We have been informed that more batteries will be raised, and more experienced motor cyclists will be required later on, preferably men having had some military experience. At the moment motor cyclists particularly wanted are those who know the Scott motor cycle thoroughly, and who, in addition, have done some soldiering. A few mechanics are also desired who are conversant with the Scott machine, and who are prepared to accompany the sidecar machine gun batteries to the Front.

Applications should be addressed to Mr. Geoffrey Smith, *The Motor Cycle*, 19, Hertford Street, Coventry.

Prize Winners Wanted.

Will Messrs. Moore and Williams, of Cardiff, who took part in the Weston-super-Mare speed trials last June, communicate with Mr. Philip Grout, Keynsham, near Bristol? Mr. Grout is the late hon. sec. of the Bristol Motor Cycle Club, and he is now sending out prizes won during club competitions.

Motor Cyclists Required in Yorkshire.

The Auto Cycle Union informs us that a number of motor cyclists are required for carrying out special work in the East Riding of Yorkshire. Motor cyclists resident in this district should communicate in writing with Mr. J. R. Proctor, Clerk to the Lieutenancy, Lieutenancy Office, East Riding, Beverley.

Across London on Armoured Sidecars.

Last week a party of motor cyclists, now in training at Bisley, were sent to Woolwich to fetch to the camp eighteen Scott sidecars with quick-firing guns, such as we have illustrated.

The procession of so many armoured sidecars through the suburbs of London naturally caused a sensation. The journey was successfully accomplished, though several of the motor cyclists had never handled a Scott before. One managed to bowl a dustman over.

How the War Funds Stand

The principal war funds amounted to the following figures on Tuesday last:

	£	s.	d.
H.R.H. Prince of Wales's National Relief Fund ...	4,122,000	0	0
H.R.H. Princess Mary's Fund to provide Christmas Gifts for Soldiers and Sailors	139,189	0	0
The Queen's Work for Women Fund	97,063	0	0
The Times Fund for Sick and Wounded	760,812	15	1
The Daily Telegraph Belgian Relief Fund ...	88,130	5	7
Indian Soldiers' Fund ...	102,731	0	0

A MILITARY MOTOR CYCLE WEDDING.

On Sunday last an interesting wedding took place at the Old Parish Church, Greenwich, the bride and a lady friend riding to the church on motor cycles. The bride was preceded by the bridegroom—who is in the 1st Company Sportsmen's Battalion—on a sidecar machine, and our picture shows the pair leaving the church.

BRISTOL M.C.C. OPEN 18 HOURS TRIAL.

RAIN, MUD, HILLS AND FOG!

ANOTHER VICTORY
FOR THE FAMOUS

STURMEY-ARCHER 3-SPEED HUB GEAR.

Mr. G. Brough on a $3\frac{1}{2}$ h.p. Brough, with Sturmey-Archer hub gear, was the only rider to gain a gold medal. . . . . .
The "Motor Cycle," of December 3rd, says:—
Brough's performance *is little short of miraculous*, for the darkness, hills, and road surfaces which were in places almost a foot deep in grease were enough to deter the boldest solo rider, and spoil his 20 miles per hour average. Only a hardened rider, such as George Brough, on a really first-class machine, could have accomplished such a task."

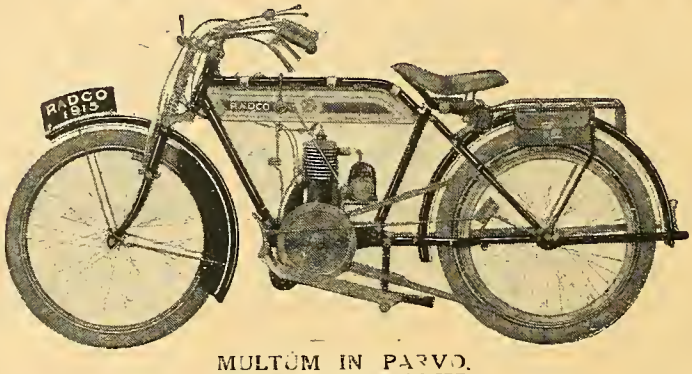
Send for full particulars and reduced 1915 prices of the Sturmey-Archer 3-speed Hub Gear.

STURMEY-ARCHER GEARS, Ltd., NOTTINGHAM.

"RADCO"

1915 GENT'S MODEL.

23 GUINEAS STANDARD MODEL.



29 GUINEAS TWO-SPEED MODEL.

MULTUM IN PARVO.

AGENTS WANTED FOR DISTRICTS WHERE NOT REPRESENTED.

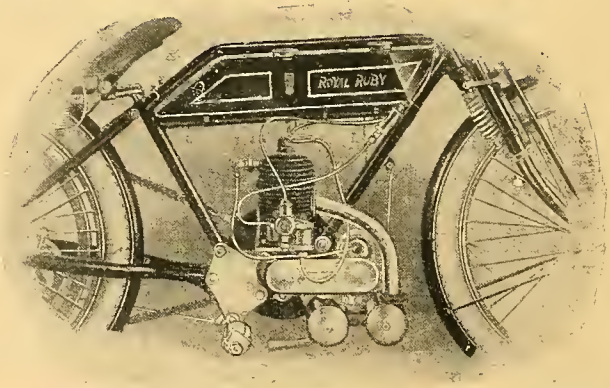
TERMS AND SPECIFICATION UPON APPLICATION.

E. A. RADNALL & CO. - - - - - - - - - BIRMINGHAM.

London Agents—A. W. GAMAGE, LTD., Holborn. T. BAXTER, 26, Gt. Eastern Street.
Continental Representative .. .. CHAS. B. TIMPERLEY, 86, Snow Hill, Birmingham.

The New Separate Lubrication of the

2-STROKE LIGHTWEIGHT ROYAL RUBY MOTOR CYCLE



is the very latest improvement in this popular type. No risk of faulty lubrication. See the method of sight feed lubrication through carburetter inlet. Send for further particulars of this and other novel features for 1915 of the Royal Ruby—Lancashire's lead in Lightweights. Prices from 25 Guineas. Heavyweights 54 to 80 Guineas New 1915 List ready in a few days.

ROYAL RUBY CYCLE CO., Ruby Works, Cannel Street, Ancoats, MANCHESTER.

Have you seen the Royal Ruby War Map? the best thing in War Maps on the Market.

Tales from the Front.

"The Tales that Motor Cyclists Tell," runs the headline to certain despatch riders' experiences. Yes, indeed!

British Motor Cyclists in Russia.

News has been received by *The Motor Cycle* from the British motor cyclists who accompanied the big batch of motor cycles supplied for the use of the Russian Army. Of 150 machines uncrated at the time the letter was despatched, not one gave trouble in starting up, despite the cold weather. There are fourteen riders in all.

Wireless Apparatus Illegal.

A. G. Cocks, a well-known competition rider, was tried by court martial on the 5th inst. on the charge of having in his possession at Filey a wireless apparatus in contravention of the Defence of the Realm Act. Cocks explained that he was a British subject, and had a wireless licence in Birmingham, and had applied to have it transferred to Filey. The purpose of the installation was to demonstrate and lecture to boy scouts.

Counsel for the defence submitted that the offence was a technical one. Cocks was, however, sentenced to two months' imprisonment.

Winter Trial in the West.

Manufacturers and those sporting motor cyclists who enjoy winter riding are not, after all, to be robbed of an important annual winter run, the Bristol Motor Cycle Club having decided to fill the breach by arranging a run to Land's End and back on January 1st and 2nd. This enterprising body is endeavouring to carry out the motto of "Business as usual," but it has, at the same time, by no means overlooked the patriotic side of the question, for not only has it contributed £10 10s. to the Princess Mary Fund, £10 5s. to the Prince of Wales's National Relief Fund, and £30 to *The Weekly Despatch* Tobacco Fund, but prominent officials of the club are, and have been, engaged in recruiting despatch riders since the beginning of the war, and have, moreover, arranged trips for wounded soldiers.

The Bristol M.C.C. is looking forward to a representative entry for the New Year winter run, and, in view of the fact that practically every manufacturer has produced a 1915 model, and that prospective buyers are waiting to note their performances on the road, the Bristol trial offers an excellent opportunity.

S. W. Carty, a prominent Mersey motor cyclist, was presented by a number of Liverpool and district motor cyclists with a sword, revolver, and glasses, upon obtaining a commission in the A.S.C. The photograph was taken at a smoking concert specially arranged for the occasion on Thursday of last week.

Early Road Races.

Just ten years ago there was run off a race in France at St. Arnouet, some forty miles from Paris, in which a mere handful of competitors took part, but which was destined to be the origin of properly organised international road racing, and a direct forerunner of the Tourist Trophy Race. This was the International Cup race, which was competed for by five nations—England, Germany, France, Denmark, and Austria—eleven riders in all. Rignold, Hodgkinson, and Silver formed the British team, and any chance they had of winning was destroyed by frightful tyre troubles. In fact, the race roused a regular hub-bub owing to the alleged malicious strewing of nails on the course to the detriment of the riders. As certain of the home riders escaped scot-free, rather pointed remarks were made that they were cognisant of the presence of the nails. The race was won by France, the actual winner being Demester, who rode a Griffon, then one of the most famous machines on the market. The next year an Austrian won, and after that Continental racing fell rather flat, and the Marquis de St. Mars set the ball rolling again with the Tourist Trophy. From that day onward British motor cycles have been supreme both at home and on the Continent except for one American victory. Viewing the sweeping successes of English machines of late years on the Continent, it is curious to look back a decade and see with what reverence we regarded our present day Allies as motor cycle designers and makers. But whereas French makers developed their machines along the lines of speed, our manufacturers rather sought reliability, and time has proved the soundness of their methods and the success attending them.

Sidecars are being put to a variety of uses in the war. Many, for example, are being used by our French allies for transport purposes, and this illustration shows a group of such machines. The sidecars are a few of a large order completed by the Gloria Company for the French War office, the photograph being taken at the Grand Parc d'Artillerie de Reserve, Montluçon (Allier). The bicycles to which they are attached are Triumphs.

MILITARY NOTES.

The Design of Military Cycles.

Maurice Greenwood, who is at present driving a Daimler lorry with the Expeditionary Force, writes endorsing Vernon Busby's views on the ideal machine for military work; the latter's experiences and views were published in *The Motor Cycle* of September 24th. Greenwood maintains that what is required are bigger tyres, stronger frames, wheels and spokes, larger carriers, and counter-shaft change speed gears. With his company there are eight motor cycles—seven Triumphs and a B.S.A.

Fur Clothing for Despatch Riders.

Now that nearly everybody at home is sending warm clothing to friends at the Front, it is interesting to note that Messrs. Peter Spicer and Sons, of Leamington, have acquired 500,000 Australasian coney skins for making into waistcoats, coat linings, fur-lined overalls, moccasins, sleeping bags, etc. Prices range from 12s. 6d. to 30s. The makers' efforts are to produce really warm, serviceable, and moderately-priced winter outfits. It would be difficult to imagine a more suitable Christmas present for a despatch rider than one of the many kinds of fur-skinned clothing sold by Messrs. Spicer and Sons.

Fur-lined waistcoat made by Peter Spicer and Sons of Leamington, from Australasian coney skin. A more suitable gift for a despatch rider could scarcely be imagined.

F. C. North Going Strong.

We have seen a letter written by F. C. North, the Ariel rider, to Mr. J. S. Hubbard, of Components, Ltd. North is a despatch rider with the British Expeditionary Force, and, judging by his letter, he is having a very exciting and strenuous time. He is evidently in the best of spirits, and says that his machine is going splendidly and not giving any trouble.

Well-known Riders in Russia.

We have had a letter from J. Oliphant, who, together with several other riders, is at Petrograd looking after the English-built motor cycles which have been supplied to the Russian Government. At the time of his letter only 150 machines had been unpacked, but not one had given the slightest trouble, all starting quite easily. While waiting for the arrival of their machines the Russian authorities asked them to assist in preparing some Crossley ambulances for the road, which were urgently needed at the Front. All worked on the cars with a will, not stopping for rest on Sundays. The party consists of fourteen, including Graham Dixon, L. Cushman, V. Harrison, and others, as shown in the photograph which we reproduce, and which Mr. Oliphant kindly enclosed in his letter. They expect to be in Petrograd for another two months from the time of writing, by which time their work in the Russian capital should be complete.

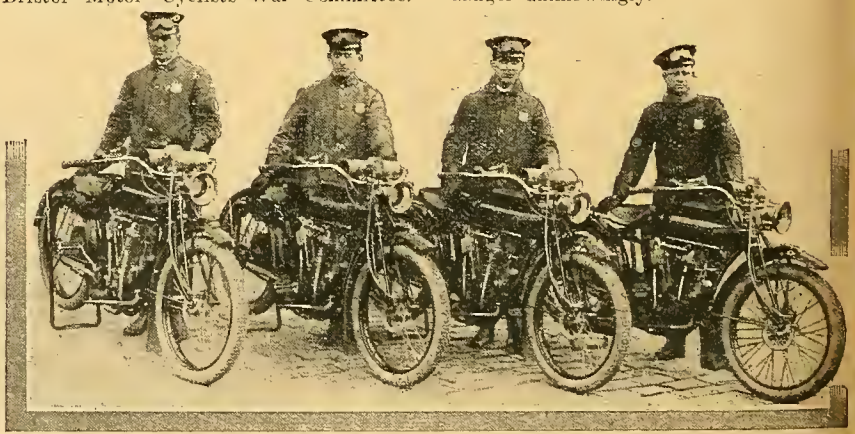
British motor cyclists who are looking after the Russian army motor cycles. Top row left to right: L. Cushman (Premier) and C. Guise (Enfield). Bottom row: R. Brook (Humber), J. Oliphant (Premier), and Eldridge (B.S.A.)

Army Airmen.

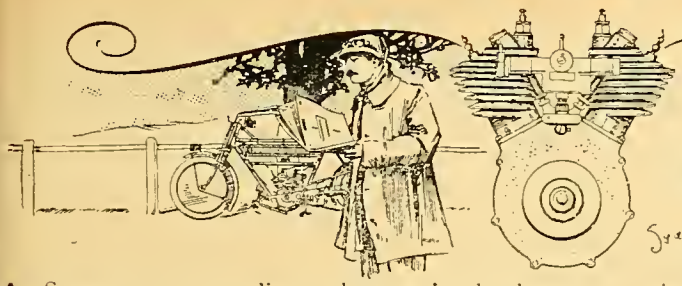
Corporal T. M. Davies was one of the despatch riders who enlisted through the Bristol Motor Cyclists War Committee. He is now serving in the 1st Signal Section of the 1st Cavalry Division, and has written a long letter, dated October 28th, to the committee, from which we give a couple of extracts:

"We have now been pushing forward for about twenty days, fighting hard practically all the time. Our men have many victories, and so far casualties have been small. Our artillery are simply great, having done much damage to the enemy during the last few days. The airmen assist them by giving position, etc., by different signs, which I cannot explain here. It is a sight to see them; one we call 'Dreadnought' is a marvel—simply hovers over the enemy's guns. Two days ago I saw eight shells (which were fired direct at him) burst all round him, luckily without a hit. Yesterday he, together with another airman, brought down a German machine to earth with a crash. I have not heard if the pilot was killed, though it seemed certain death.

"Despatch riding is somewhat exciting at times; the roads are awful, and sometimes lined with troops for miles—it is all thrills. One night I had to pass four times between several batteries of artillery in action, when we saw lots of scenes, some indescribable. One cannot imagine what actual war is like. Old soldiers say South Africa was a picnic to this. However, we have lots to be thankful for, and we are sure to win in the end, and all will be glad when it is finished. We have had many strange billets—schools, convents, farmhouses, mills, and balcony in theatre. One night I slept in a cart with artillery in action less than two hundred yards away, yet I slept well; in fact, we can sleep under any circumstances almost. Night duty is more difficult than day duty. One never knows exactly the movements of troops, and it is quite easy to run into danger unknowingly."



A motor cycle police squad forming part of the well equipped force of Springfield, Mass. The machines are twin Indians furnished with speedometers and dissolved acetylene cylinders.



THE PURCHASE OF A SECOND-HAND MACHINE

Hints to Beginners.

As many motor cyclists, who are in the happy position of having a sufficiency of cash, buy a new machine every year, it always happens that there are many excellent bargains to be picked up in the autumn and spring, especially the former, for these consist largely of machines which have only been used during the summer months, well taken care of, and possibly have only a very moderate mileage to their credit. These machines are consequently to all intents and purposes as good as new, probably much better than a new second-class article, but, because they are slightly out of date and some men will only have the latest models of everything, they are often to be purchased complete with accessories at a very fair reduction off the list price, especially in the case of models which have been much altered by the makers for the ensuing year.

A beginner usually wishes to start his motor cycling with a second-hand, purchasing a new machine when he has become more or less proficient. This is quite a sound plan, for an inexperienced rider is much less likely to damage a machine that has been run in than a new one, which requires somewhat delicate handling for the first few hundred miles. But in the purchase of this second-hand machine he may be misled and disappointed, unless he has an expert friend to guide him or has been advised as to what points to look to when examining the proposed purchase. It is to help the inexperienced rider or prospective rider that these notes are penned.

What to Examine.

Of course, the safest method is to have the motor cycle in question taken to pieces, examined, and reported upon by an expert engineer at a fee (there are several men who undertake this work); but we will suppose that such an examination is out of the question for some reason or other and proceed to give the novice a few easily followed hints for his guidance—the expert will find nothing new in what follows.

In the first place, it is not advisable to place too much reliance on general appearance, though this, if good, certainly points to careful usage; but unless one happens to know that the owner is an expert it does not guarantee the internal and more important condition. Some riders take very little trouble in keeping the exterior smart, while they are careful to keep the working parts in excellent trim.

The cycle parts should be examined for marks of ill-usage or accident. The bearings of the wheels and head should be tested for adjustment and freedom. There should be no perceptible rock at these points, but, at the same time, the bearings should be perfectly free, the weight of the valve being sufficient to turn the wheel (of course, with belt or chain removed). In the case of a chain-driven machine the amount of chain adjustment taken up will give some indication of the stretch of the chain. The chain connections should be examined. If a belt is fitted, take note of the condition of the sides, note whether the rubber is cracked or not, and, most important, look to the part where the fastener is attached and feel the inside of the pulley to ascertain if it has worn to a shoulder—the sides should be flat.

A test on the road should be insisted upon. The machine should be run both fast and slow and up the steepest hill available. At the same time ease of starting or otherwise should be noted, making some allowance for a frosty morning, if necessary, for any machine will start more easily in warm weather, as the fuel is more quickly vaporised.

The Engine.

The most important part, namely, the engine, has been left till last. The purchaser should not be persuaded to be satisfied to make a test of the compression or bearings while the engine is cold. A test when the engine is warm may reveal quite a different state of affairs, for the congealed oil will often make a bearing seem quite tight which is distinctly loose under running conditions, and a stiffness in the piston may easily be mistaken for good compression. The crank bearings should be tested by attempting to move the pulley up and down; it should be quite rigid in this direction, though a little lateral play is usual. The big and small end bearings can be tested to some extent by turning the wheel backwards and forwards and noting any play.

Another important point to examine is the lift of the valves, as, provided the tappets are correctly adjusted, which also should be noticed, an insufficient lift is caused by worn cams, and new cams are the only remedy. This is a serious matter, but tappets are easily adjusted or replaced. If the compression is really good—this can be tested by pushing the machine along on top gear, when the back wheel should glide rather than revolve—it may be taken for granted that the piston rings and valves are in good condition, but poor compression may only mean leakage at the valve caps, compression tap, or plug—these points can be tested by being smeared with oil, when bubbles will at once show a leak—and new washers will probably effect a cure.

If the machine was new during the current year, it is unlikely that the magneto will be in poor condition, but it is as well to examine the platinum points for wear.

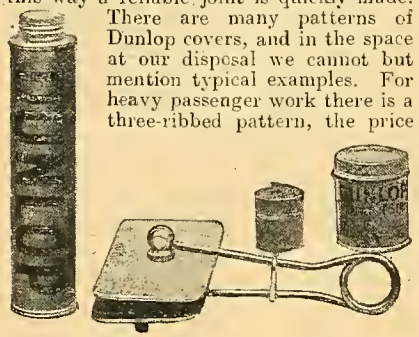
The condition of the tyres—and the tubes—will, of course, be noted. Grip the mudguards and other parts with the hand and test for solidity. Run the fingers along the underside of the petrol tank for moisture to detect any leakage, and do not forget that a smearing of soap will stop a leak for some time.

SOME INTERESTING ACCESSORIES.

Addenda to the Equipment Number published Last Week.

Dunlop Tyres and Accessories.

Glancing through the long list of Dunlop accessories—apart from tyres—one is taken with the Dunlop patch fixer, which is of great assistance when repairing tubes. The patched tube is gripped between the plates, pressure is applied by forcing the ring up the arms, and all air is expelled from under the patch. In this way a reliable joint is quickly made.



There are many patterns of Dunlop covers, and in the space at our disposal we cannot but mention typical examples. For heavy passenger work there is a three-ribbed pattern, the price of the cover in 650 mm. × 65 mm. size being £1 12s. 6d. Then there is the light rubber-studded moulded pattern, a 26in. × 1¾in. size costing 19s. That Dunlop tyres give good service is shown by the service given by tyres of this make fitted to a despatch rider's machine with the Expeditionary Force. The rider in question covered over 2,000 miles with only one puncture over roads and tracks the state of which defied description.

Reliable Tube Repairs.

Motor cyclists who have trouble when effecting repairs to inner tubes through the patches not remaining in place, or a puncture appearing elsewhere, etc., should invest in some of the various special kind of patches which greatly minimise, if they do not entirely do away with, such troubles. The best known are the "Patchquick," made by Woodgates Bros., of Tiverton, and the "Holdtite," made by R. Surridge, of 58, Lomond Grove, Camberwell, S.E.

J. Barbour and Sons' Clothing.

It would be difficult to find a more attractive and comprehensive range of clothing for outdoor wear—and in particular for wear in bad weather—than that sold by J Barbour and Sons, of South Shields. Everybody is catered for, and the motor cyclist will find plenty to interest him in the latest Beacon catalogue of oilskins and sou'-westers

The Searle Tube.

The Searle Unburstable inner tube is constructed with a canvas insertion embedded in the rubber of the tube. To allow a certain amount of elasticity so that the cover may be entirely filled, an internal projection runs round inside the tread, and the canvas follows the inner contour. This enables the tube to conform to some extent to the dimensions of the cover, but, at the same time, the canvas prevents the tube from coming out through a cut in the cover and from bursting, even if inflated without a cover. These tubes are, therefore, most excellent for use with old covers, which would be quite unsafe with an ordinary tube. In case of a puncture, which is unlikely owing to the great thickness of the tread, a special repair outfit is sold by the Searle Unburstable Tube Co., 6, Livery Street, Birmingham.

A Waterproof Suit.

There are not many garments other than oilskins, which can be guaranteed to keep the rider absolutely dry in the very worst weather, but the other day we had the opportunity of seeing what is known as a black, shiny-proof combination suit. As its name implies, the coat and trousers are in one, and it is very similar in shape to the ordinary boiler suit. The front is provided with a storm flap, and the collar is lined with wool. The sou'-wester is so designed that it can be buttoned on to the back of the collar.

Express Rubber Company, 1, Worship Street, E.C.

Self-vulcanising Patches.

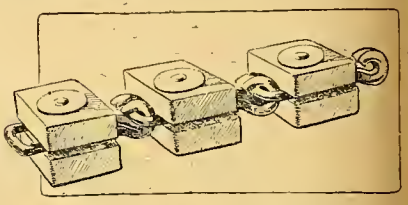
We have received some samples of the Harris security self-vulcanising patches for repairing inner tubes. Of these patches one surface is of rubber and the other of a special preparation which is a bright scarlet in colour. To use the patch the tube is cleaned with petrol, the red cloth on the front of the patch is removed, and the exposed surface is also moistened with motor spirit. The patch is immediately placed over the puncture and firmly pressed down. The tube is at once ready to be replaced in the cover. It is claimed that heat generated on the tyre by running vulcanises the patch to the tube and makes a permanent repair. The makers are Messrs. Harris and Sons, 10-12, Great Chapel Street, Oxford Street, W.

The Stewart Magnetic Speedometer.

Some confusion may have been caused by an illustration appearing in the Equipment Number of an old type Stewart speedometer, whereas the letterpress (on page 653) dealt with a more modern pattern. There is no needle to indicate the speed, the figures appearing on the magnetic cup, which is rotated by means of the eddy currents set up on the permanent magnet driven by the flexible shaft. The makers claim several advantages over speedometers of the centrifugal type, such as more accurate reading at low speeds, and, what will appeal to most people, its low price. The makers are the Cooper Stewart Engineering Co., Ltd., 11, Broad Street, Bloomsbury, W.C.

Bradford Chain Belts.

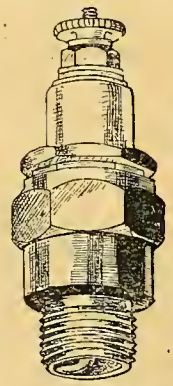
The accompanying illustration of the chain belt made by J. T. Bradford and Co., of 91, Burnley Road, Colne, is practically self-explanatory. The chain is made from the finest steel wire and hardened for wear. A few links at the end are left open in order to obtain the correct length.



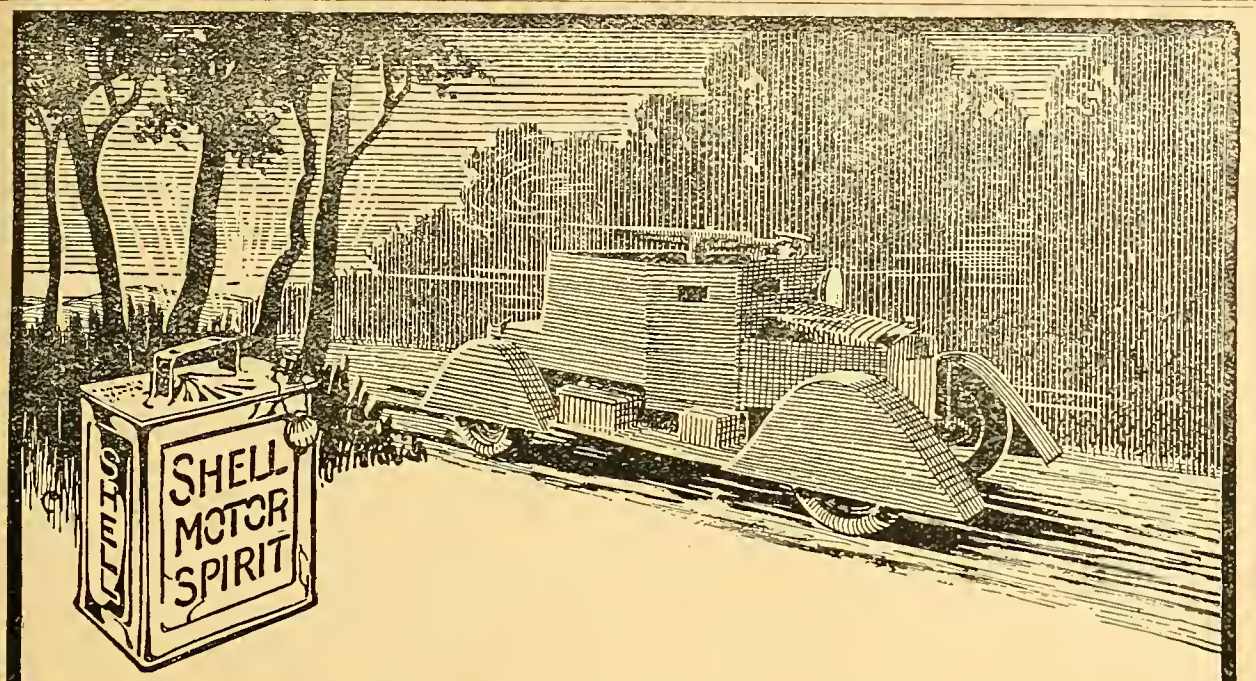
The Bradford belt has been thoroughly tested in bad weather in the Lake District and North Wales, and the results obtained have been most satisfactory. The makers claim that with the Bradford chain belt the engine will give more power at the road wheels than if fitted with a belt of the usual kind, and that consequently less gear changing is necessary.

Sphinx Sparking Plugs and Accessories.

Every type of petrol engine has a Sphinx sparking plug to suit it. The range of types is so wide that it is impossible to refer to each one, and it is hardly necessary, as anyone interested can obtain from the manufacturers, the Sphinx Mfg. Co., Bradford Street, Birmingham, a very attractive catalogue which contains illustrations and particulars of all types. The Sphinx Co. have received further large orders from both the War Office and the Admiralty, and they ask the indulgence of their customers for delays in delivery which may occur during the next few weeks.



The extension pipes made by Willmott Bros., of Norwich, illustrated on page 642 of the Equipment Number, are known as the "Willbro," and not as the Willers.



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'Shell' Motor Spirit because it can be thoroughly depended upon under all conditions and because it is so pure and uniform in quality. It is used in all branches of the service for air, land and sea.

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Bearing in mind our oft-repeated claim—"There's no query about Quadrants"—we have, in the planning of our 1915 programme, cut out every element of doubt—

In short, there shall be "no query about Quadrants"—of that we are determined—let us convince you it is so.

In our extended range of 1915 models you will find—

The Quadrant 4¼ h.p. with B.S.A. Countershaft 3-speed Gear, Senspray Carburetter, Dunlop Tyres, Quadrant Engine, Quadrant Spring Forks, Pan-seat Saddle, and Aluminium Foot-boards—

An exceptionally handsome mount supplied with either Chain-cum-belt or wholly chain transmission at the prices following—

Chain-cum-belt Solo £55
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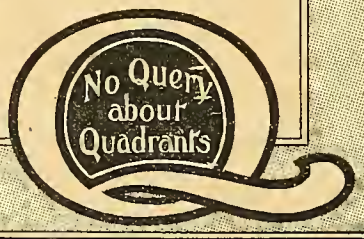
Let us send you details of the rest.

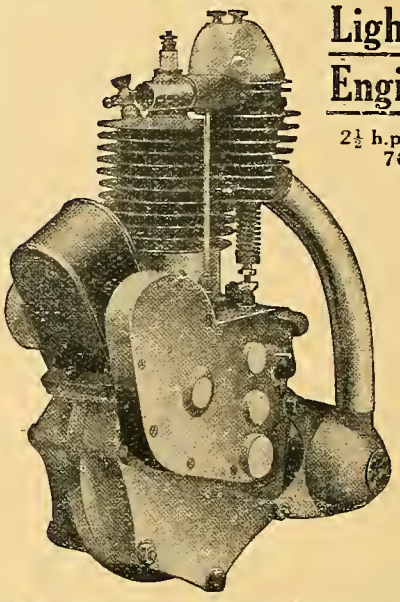
QUADRANT WORKS,
Lawley Street,
BIRMINGHAM

London Depot: 78, Gt. Queen Street Kingsway.



The "BURMAN"

Lightweight Engine. . .



2½ h.p. 298 c.c.
76 x 65.

Overhead Inlet Valve, totally enclosed. Solid Crankshaft. Big-end Bearing. Loco. type. Can be removed without detaching Fly-wheels.

Further particulars and prices from the Manufacturers—

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Makers of Motor Cycles and Sidecars

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BAKER & CO., 53, Moseley Building, Johannesburg, are able to show designs and quote South African and Rhodesian customers.

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Of Interest to the Allies.

? Will you tell me whether I should have any difficulty in obtaining an English driving licence? I am a Belgian, and my machine was burnt at Louvain, but I am thinking of purchasing a new one.—BELGE.

We see no reason why you should not hold an English driving licence, as you are now domiciled in England. Also, as you are neither German, Austrian, nor Turkish you are free to ride a motor bicycle as much as you like.

A Question of Sidecar Load.

? I am writing to ask you if you could give me advice as to what is a reasonable weight for a 1914 model Triumph and sidecar to carry. My sidecar is rather heavy, and one person says my machine will take it anywhere with a passenger, and another says I shall ruin the machine. I have only had it a short time, and as I am a novice, your advice would be appreciated.—A.N.

The question is solely one of gearing. If the low speed is low enough, the engine will take you practically anywhere, but it is not good to overload the machine more than you can help. A load of 22 stone would be about right.

A Tendency to Four-stroke.

? I have a 2½ h.p. two-stroke Villiers-engined motor cycle, which up to recently has run extremely well, but has now developed a tendency to four-stroke or knock when running down a slight incline, or even at high speed on the level. I have taken down the carburetter and cleaned it, but this has not made any improvement. I may say, although I have not taken down the cylinder since I got the machine (three and a half months ago), I do not think this fault is caused by carbon deposit, as on hills or against a load it pulls and fires very well. Can you give me any help in the diagnosis of the trouble?—W.J.S.

We would suggest that your trouble is caused by (1) too much oil; (2) rather high petrol level; or (3) a faulty plug. The trouble you mention is not uncommon on two-strokes, but there is no particular reason why it should have got worse, as in your case, unless one of the above causes is responsible. It is, of course, possible that you have a leak in the crank case compression chamber, which may cause the same trouble.

Legal and Technical.

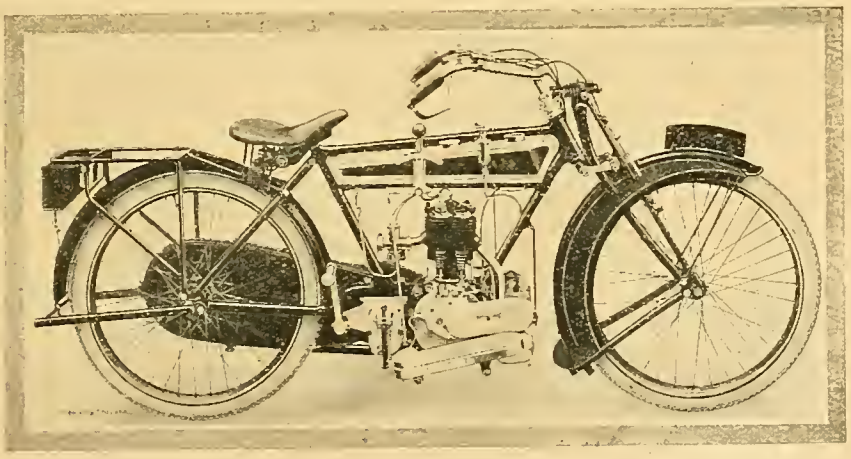
? Is a long exhaust pipe to rear of machine without expansion chamber against the law? Would it be safe to attach a sidecar to a machine fitted with Al'All spring fork attachments? Is the local taxation licence payable on a machine whether it is being used or not? I shall not be using mine again before April, 1915. Have I to pay tax before that time? Will it damage an engine to run it with the cylinder only bolted down at three corners, the fourth bolt having been broken?—J.F.

A long exit pipe without an expansion chamber might cause difficulties. Of course, there is a possibility of your being able to argue that a long exit pipe has the same effect as an expansion chamber, but you would always run the risk of being stopped if the machine makes excessive noise. While it would be possible to attach a sidecar to a machine fitted with the forks in question, we do not think this would be advisable. If you have used the machine referred to in 1914 you are liable to pay till the end of the year, otherwise it will be sufficient to take out the licence when you commence using the machine. We do not think it is advisable to run the engine unless the cylinder is properly bolted down. It is quite possible that the corner of one of the flanges might break away. The defect should, therefore, be seen to as soon as possible. It can be repaired by oxy-acetylene welding.

Difficulty in Starting.

? I have recently fitted to my 1911 Bradbury an Amac carburetter, and find very great difficulty in starting the engine—in fact, I nearly always have to inject petrol before it will fire. The timing is correct, there are no air leaks, and the magneto is perfect. The inlet valve guide is slightly worn, but if I replace my old carburetter the engine fires practically immediately, though with this carburetter the slides are a very shaky fit and the whole thing is leaky. I shut off all air in starting, but cannot start without a petrol injection. When running, I can make the engine just tick over evenly and turn round in the roadway without a miss. In fact, the Amac is all that is desirable except starting.—R.R.

The symptoms point to an air leak in the induction pipe, but the excellent slow running seems to contradict this. The whole affair seems a mystery. Perhaps you have not yet found the best position to place the throttle lever for starting. It is also possible that your carburetter may be adjusted in rather a peculiar manner. Possibly the jet level is incorrect. This may be readily tested by means of the special jet supplied with all Amac carburetters. The level should just reach the top of the test jet.



2¾ h.p. touring model A.J.S. for 1915 showing sloping top tube—a feature of all the new A.J.S. models. Drive is by chain throughout, and purchasers have the option of a two or three-speed gear.

Cylinder Pressures.

Could you tell me the pressure exerted on the walls of a cylinder of a 3½ h.p. engine when pulling on a stiff hill?—V.C.

You do not state whether you wish to know the explosion pressure above the piston or the side pressure exerted on the walls by the angularity of the connecting rod. Both these points depend almost entirely upon the design of the machine and the speed at which it is running. Such points as compression pressure, length of connecting rod, etc., are of the utmost importance. A rough estimate of the compression pressure of the average 3½ h.p. machine is about 75 lb. per square inch. Running on full throttle at comparatively low speeds, this would give an explosion pressure of somewhere between 250 to 300 lb. per square inch.

Auxiliary Radiators.

I should be very much obliged for your opinion on the Harcourt radiators, and whether there would be very much advantage in using these on a 1914 2¾ h.p. Douglas? Also, if they are difficult to fit? Is Oildag a good thing to mix with Huile de Luxe, and will it help to give more power? In setting the single point plug of the Bosch and similar pattern, would you set it so that the gauge of the magneto spanner can just be pushed between the point and barrel?—E.H.

Undoubtedly the radiators are satisfactory, but we doubt if it would be of very much advantage to put them on your present machine, as it is fitted with an engine which is not at all given to overheating. Oildag is an excellent preparation which lengthens the life of the bearings and does away with the necessity of oiling so frequently, but it naturally does not materially increase the power. The plug gap suggested is not quite sufficient.

A Broken Piston.

(1.) Can you tell me why my right cone keeps winding up so tight that the wheel will not turn? I screw up the nut quite tight; in fact, you would think it impossible to move. I took off the cone and found several of the balls worn on one side. Do you think this is the cause of it? (2.) While out for a ride last week, going along the road about 12 to 15 m.p.h., the gudgeon pin broke in two and piston smashed into small pieces and bent the connecting rod up. The piston and gudgeon have run about 2,000 miles. What do you think could have caused it? It was not overheating, as I had only gone a mile and a half when it happened. I have heated my connecting rod and straightened it. Do you think it can be used again, or will this have weakened it in any way? (3.) There is a slight crack running round the tongue of the cylinder that enters the crank case: it does not run up the cylinder. Do you think that will matter at all? (4.) The cylinder has several slight scratches and marks on the walls. If I rub them down with emery do you think it will need grinding?—H.M.

(1.) Possibly the worn ball race is responsible for the screwing-up of the cone, though we have an idea that the right-hand cone should be screwed till it comes against a stop, the left-hand cone only being free for adjustment. A note to the makers would clear up this point, but we imagine that a new ball race would overcome the trouble. (2.) It is impossible to say what caused the breakage. In all probability the metal had become fatigued, or was possibly over-hardened. There is no reason why your connecting rod should not be used again, provided it has been absolutely trued up. (3.) The crack in the cylinder spigot should not matter in the least, but we should advise you to drill a very small hole at either end which will prevent the crack from spreading. (4.) We should not advise you to rub down the cylinder with emery. If the scratches are very slight you will not suffer any inconvenience from them. If, on the other hand, they are sufficient to allow the compression to pass, the cylinder will need regrinding.

No Power on Hills.

Can you help me with my 3½ h.p., which has just returned from the works after being overhauled? It has a Roc two-speed gear and B. and B. carburetter, 32 jet. It has plenty of power on the stand and seemingly on the level, but when it approaches a hill it gives up the attempt. It takes, with 32 jet, about equal air and gas, and with a 34 jet all air and little gas. Everything should be in order, as it was supposed to have been tested at the works. The gears also seem to slip till pressed hard. The timing is correct and the spark perfect.—H.E.

It is impossible to say what is the matter with your machine without examination. Apparently, something is binding. See that your gear bands are absolutely clear of the drums when not in operation; also check the spark timing, which may be late. It appears that if your engine has been overhauled, either piston rings or bearings are on the tight side. This will, of course, wear off after a small amount of running.

EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"J.W.F.H." (Gateshead). — Mabon gear. Efficiency and durability.

"H.L.W." (Truro).—A durable belt for expanding pulleys. Also running costs of 8 h.p. Zenith and sidecar.

"C.W.F.W." (Monmouth).—2 h.p. Calthorpe Junior. Consumption, speed, gear, and wearing qualities.

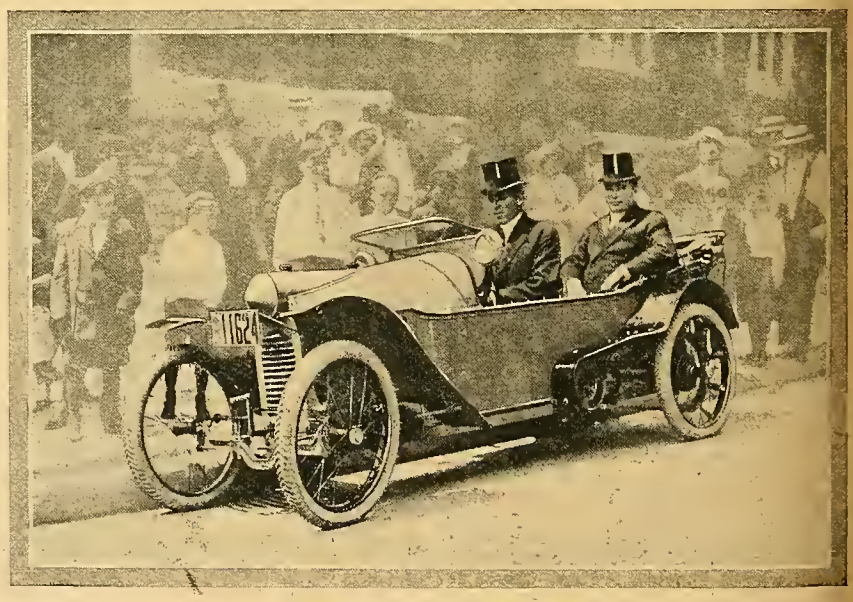
"J.B." (South Shields).—2¾ h.p. twin single-geared Premier for sidecar use.

"J.F.O." (Dublin).—2½ h.p. single-geared Sun-Villiers or Sun-Vitesse. Hill-climbing, speed, consumption, and general reliability.

"S.P." (Yorks).—3½ h.p. Douglas for sidecar work. Power, reliability, hill-climbing, consumption, and most economical carburetter.

"H.C.A." (London).—1914 Calthorpe Junior. Reliability, speed, consumption, hill-climbing, and upkeep.

"R.H.C." (Somerset). — Harcourt radiator on any 3½ h.p. sidecar machine, but particularly Humber. Also Badcock's bypass with a B. and B. fixed jet carburetter; reduction of jet, consumption, and whether paraffin can be used without drawbacks.



THE CYCLE CAR IN CANADA.

The first Toronto clergyman to own a passenger vehicle of this type photographed with his organist. The machine, it will be noted, is a tandem seater and belt driven.

PLAYER'S

"COUNTRY LIFE"

Cigarettes

(MEDIUM STRENGTH)

Pure Virginia Tobacco

10 for 2½d.

20 for 5d.

50 for 1/-

Types of British Army. CANADIAN INFANTRY.

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ROYAL NAVAL DIVISION.

Public School Battalion.

The Admiralty have given official permission for raising a Battalion of 1,000 men, which will be strictly limited to Public School or University Men and who will serve together as a Unit.

Training is now going forward.

Service: For the period of the War. Military Training. Ages 18—35. Height, 5 ft. 3½in. Chest, 34in.

No expenses are incurred by recruits.

Pay at Service rate of 1/3 per diem.

Enrolment is proceeding at, and application should be made at once to,

ROYAL NAVAL DIVISION,
6, 7, 8, OLD BOND STREET, LONDON, W.
'Phone: Regent 5515.

GOD SAVE THE KING.

¶ SEEING THAT WE IN THIS COUNTRY POSSESS THE MOST PERFECTLY MADE PLUG IN THE WORLD, WHY GO OUT OF OUR WAY TO BUY FOREIGN PLUGS?

Why use any other

than

THE FAMOUS

LODGE

PLUG?

4/- each. Stocked by all Dealers.

Sold in red metal boxes (sealed).

The Lodge Sparking Plug Co., Ltd., Birmingham.

MISCELLANEOUS ADVERTISEMENTS.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, the issue of "The Motor Cycle" for Dec. 24th, must be closed for press earlier than usual. All copy and instructions for paragraph advertisements in that issue must therefore be in our hands not later than first post on Thursday, Dec. 17th.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

☞DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.B.C.

A.B.C. end good second-hand machines of all makes, very cheap.—Morgan and Maxwell, 80, High Rd., Streatham. [X5068

A.B.C., 3½h.p., 1915 models, 4-speed, gate change gear box, laminated springing fore and aft.—Agents, Alf. Wray and Culshaw, Southport, Lancs. [9627

Always the best motors—and *now* —the new models.

AND beautiful machines, too, just brimming with new touches that seem final in the effort to provide every possible comfort and convenience for the rider and to ensure the lasting service of the machines. Whatever your requirements in power, weight, or price, there is the newest model of the recognised and proved best make in its class to be seen at Colmore Depots.

The Levis Featherweight. The little 2-stroke machine that has always led the way. It is just the machine for the business man—slow in town and fast out.

The Douglas. The lightweight, undoubtedly. The 1915 models are further ahead of competitors than ever. There is only one trouble—the Government want so many for use in France.

The Matchless. The big, generous twin, that no work comes amiss to. It makes light of sidecar loads, and gives its rider that confidence and supreme enjoyment that comes of controlling something so fine and so powerful.

The Morgan. The racy little runabout. Costs no more to buy and run than a sidecar outfit, and requires little, if any, more room to garage. We are now happy in the possession of a further delivery of the latest models.

And we have also the newest models of the **Scott, Premier, Calthorpe,** *and the* **Sun,** *for which makes we are Sole Agents, and all of which we can strongly recommend as excellent.* **Triumphs** *and* **Enfields** *also in stock.*

Come! let us show you the newest models of all these fine machines. At any of our Depots you will have the undivided attention of an expert assistant to explain all you desire to know, and demonstrate all you care to see.

Deferred payments if desired.

SECOND-HANDS.—We have in stock a fine lot of second-hand motors, in which there are tremendous possibilities for service and satisfaction. We know the history of them all, and each has been thoroughly overhauled and tuned up by our own mechanics. Real bargains, every one.

1914 MACHINES AT 25% OFF LIST.—We still have a few 1914 models—mid-season deliveries—to clear, and are offering at the particularly low price of 25% off list.

Colmore Depots

BIRMINGHAM - 31, Colmore Row.
LEICESTER - 62, High Street.
LIVERPOOL - 31, Renshaw St.
MANCHESTER - 261, Deansgate.

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S., 1915, 4h.p model, for immediate delivery.—Sole district agents, The Morris Garages, Oxford. [9731

1914 6h.p. A.J.S., topping order, enamel and plating good, smart coachbuilt body on Montgomery chassis, head light; £66.—Lloyd Dunn, Redbourn, Herts. [X4981

1914 A.J.S., 6h.p., and sidecar, with hood, screen, detachable wheels, etc.; original price £94/17/6; shop-soiled, reduced to 80 gns.—Julian, Broad St., Reading. 43 years' reputation. [X3721

A.J.S., 2¾h.p., 2-speed counter-shaft gear, new Kempshall and Clincher heavy tyres, overhauled, new parts added; £26/10, or part exchange with higher power.—Holding, Sandon Rd., Staffs. (D) [X5073

A.J.S.'s, four 1914 6h.p. combinations, with lamps, horns, speedometers, hoods, screens, etc., £62, £64, £66, and £67/10; 2¾h.p. 3-speed sporting model, shop soiled, £39/10; all fully guaranteed; new 1915 models in stock.—A.J.S. Specialists, The Walsall Garage, Walsall. [X5121

Alldays.

ALLDAYS Matchless, 2-stroke, new in August, in perfect order; £18.—E. Spicer, 88, High St., Deal. [9636

ALLDAYS, 2½h.p., 2-stroke, 2-speed, new October 1914, very little used.—Offers to Holland, Midland Rd., Bedford. [9651

ALLDAYS, 1914, 2½h.p., 2-stroke, new September, powerful, silent, economical; £21/10.—Holland, Clarendon St., Coventry. [X5179

Ariel.

ARIEL, 3½h.p., 3-speed S.A., and sidecar; £35.—Stott, Sudden, Rochdale. [X5080

ARIEL 6h.p. Combination, quite new; £79 to clear; E.P. proposal entertained.—Lamb's, 151, High St., Walthamstow. [9676

3½h.p. Ariel, Armstrong 3-speed, purchased 1914, low mileage, used solo only, tyres and belt as new; £42, or offer.—Box No. 7,022, *The Motor Cycle* Offices, Coventry. [X5021

1913 6h.p. Ariel and Coachbuilt Sidecar, Jones speedometer, lamp, horn, tools, etc., cost £89, excellent condition, carefully used; £54, or near offer.—Hartley Clegg, Ltd., Burnley. [X5150

Arno.

3½h.p. T.T. Arno, 1911, nearest £20 secures.—Hawkyard, Flint. [X5044

ARNO T.T. 1912-13 Model, Bosch water-tight, Sen-spray, perfect condition; special, £17.—Syd. Pearson, St. Patrick's Rd., Coventry. [X5036

Auto-Wheels.

AUTO-WHEEL, in good condition; £6.—10, Glennant Cottages, Ystradgynlais. [X5041

AUTO-WHEEL, practically new; £12.—Border Motor Co., Ltd., Market St., Galashiels. [X5006

AUTO-WHEEL, attached to cycle, complete; £16.—Jelley, Post Office, Gomshall, Surrey. [X5042

AUTO-WHEEL, 1913 pattern, good going order; complete, £8.—The Morris Garages, Oxford. [9735

AUTO-WHEEL, perfect order, £10, or with gent's Singer 3-speed bicycle 16 gns.—Henshall, "Torghatters," Pinner, Middlesex. [9692

AUTO-WHEEL and 10 gn. Premier Cycle, both 2 months old, like new, £17; also 1913 Auto-Wheel, £8.—Auto Mart, 133, Hammersmith Rd., W. [9742

AUTO-WHEELS, 1915 models, now ready; immediate delivery; £14/14 and £15/15. Trade supplied.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [9458

Bat.

1911 8h.p. 2-speed Bat Combination; £26.—Durrer, 336, Gray's Inn Rd. [9777

BAT-J.A.P., 3½h.p., 2 speeds, good condition; £25.—Watson, 13, Morris Rd., Poplar. [9640

1912 Bat, 8h.p., No. 3 model, splendid throughout; bargain.—Jones, 11, Hawkshead St., Southport. [X5096

BAT, 1914, 6h.p., 3 speeds, clutch and kick starter, nearly new; £52.—P. J. Evans, John Bright St., Birmingham. [9751

1912 Bat and Sidecar, 8h.p., chain drive, 2-speed gear, clutch, kick starter, excellent condition and going order; lowest cash £30, cost about £100.—Alsford, 43, Palmerston Rd., Boscombe [9614

BAT-J.A.P., November, 1913, 5-6h.p., side valve, T.T. roadster, French grey, all accessories, hardly soiled, only wants seeing; exceptional bargain, £31.—294, Kennington Park Rd., S.E. [9758

1913 Bat, 8h.p., overhead valves, engine just been overhauled, in good condition, complete with racing sidecar, lamps, and horn, machine has done 80 miles per hour solo; 40 gns.—Julian, Broad St., Reading. 43 years' reputation [X5175

MOTOR CYCLES FOR SALE.

J.A.P.

BRAND New 8h.p. J.A.P.-Chater and 15 gn. Side-car; take £45, or part exchange.—65a, Rosendale Rd., West Dulwich. [9706

J.E.S.

1913 1h.p. Imp, J.E.S. engine, brand new; list price 21 gns., our price 12 gns.—Hartley Clegg, Ltd., Burnley. [X5151

Kerry.

2¾h.p. Kerry, B. and B., spring forks, lamp, fast, low; £7.—87a, Grange Rd., Bermondsey, S.E. [9744

HALIFAX.—Cash bargain. Kerry twin, 6h.p., 2-speed, chain drive, and sidecar; £22/10.—Colliers, Westgate, Halifax. [0489

1914 3½h.p. Free Engine Kerry-Abingdon, run 700 miles, perfect; £25/10, cost £53/10.—Burrows, Cudworth, Barnsley. [X5062

Lea-Francis.

LEA-FRANCIS, 1915, 3-speed, 3½h.p. twin; delivery from stock; best terms for cash, exchange, or deferred payments.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0492

LEA-FRANCIS, 1915, the aristocrat of motor cycles; early delivery; easy payments; second-hand machines in part.—London agents, Sproston and Grace, 154, Gt Titchfield St., W. Regent 4999 [0448

Levis.

LEVIS, Popular model; £25, or £8 down and 12 instalments of £1/10/5.—Lamb's, 151, High St., Walthamstow. [9678

LEVIS.—Harry Walker's official agency. Note new address: 734, Holloway Rd., N. Prompt supplies; smart repairs. [9326

Lincoln-Elk.

3½h.p. Lincoln-Elk, 1912 Bosch, Druids, like new; £16, offers.—21, Westdown Rd., Catford, S.E. [9634

LINCOLN-ELK, 1912 model, 3½h.p., perfect order; £17/10, offers.—Speechley, 45, Church Rd., Acton. [X5169

Martin.

6h.p. Martin-Jap, 1913, 3-speed, free engine, new Avon tyres, climb anything; must sell; £50; guaranteed.—A. W. Friend, 6, Market Parade, Portland Rd., South Norwood. [9684

Matchless.

MATCHLESS, 3½ to 8h.p.; prices £35 to £60, cash or deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [5020

MATCHLESS, 1915 models; immediate delivery; trade supplied.—Rex, 378-384, Euston Rd., and 173, Gt. Portland St., London, W. [9420

MATCHLESS 1914 Combination, model 8B., M.A.G. engine, lamps, speedometer, full equipment, condition perfect; £75.—Plumbridge, Wellclose, Farnborough, Kent. [9693

8h.p. 1912 Matchless-Jap, overhead valves, Cowey, lamp, horn, etc., perfect condition; bargain, £30, or exchange lightweight and cash.—Reader, Ship Lane, Aveley, Essex. [9613

MATCHLESS, 8h.p., late 1912, 2-speed, 2 lamps, speedometer, new back tyre, with Turner sidecar, hood, wind screen, perfect condition; £45.—W. H. Parkinson, East Ravendale, Lincolnshire. [X5005

1912 8h.p. Matchless Motor Cycle, 2-speed, free engine, just been overhauled, re-enamelled, and re-plated, lamp, horn, and tools, Turner coachbuilt sidecar, hood, screen; £34.—King, Stapleford, Cambs. [X5153

MATCHLESS.—Immediate delivery of 1915 B2 model, 7h.p. combination, with lighting outfit and accessories; £110; exchanges arranged.—Mandes', 136, Great Portland St., London, W. Trade supplied. [9770

MATCHLESS, exceptionally fine 1913 6h.p. machine, fitted with Armstrong 3-speed gear, in guaranteed perfect condition; 50 gns., complete with Lucas lamp and horn, or £58 with sidecar; genuine lot.—Colmore Depot, 31, Colmore Row, Birmingham. [X5001

Minerva.

MINERVA 4½h.p. Twin, Bosch waterproof, speedometer, lamp, etc.; trial; £14/10.—45, Church Rd., Acton. [X5168

MINERVA, 3½h.p., mag., B. and B., tyres good, overhauled; bargain, £12.—Allen, 19, Rosslyn Crescent, Wealdstone. [9672

Motosacoche.

MOTOSACOCHE, 2h.p., 1911, new Dunlop; gift for £7, guaranteed.—2, Priory Pavement, Hornsey. [9690

1913 Motosacoche Motor Cycle, second-hand; price £15; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea, also at Cardiff. [0548

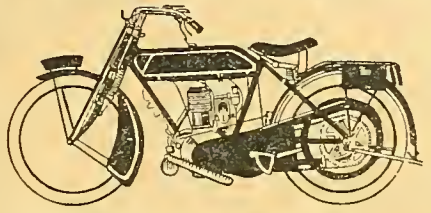
MOTOSACOCHE, 1912, 2½h.p., Whittle belt, Bosch mag., Lycett saddle, lamp and generator, horn, tyres good, all accessories, engine perfect; any trial; £13.—3, Sussex Rd., Sidcup, Kent. [9628

New Hudson.

NEW Hudson 6h.p. 3-speed Coachbuilt Combination, brand new; list £84, accept £68.—P. J. Evans, John Bright St., Birmingham. [9749

NEW HUDSON 2-stroke Models in stock, from £27/5, or £8/10 down and 12 monthly instalments.—Lamb's, 151, High St., Walthamstow. [9677

FARRAR'S BIG BARGAIN.



4 h.p. 1914¾ **WOLF**, J.A.P. engine, **2-speed countershaft gear**, free engine, chain drive, kick starter on right hand side of machine, absolutely new and guaranteed **£36**

Or with Wolf coach-built sidecar, £45.
Showing a clear saving of £12.

PRICES ALL REDUCED.

2¾ h.p. **DOUGLAS**, 2 speeds and clutch £22
3 h.p. **SINGER**, Druids, magneto, P. & M. 2 speeds.. £11
3½ h.p. **REX**, h.b. control, 26" wheels, new tyres.... £7
3 h.p. **EXCELSIOR**, vertical engine, spring forks £7
1913 6 h.p. **ENFIELD** Combination, splendid goer .. £55
1912 4 h.p. 2-speed **TRUMP-J.A.P.** £23
1914 6 h.p. **ENFIELD** Combination, speedometer, etc. £68
1913 3½ h.p. 3-speed **HUMBER** Combination..... £35
2-3 h.p. Twin **MOTO-REVE**, magneto ignition, Druids £11
3½ h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb. .. £16
3½ h.p. **N.S.U., 2 speeds and free engine**, Bosch magneto £17
3½ h.p. **PREMIER, Bowden 2-speed gear**, Bosch £18
5 h.p. **VINDEC, 2 speeds**, kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds**, handle starting .. £15
3½ h.p. **TRIUMPH**, ball bearing engine, M.O.V. £19
5 h.p. 1908 **REX** de Luxe, **2 speeds**, handle starting £19
5 h.p. 1908 **REX, 2 speeds**, kick starter, Bosch, Amac £19
8 h.p. **Cycle Car**, Chater-Lea engine, **3-speed gear** box and worm drive, speedometer, screen, etc. £69

SPECIAL SIDECAR COMBINATIONS.

4 h.p. 2-speed **ROC** and Torpedo Sidecar £20
3½ h.p. 2-speed **N.S.U.** and Torpedo Sidecar £20
5 h.p. 2-speed **REX** and Torpedo Sidecar.....£20
All in good running order.

NEW 1914 MACHINES.

1914 4 h.p. **TRUMBULL** Cycle Car ..... **What offers?**
1914 3½ h.p. **ARIEL**, 3-sp. countershaft gear **What offers?**
1914 6 h.p. **NEW HUDSON**, 3 speeds ..... **What offers?**

SPECIAL BARGAINS IN NEW ENGINES.

5-6 h.p. **BLUMFIELD** Engines, complete with inlet pipe, exhaust pipes and silencers, magneto bracket, valve lifter, magneto sprocket, variable pulley, and magneto chain cover, all new and unused **£11 11**
8 h.p. **J.A.P.** Water-cooled Engine, new.... **What Offers?**
8 h.p. **PRECISION** Water-cooled Engine, new **What Offers?**
Douglas Variable Pulley, good 9/6

SECOND-HAND ENGINES.

4 h.p. J.A.P. M.O.V., variable pulley, etc. £4 10
4 h.p. Bedelia, single, with magneto £4 10
6 h.p. 1913 Rex, with pulley, etc. £4 10
8 h.p. twin water-cooled, M.O.V. £6 0
6½ h.p. single, water-cooled £3 0

SIDECARS.

GLORIA, spring wheel, cane body, fit Triumph £5
FARLOW, 1913 underslung, cane torpedo body £5
FARLOW, 1914, demonstration wicker model £5
FARLOW, 1914, lightweight model, used trials only £5
Also several New **FARLOW** Sidecars at big reductions.

Farlow sidecar sale is now on.

Great reductions. **Tremendous value.**

Get our list and save pounds.

NEW MOTOR CYCLE FRAMES.

Fully Guaranteed.

25/- each.

New Clincher clearance De Luxe tyres, 26 × 2½, also a few 26 × 2½ ..... 25/- each.

FARRAR'S MOTORS

(Telephone 919)

Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

New Hudson.

NEW Hudson Combination, shop-soiled only, 3-speed countershaft gear; listed at 84 gns., accept 70 gns., complete with lamp and horn; exceptionally fine opportunity.—Colmore Depot, 31, Colmore Row, Birmingham. [X4999

NEW HUDSON.—Will anybody make an offer for a brand new 1914 6h.p. New Hudson machine, Kempshall tyres, list price 68 gns.; no skill, only pluck required.—Mandes', 136, Great Portland St., London, W. [9776

New Ryder.

NEW Ryder.—Sole London agents. Immediate delivery from stock. Single speed 25 gns., 2-speed £33. No extra for easy payments.—Mills Motor, Ltd., Wood Side Parade, North Finchley. 1745 Finchley. [0572

Norton.

NORTON, 1914, Brooklands special, 3½h.p., little used, very flexible, and capable touching 70 m.p.h.; cost £60, worth £50 to-day; offered at £45 cash.—Layton's, Bicester, Oxon. [X5085

O.K.

O.K. Junior, 1914, 2-speed, new lamp, run about 1,000 miles, own competition machine; £24.—Meeten, Dorking. [9531

O.K., 1914½, 2-speed, equipped, new condition; sacrifice £20; exchange with cash for 3½h.p.—28, Kendrick Rd., Barry Dock. [9689

Omega.

OMEGA, 1914, 3h.p., 2-stroke, new condition; £22; part exchange old machine.—A. Holland, Clarendon St., Coventry. [X5182

P. and M.

P. and M., late 1910, 2-speed, and sidecar, thorough running order, recently overhauled by makers; £37/10, or nearest offer.—Langton, Drax, Selby. [9667

P. and M., 3½h.p., new September, 1913, 2-speed gear, chain drive, perfect condition throughout, complete with accessories; £37.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0552

PHELON and Moore, Ltd., 4, Percy St., W., have several good second-hand P. and M. machines for sale, which have been overhauled, and are in perfect order.—Can be seen at above address. [0131

Precision.

3¾h.p. Precision A.S.L., 1913, and sidecar, 2 speeds, and free engine, splendid condition; any trial; £25, or offer.—Ling, 35, Ditchling Rd., Brighton. [9699

Premier.

PREMIER, 1913, 2½h.p., splendid condition; £19/10.—Elmstead, Warwick Gardens, Worthing. [9666

PREMIER, 1912, T.T. model; 20 gns., very big bargain. — Julian, Broad St., Reading. 43 years' reputation. [X5173

1912 Premier, 3½h.p., 2 speeds, accessories, fine condition; £17.—Blencathra, Highfield Rd., Walton-on-Thames. [X5166

PREMIER, 3½h.p., 2-speed counter-shaft, speedometer, Dunlops, very little used, condition new; £40.—Garage, 29, Drive, Hove, Sussex. [X5023

PREMIER, 2½h.p., 1913, Armstrong 3-speed, little used, excellent condition, new tyre back wheel; £30.—17, Limes Av., North Finchley. [X5076

PREMIER, 1913, 3-speed, coachbuilt sidecar, perfect order; £34, cash, or deferred payments.—Colmore Depot, John Bright St., Birmingham. [X5018

1912½ 3½h.p. Premier, 3-speed, and coachbuilt sidecar, 1914 Armstrong gear, lamps, horn, speedometer, etc.; £38.—Hastewell, Heltwhistle. [X5022

3½h.p. Premier, 3-speed, new last January, good tyres, accessories, spares, 3,000 miles, excellent climber; any examination; £35, or near offer.—Rev. Thatcher, Wilsecote, Tamworth. [X5108

PREMIER, 3½h.p., 3-speed Armstrong gear, absolutely new, shop-soiled only; listed at £57/10, £45 secures this ideal solo or sidecar mount.—Colmore Depot, 31, Colmore Row, Birmingham. [X4996

1914 Premier, 3½h.p., Armstrong 3 speeds, and coach sidecar, wind screen, storm apron, luggage grid, Lucas and P. and H. lamps, rear lamp, Cowey speedometer, Lucas mirror, kick starter, heavy tyres, fine condition, spares; £45, or offer.—Doris Lodge, Wetcliff Rd., Ramsgate. [9629

Quadrant.

4h.p. Quadrant, just overhauled, re-enamelled, Bosch, B. and B., takes sidecar; £9/10.—Toms, Catherine St., Leicester. [X5054

Rex.

TWIN Rex Combination, clutch, mag.; £20.—Harrison, Red Bank Rd., Bispham, Blackpool. [9618

REX 5-6h.p. Combination, 2 speeds, mag.; £20.—White, 34, Hormead Rd., Paddington. [X4908

REX Sidette, 1914, splendid turnout, excellent condition; £50.—30, Warwick Rd., Kenilworth. [X5132

REX, 1913, 6h.p., 2 speeds, cane sidecar, lamps, etc., first-class combination; £35.—Plastow, Grimsby. [X5152

1913½ Rex, 6h.p., 2-speed, F.E., handle start, and 20 gn. coachbuilt sidecar, Lucas lamp set, all spares, accessories, combination as new, perfect; £38.—49, Milend Rd., London. 9722

MOTOR CYCLES FOR SALE.

Rex.

REX, 5-6h.p., 1909, 2-speed combination, Avon, Rom, accessories; £20; exchange solo.—14, Boro' Rd., S.E. [9715

HALIFAX.—Cash bargain. 3½h.p. magneto Rex, spring forks, low frame: £14/10.—Colliers, Westgate, Halifax. [0388

HALIFAX.—Cash bargain. 5-6h.p. 2-speed Rex de Luxe and sidecar, very powerful; £23/10.—Colliers, Westgate, Halifax. [0446

3½h.p. Rex (1908) Sidecar, mag., B. and B., good condition; £15; reason for selling, ill-health.—Fred Morton, Withernsea, Hull. [X4982

NEW Rex 1914 Sidette, belt drive, 2 speeds, coach-built body; genuine bargain, £62.—228, Pentonville Rd., King's Cross, N. [9560

REX, 1908, 5h.p., twin-cyl., Bosch mag., B. and B. carburetter; £15.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9568

REX Combination, brand new, 1914 model; list price £77/10, special clearance price £60, cash only; 3-speed model, £69.—Maudes', 136, Great Portland St., London, W. Trade supplied. [9769

REX, 6h.p., 1912, 2-speed gear, free engine, 12 gn. Rex sidecar, all new last Xmas, splendid order, only done 1,500, speedometer, lamps, horn, spares; offers. —5, Highfield Terrace, Ilfracombe. [X5191

REX, 1912, 5-6h.p. twin, 2-speed gear, wicker torpedo sidecar, just thoroughly overhauled, guaranteed sound condition throughout, complete with accessories; £27.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0597

Rex-Jap.

REX-J.A.P., 6h.p., 2 speeds, splendid running order, spares, sidecar; £28.—Garland, 2, Finstock Rd., Notting Hill, W. [X5082

1913 6h.p. Rex-Jap Combination, in first-class condition, accessories and spares; 50 gns.—Paget, Blackwell, Bromsgrove. [X4799

REX-J.A.P., 1913, 8h.p., and coachbuilt sidecar, 2-speed, handle start, perfect condition; £52.—Birkhead, Walton-on-Thames. [9625

REX-J.A.P., 1913, 8h.p., de luxe model, 2 speeds, free engine, 650×65 Kempshall tyres, coachbuilt sidecar; £50.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9569

REX-J.A.P., 1913, 6h.p., de luxe model, 2 speeds, free engine, 650×65 Kempshall tyres, coachbuilt sidecar, combination in perfect condition; £52.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9762

Rover.

ROVER, 1914, Rover sidecar, fitted with everything; bargain, £43.—Bailey, 100, High St., Chatham. [X5057

1912 3-speed Rover, perfect condition, £28; wanted, Matchless or Bat twin.—Stevens, Addington, Malling, Kent. [9685

1913 3½h.p. Rover, 3-speed gear, Lucas lamp and generator, full tool kit and torpedo cane sidecar, not run 1,000 miles; cost £70, accept £42.—Apply, Bambers, Liverpool Rd., Birkdale, Southport. [9557

1913 3-speed Rover, Armstrong gear, Dunlop cover front, 2½in. Hermatic cover back, Brooks 170 saddle, Dunlop belt, lamp and horn, in absolutely perfect condition; £35.—Robinson's, Green St., Cambridge. [0613

1¾h.p. Rover, new piston, plating and enamelling like new, Dunlop tyres, brand new waterproof mag., and new B. and B. carburetter, thoroughly overhauled, and looks like new; £12, or near offer.—Walker, Bradenham, Thetford. [X5048

Royal Ruby.

OWNER Enlisted.—1914 2½h.p. Royal Ruby, 2-stroke, perfect, many refinements, little used since August; £19/10.—29 Broughton Rd., West Ealing, W. [9716

Rudge.

RUDGE, 1915 models, single-cyl. immediately, twin-cyl. January; exchanges. — Maudes', 136, Great Portland St., London, W. [9773

RUDGE-MULTI, 3½h.p., 1914, new, slightly shop-soiled; bargain to clear, £48/10; accept Douglas part.—Heyhourn, Motors, Maidenhead. [9610

1913 Rudge, free engine, only done 800 miles, brand new condition, spares, accessories; £26, sacrifice. —127a, Stoke Newington Rd., London. [9670

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SUN-VILLIERS, 1914, 2-stroke, 2½h.p., 2-speed, just overhauled; reasonable price.—7,024, *The Motor Cycle* Offices, Coventry. [X5116

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NEW 1914 3½h.p. Sunbeam, 3 speeds, slightly shop-soiled; £63, to clear.—Cross, Agent, Rotherham. [X5099

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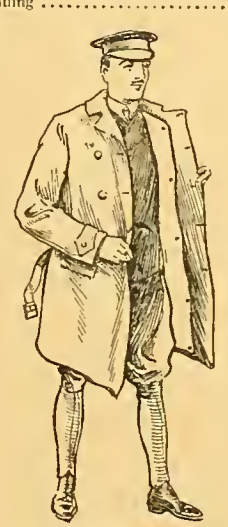

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BARGAIN.—1914 motor cycle, any make or power; approval.—Lord, Mountfield, Prestwich. [X5111

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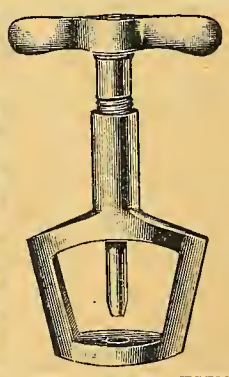

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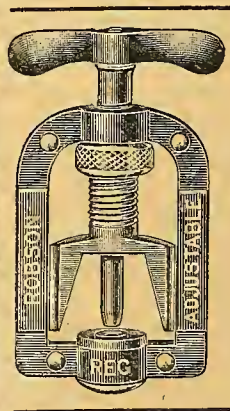

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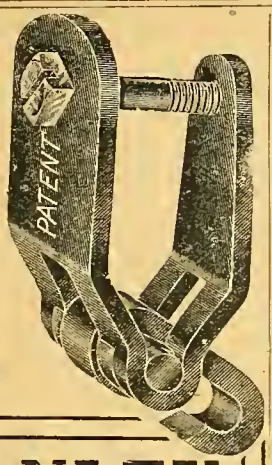

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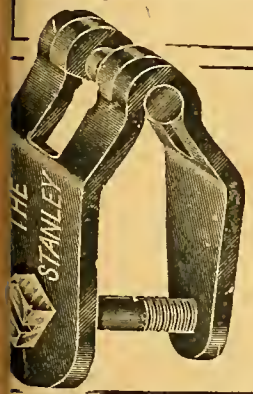

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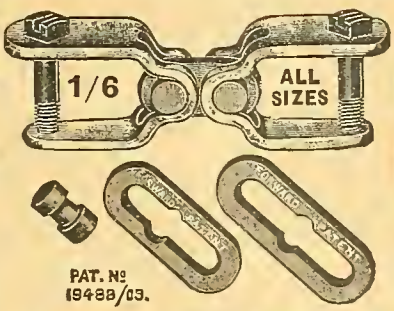

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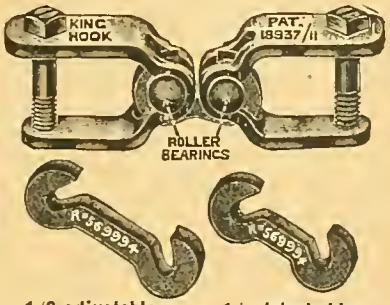

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Christmas 1914.

THE thoughts appropriate to Christmas Day are all closely associated with the idea of "Peace on Earth and Goodwill towards Men." Unfortunately, this year such words seem somewhat out of place, much as one may wish for an end to the present terrible conflict which is raging over almost the whole world, and a lasting peace. Even the armistice suggested by the Pope for Christmas Day has been found to be impossible, and for once Shakespeare is wrong when he says in *King John*, III., 1:

> "The yearly course, that brings this day about,
> Shall never see it but a holiday."

There will be no holiday for our comrades at the Front, and the best that we can wish them is victory in the day of battle and a safe and speedy return, when they may be sure of a right royal welcome.

Mudlarking with War Despatches.

THE grumblings which we are continually hearing about the almost indescribable state of the roads in the war zone, and the difficulties under which despatch riders are pursuing their important work, have led a number of croakers to assert that a motor bicycle is not the best vehicle for the work. But we want to know if any motor vehicle in France or Belgium at the present moment, whether small car or heavy lorry, is able to perform its duties without difficulty and without criticism? It seems beyond the comprehension of some people that single-track machines can be ridden at all over roads deep in mud and abounding in pot-holes and deep ruts. They do get through, however, and when a fall is experienced, the intrepid rider is usually able to haul his machine single-handed out of the ditch, and is soon pursuing his journey again, and in a mile or two has forgotten the experience.

Realising the rapidly deteriorating road surfaces and the extreme difficulties of the winter campaign, we have urged the adoption of sidecars for despatch riders; but we hear that in semi-official quarters cars are being recommended on the score that they can be piloted over surfaces that motor cyclists cannot face. *The Motor Cycle* is not disposed to agree with such a suggestion, and points to the results of the different Six Days Trials as support for its conviction. We contend that an expert motor cyclist, well mounted, can follow a car anywhere, and that on extremely bad surfaces a rider of a single-track machine is better off, as he can pick the best track. The talk of eighteen inches of mud does not move us from our view. A car would flounder and get hopelessly stuck in such a mud-hole; and if a motor bicycle did get stuck, it is very easily removed single-handed. In this connection we certainly think that a larger number of lightweights should be utilised by the Government. Mudlarking is excessively discomforting at all times; and though deep mud and pot-holes may affect a motor cyclist more than a car driver, every type of vehicle is affected more or less, and such conditions emphatically do not, and need not, deter a motor cyclist from delivering his all-important despatch. It seems to us that the final balance which should settle the question is the extremely serious one of the road surfaces disappearing altogether. Which type of vehicle has caused the damage? The answer being obvious, it is not likely that more road surface destroyers will be employed when the harmless and simple motor bicycle will perform the work equally well, at a lower all-round cost (a comparatively unimportant item in war-time), and last, but by no means least, take up but the width of a yard or so of the all-important roadway.

THE LIGHTER SPIRIT.

ON SYSTEM.

THE motor cycle, like every other piece of machinery that I have heard of (with the exception of dynamite bombs), is a concrete epitome of system. System in this sense is usually defined as method, and reciprocating or rotatory parts, which (respectively) go up and down or round and round, and then promptly proceed to do the same thing over and over again till further orders, represent method with a vengeance. But all the same you will remember that Hamlet's madness had method in it, so that even dynamite bombs can hardly be ruled out—or anything else, for the matter of that. Dynamite bombs are systematically unreliable. Some people are systematically unmethodical. So where are we?

. . . . . .

Let us try to get out of it in this way. When manufacturers and editors advocate system in whatever care and attention you intend to bestow upon your machine, they mean you to be systematically systematic. The manufacturers have done their part in seeing that the cylinder opens its mouth and gulps in a fresh draught of gas at regular intervals, and does lots of other things of that sort. But they cannot arrange any mechanism to compel you absolutely and without option to coax the dirty oil out of the crank case every three or four hundred miles. Some people, who are all for mechanical improvements, think that this is rather a pity. Others who are rather tired of hearing the manufacturers get *all* the blame when things go wrong think so to. Besides, see what humour might be imported into the sport by a little device of this kind. It might be arranged that at every three hundred miles an alarm bell should come automatically into operation. This would go on ringing—getting gradually louder and louder—till the three hundred and fiftieth mile. Thereupon the machine would come automatically to a standstill, a pair of strong steel arms would seize the rider, hurl him from the saddle, and plant him with his nose just touching the little plug in the crank case. Then he would remember (I hope), and he would not be able to get another tenth of a mile out of his odometer before he paid his tribute to System.

. . . . . .

But I don't think this arrangement is likely to be among any of the 1915 improvements. You know what the manufacturers always say when any intelligent detail of this sort is suggested—"introducing too many complications." As if one or two extra could make any difference! But they might make us a little more inclined to be systematic by arranging that a rather larger proportion of the crank case surface should be removed, don't you think? I knew a youth once who unscrewed the plug, found that only one or two tired oozings of oil emerged, jumped at once to the conclusion that his pump had not been working properly, and promptly dismounted the cylinder and dismantled the crank case to see what sort of state the bearings were in. Of course, he got the oil out then, but it was a lot of trouble for such a small job, and his enthusiasm for System was consequently damped.

. . . . . .

I remember once making a good resolution which I thought would constitute me a model rider and my machine a perfect one hoss shay for reliability. I proposed to go in solidly for System, and with that end in view I chalked up the following "writing on the wall" of the motor house, to be a perpetual reminder to me:

"*Lubrication.* Eternal automatic (thank 'Eving!). All the same, make sure of this every ten miles." (As if one passed every ten miles in the motor house! That occurred to me afterwards.)

"*Lubrication sundries.* Oil hubs, races, spring forks, and all other minor bearings every two hundred miles. Re-fill countershaft gear box with oil same period." (Quite the little "Ixion," you see.)

"*Nuts.* Have a look at these every 250 miles." (All kinds of Nuts are inclined to be loose in the head, but personally I'm a little tired of looking at them.)

. . . . . .

I needn't go any further, particularly as in actual practice I never went so far. The truth is, I got rather shy of the whole affair, owing to an experience I had in the London-Exeter last Christmas. I played sidecar-passenger to a serious and thoughtful youth who proved to be a very stern advocate of System. He kept his speedometer lighted up all the time, and he also had on his handle-bars an illuminated chart telling him what he had to do at different mileages. (I hadn't noticed this beforehand.)

Fifteen miles out he stopped "to put another five pounds pressure in the tyres."

"Good Lord, man!" I exclaimed, "why didn't you do it before starting?"

"Wasn't the proper mileage," he replied. . .

. . . . . .

At nineteen miles he stopped to give his contact-breaker a wipe with an oily rag. At twenty-five miles it was time to adjust his chains. At twenty-six miles he went round all the nuts. At thirty-seven miles he emptied the oil out of his crank case. At forty-two miles, in the thick of the downpour, he got out a tin of Brasso to polish his plated parts. He said it was System.

. . . . . .

At forty-three miles—don't believe me, if you find it too much of a strain on the engine—his back tyre punctured, his rear chain broke, and his piston seized. I'm inclined to think that that was System too.

WILFRID BLAIR.

An Amazing Yarn.

A motor cyclist recently asserted in my presence that he started up the engine of his Scott sidecar outfit, and on letting in his clutch was astounded to find the machine progress rapidly *backwards!* I thought he was pulling my leg, until he got annoyed, and summoned his wife, who immediately corroborated the yarn in every detail. I once owned a small car, the engine of which (a four-stroke V twin) would occasionally run fifty or sixty revolutions reversed; and I found the plotting of its faults worse than chess problems. As I have just bought a new and rather expensive hat, which I do not wish to outgrow, I will not tackle the truth or falsehood of the above experience personally.

Those Details!

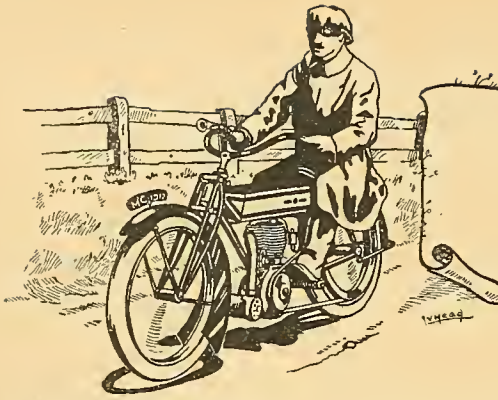
I live in constant fear of getting the sack. The war is no golden opportunity for technical journalists, and, as our staff includes several genuine veteran motor cyclists, I am not doing the work of eight men who have gone to the front. When the fateful Friday comes, my plans are all complete. I am going into business as consulting engineer to the motor cycle trade. Did I hear you scoff, gentle reader? I admit I am, technically, a gross ignoramus; but I propose to assist the trade to eliminate the faulty practical details from their machines; and how few machines are not disfigured by at least one such eyesore. I hear to-day from a man who owns a machine which has a colossal factory behind it. He had a front wheel puncture last week, and when he propped up the machine on it, the stand "wilted like a tired lily." Last week I met another man who owns a machine which is supposed to be as near perfection as motor cycles can be in a world still capable of producing Kaisers. He had occasion to repair his compression tap; he found it could not be removed without taking down the entire engine, and even then a special tool had to be made before the errant tap could be disintegrated.

Electric Lighting on Motor Cycles.

Anybody who has kept touch with garage experience during the year now closing knows that, despite the sudden and enormous boom, electric lighting has not always proved an unqualified success either on cars or cycles. I have encountered very few instances of dynamo failure—surprisingly few instances, if one recalls the poverty of the results obtained with official R.A.C. tests of such devices: but owner and repairer alike testify that light, cheap ignition batteries are too commonly employed for lighting purposes. As the old brigade well remember, the small ignition battery never stood up particularly well on motor cycles in the days when it was carried for ignition purposes. Under these conditions it was discharged very slowly indeed, and its electrical duties were entirely favourable to durability. When a similar battery is used for illuminating duties, it is discharged very rapidly, and is working under peculiarly arduous conditions. It is discharged with great rapidity, and if the dynamo is available to utilise every idle moment for recharging, the time available for recharging does not compare favourably with the old days, when a similar battery was removed from the machine and left on charge for twenty-four hours at a time. As a consequence, many cars and cycles have burdened their owners with heavy expenses for the repair and renewal of light and unsuitable batteries. The fact is, that in the present stage of electrical invention, such lighting outfits really require much heavier and bigger batteries than can be stored on a motor cycle. The millionaire, who buys and equips his car regardless of expense, employs these gigantic and costly batteries alike for his Klaxon and his lamps; but the light car man and the motor cyclist are in some cases fobbed off with batteries that are not up to their work. They secure the cleanliness and convenience of electricity, but they most undoubtedly pay for it in increased upkeep charges, as compared with acetylene. The owner who it willing to accept the admitted compromise will be well advised to keep three batteries in commission and to let each battery undergo a prolonged charging at regular intervals on the board at his local garage. Some of the smaller garages are inclined to grumble at the boom in electric lighting, as their customers are unwilling to pay charging fees which will render the bother of constant attention to the batteries genuinely remunerative. I believe that both "lump" and "bottled" acetylene will hold their own pretty sturdily until small batteries are considerably improved.

Fitting Dissolved Acetylene Cylinders.

The makers of the well-known D.A. cylinders recently asked me to provide suggestions for fitting these to motor cycles, and I have been experimenting with a variety of makes, in the hopes that some standard position might be evolved, but so far without success. The size of the cylinders and the frame design of the cycles have been arrived at without any co-operation between the engineers involved, and no standardisation is possible. If I were designing a motor cycle frame in the consciousness that most of my customers would use this illuminant, I should certainly leave space for it between the rear mudguard and the saddle-pillar tube, where it would not protrude unduly, nor interfere with the appearance of the machine. Failing this position, it can be made to lie very snugly along the top tube, a position I have utilised on one machine by fitting wooden rests; but this is really too high a location for a heavy fitting, and it obstructs access to the tank fillers. I am afraid that the sole expedient is to clip it to the saddle-pillar tube, nor does a little protuberance matter here, as the rider's legs come farther forward.



THE MESSAGE IN MORSE.

An Imaginative Incident of Warfare.

ONE must confess to a certain sympathy with Daniel Jenks. When you have laboriously established a wholesale grocery business capable of rivalling Lipton's in years to come, when fortune has favoured you with no more than one son, when your whole heart is set on that son succeeding to the business and in the business, when you have lived penurious days to give him a good education, it is undoubtedly jolly hard lines that the said son should throb with an inveterate dislike of ham, tea, butter, flour, ledgers, markets, and stools, idle away all his office hours, and only long for closing time in order that he may dabble in pursuits properly belonging to common mechanics. Yet this is exactly how Daniel Jenks, junior, served Daniel Jenks, senior. He had been in the office four years when the European war broke out, and, as his justifiably irate parent asserted, he knew less about the business than any smart seventh standard boy could learn in one year. The special evening classes at commercial colleges, for which Daniel the elder paid lavish fees, were seldom honoured by the presence of Daniel the younger. He was either at the local garage, helping the overworked mechanics with tricky repair jobs; or round at the Balham Wireless Club, taking down and transcoding the evening Marconigram from the Eiffel Tower; or tuning up his treasured motor bicycle, to which Daniel the elder, in incautious moments, applied epithets of which his brother deacons would hardly have approved.

In the Vanguard.

When war broke out, Daniel the younger instantly enlisted in the first batch of despatch riders, and his bosom chum, Williams, of course, went with him. Daniel the elder was speechless with rage for a week, and was only partially mollified by the idea of selling the business to a limited company, so that he could retire and spend his later years as a gentleman of leisure.

Meanwhile, Daniel, junior, and young Williams were having the time of their lives. They were out at the Front in time to share the thrilling business of feeling for contact with the enemy, and on many of their forward scouting rides it was always possible that a storm of Uhlan bullets might salute them from the most innocuous-looking cottage or tree clump. The men who went out later only knew the inferior thrill of carrying precious messages whilst a hidden foe sprayed the roads with assorted ironmongery from ten miles away.

But Daniel was not lucky. He emerged scathless from the preliminary scouting business, only to be taken prisoner in most unromantic fashion. The British Expeditionary Force had moved rapidly forward on rather sketchy information, and, running unexpectedly into the Bosches, found it prudent to pause and collect news. In one local retirement contact was lost with a battalion of infantry posted at a forward salient. It appeared that the order to withdraw had failed to reach them, and at nightfall the colonel asked for a volunteer to scout forward again over the river in the attempt to locate them and bring them back. Jenks and Williams, the only motor cyclists with the unit, instantly stepped forward. "Toss up!" said the Colonel laconically; "I can't risk both of you." Williams spun a franc; Daniel called, and won. The pals wrung hands. "Blow your exhaust whistle, old man, if they cop you," was Williams's farewell; "I should hear the old nightingale two miles off."

A Prisoner.

Daniel throttled his engine down to a low silent speed, and, with lamp unlit, dodged carefully forward through the British outposts, down to the river, across the solitary bridge, and forward over the ridge which the British guns were ready to sweep at a moment's notice. The missing battalion had last been seen occupying a wood to the east of the first village along the road, and there were no by-paths. Daniel intended to go boldly through the village, and along a farm road he remembered, unless he met German sentries south of the village. Everything was as still as death; in the thick bluish gloom he could just verify his position by the silhouettes of tree tops and buildings against the dark sky, which still held a faint reminiscence of daylight. The outskirts of the village were reached—still no sign of the enemy. The first houses passed were all quiet, but as he cautiously rounded the blind corner leading into the main street of the village, he was knocked senseless, and awoke next day to find himself lying on a heap of straw in a barn, surrounded by wounded Germans, with a German Red Cross doctor bending over him. His head felt as if it were split in half, and was liberally swathed with bandages. The hospital orderly told him that a sentry had bowled him over with his rifle butt. After medical attention he went to sleep; presently someone waked him again, and he found a group of officers standing over him. From the deference his fellow patients exhibited, his interlocutor was clearly a man of very high rank. He was questioned in perfect English as to the strength and disposition of the British forces beyond the river. Though very much in the dark as to the exact strategic position, Daniel had carried some urgent calls for French reinforcements, and he guessed that our line

he Message in Morse.—

as too thin to hold the immense masses which the German military motors were rushing southwards. So e swiftly adopted a sensible role. Simulating considerable alarm, he at first refused to give any information; but when one of the officers began to be truculent, e pretended to be in a great panic, begged that his fe might be spared, and hastily reeled off a somewhat ncoherent statement multiplying the British forces by bout ten. "Delay," he thought, "will be invaluable o our chaps." The German general was evidently ncredulous, so Daniel gave the exact stations of two naginary French army corps, and a brigade of the amous 75 mm. guns, which were actually galloping p for dear life some twenty miles away.

The officers departed, clearly impressed. An orderly rought some soup, and when Daniel sat up to drink the wounded Germans saluted him with volleys of erision. Daniel's brain gradually cleared a little, and y irritating retorts managed to extract news that at east three German army corps were concentrated gainst the British troops in this quarter. He got very eary of the ceaseless insults which were showered n him, and not till the afternoon sun, beating down n the thin roof, made them all sleepy, did he get ny peace.

About 5 p.m. he was roughly dragged out to doctor is own Triumph. A German who had been riding it omplained it would not go, and no wonder, for the Bosch had neglected to oil it, and the big-end was half eized up. Dan hoped for a chance to mount and nake a dash for freedom, but two hefty sentries with xed bayonets stood over him, and no opening ccurred. By dusk he had got the engine nicely free, nd running pretty decently on the stand, though there as a faint scraping sound in the bush, which hinted hat his captors would not get much more work out of is beloved engine.

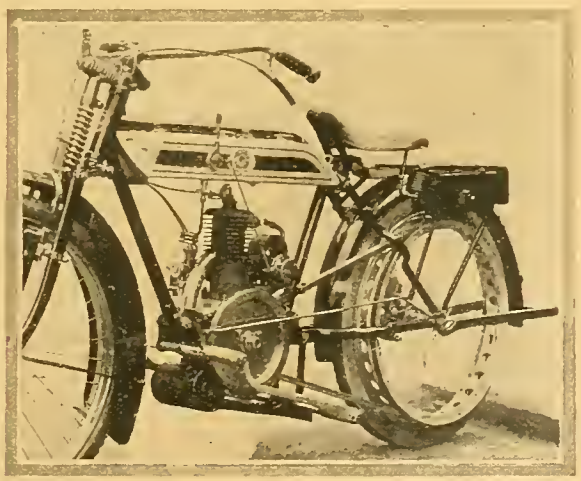
Unpleasant News.

As night came on, he was ordered to lean the nachine against the outside of the barn wall, and to o back to his straw. As he did so, a German officer ame out of the farmhouse, and, in answer to a query om a waiting subaltern, remarked briefly, "Attack force an hour before dawn!" You can imagine leep was impossible for Dan. There were, to the best f his knowledge, some 5,000 British troops comanding the crossing of the river, with not more than wo batteries of field artillery. So far as he had any nformation, they fancied they had no more than an dvance guard of Germans to deal with. A surprise ttack by one German army corps spelt lightning nnihilation, not to mention the flanking corps to ast and west; to the west, in particular, there could e no resistance except from a thin flanking screen of avalry. Nothing short of envelopment and annihilaion threatened Dan's late comrades.

One by one the wounded Germans dropped off nto uneasy slumber, and towards 10 p.m. the barn as as quiet as a big shed of wounded soldiers could ell become. Sounds of revelry proceeded from the armhouse next door, where the German officers were tationed. Dan crept stealthily to the door and peeped ut into the village street. The moon was up. No entries were visible. The men were evidently imitatng their officers upstairs. Helmets, overcoats, and rifles lay in confusion on the chairs and tables which stood by the roadside; their owners were drinking "Hoch to the Kaiser" in the kitchen indoors. There by the barn wall stood the Triumph.

It was the work of an instant to don a Bosch's overcoat and helmet, and to remove the Triumph's belt. Dan pushed the machine gingerly into the cowyard, and on through a gate into a field. Skirting the hedge, he began to make his stealthy way southwards towards the British position. He made frequent stops to reconnoitre, but, as he dared not show up against the skyline, it was impossible to see anything until, after a painful crawl of over a mile, he reached the edge of a wood just short of the low ridge which bordered the German side of the river. Long he lay motionless listening intently, before he dare approach the dusky wood, where German advance guards might well lie hidden. Satisfied at last that nothing was moving within a reasonable radius, he left the Triumph under a hedge, selected a tree which was well in shadow, and shinned up to its summit. The scene before him revealed the German plans in their entirety. On the reverse slopes of the long ridge, wholly shielded from the British sentries on the other ridge south of the river, he could dimly discern a battery of German guns, disposed in a long arc converging round the head of the single bridge, and laid to deluge the ground beyond the bridge with a perfect inferno of shrapnel at point blank range. Similarly concealed below the ridge were dotted small parties of Germans, each consisting mostly of sleeping men, but with a couple of sentries just covered behind the ridge, and a white flag set on a low mast a little further back, to guide the various German units to their rallying points prior to attack. Some distance to the right and left of the bridge lay what looked like pontoon trains, ready to throw extra bridges over the river during that palpitating hour before dawn, when no suddenly awakened man has full stomach for a fight.

Gallant and careless on the ridge beyond the river there stood out an odd British sentry or two, evidently unsuspecting that the Germans were in any great force. The Germans had an entire battalion with machine guns bivouacing in good cover immediately north of the bridge head.



Power plant of the two-stroke Radco. The single-cylinder engine has a bore and stroke of 62 mm. x 70 mm.

Message in Morse.—

Dan had never felt so miserably helpless in his life. Even if he had possessed firearms, one resounding shot might be mistaken by the British for a fit of nerves on the part of a jumpy sentry. What in heaven or earth could he do to make the British retreat without delay?

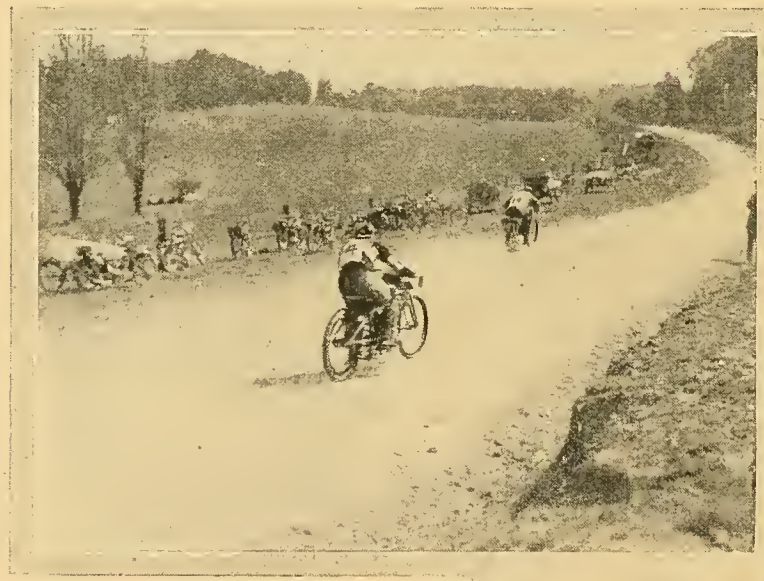
His plan was soon made. Midway between two clumps of Germans, separated from each other by 400 yards or so, a field hedge, bordering a ditch, ran clean over the ridge down to the towing path.

Dan collared his Triumph, with something of a lump in his throat, knowing what his plan might entail. He worked along a cross hedge, gained the ditch he had spotted, and in the course of forty-five minutes worked his stealthy way, Triumph and all, wholly unseen, right down to the towing path. Alas! The corresponding ditch on the British side of the river was lined with Germans. Here and there he distinctly spotted a machine gun. The British sentries on the top of the opposite ridge were a good half-mile away—out of shouting distance.

There was but one thing to be done, and he did it. Remaining in the shadow of the hedge bordering the towing path, he found a piece of hard ground, and put the trusty Triumph on its stand. He carefully verified all the levers, flooded the carburetter, injected petrol, and got in the saddle with the bicycle on the stand. One last tense instant of mental recollection and he started the engine. The second fired it; giving it half throttle and full air, he opened the exhaust whistle which sent its wild eerie screech far and wide over the countryside. Then he shut the whistle for a few seconds. Then, alternately opening and shutting the whistle in long and short jabs of the lever, he sent out in Morse the private code word with which he and Williams used to call each other when they conversed in Morse at the Balham Wireless Club. He repeated the call again, knowing his first screech would awake William if he were in range, and that the second would say "I am calling you in Morse!" The call word repeated, he began to spell out in dot and dash whistles the message for which he gave his life—"Three corps attack before dawn—retreat at once."

"Who Dies if England Lives."

Williams was with the British advance guards, and he happened to be awake when the nightingale whistle sent out its first wild despairing screech. But he did not know why the Morse message ended abruptly at the word "retreat" until many months later, when a crestfallen German officer told him in Berlin. "The pluckiest thing in the whole war, sir! I do not mind defeat from a nation which breeds such heroes!"



SCENES DURING THE GRAND PRIX OF AUSTRALIA, ORGANISED BY THE M.C.C. OF MELBOURNE.

(1.) Edgar Meller (2¾ h.p. Douglas) and Sinden (3½ h.p. Zenith) on the eighth lap. Observe the motor cycle ambulance on left, which is the gift of the pupils of the I.C. school, which has been brougth to the Front by the Australian Expeditionary Forces.

(2.) The winner, Edgar Meller (2¾ h.p. Douglas), who averaged over 41 m.p.h.

(3.) Kirkonnell turn, a dangerous corner of the course, where several of the riders came to grief.

Some Notes from a French Despatch Rider.

WE have been fortunate enough to secure many interesting stories from despatch riders attached to the British Expeditionary Force, but hitherto motor cyclists have not been privileged to read the experiences of our French allies.

From the remarks of a contributor, we shall see how vastly the organisation of the French motor cyclists differs from our own, and how much France has suffered from neglecting the pastime which we British have so zealously nurtured during the last twelve years.

A well-known French competition rider serving his country—M. Vallée-Picaud, who holds the Clyno and Bradbury agency in France. He is in the 22nd Regiment of Artillery, and uses both a Clyno and a Bradbury.

The Uniform.

"We wear uniforms of all branches of the Service," our informant writes, "though our own is a close-fitting blue jacket with four pockets and a low collar, on each corner of which there is a motor cycle in red cloth, while on the arm is the letter 'A' (Automobile). The breeches are of red, and puttees blue. On the whole, it is a fairly practical outfit. But as there were too few of these uniforms, many wear that of the artillery—a short tunic reaching to the waist with no pockets, which is most inconvenient, blue breeches with red piping, and blue puttees. As the roads are very muddy in the north, many of us wear leather gaiters.

"We are all armed with cavalry carbines slung round the shoulder, and carry a bandolier with cartridges, three in each clip. In winter we wear an infantry cape, in which the pockets are inconveniently placed behind the garment.

"All our machines are provided with luggage carriers, on which we carry a pack a foot high containing our personal belongings, so the machines are well loaded.

"Despite all our troubles, we motor cyclists are in excellent spirits. After our long rides at this time of the year, and the many side-slips we have, we return wet and muddy, and yet find time to amuse ourselves in various ways. One of our men got hold of a pair of gloves the other day, and we had some real English boxing—time-keepers, judges, and all complete. Others enjoy wrestling. The other day our Staff was installed in a château where there was a tennis court on which we could play. Sometimes a player would be called away in the middle of a game, and when he came back he would wait till another man came along before he could resume his game.

No French Motor Cyclist Officers.

"Unfortunately we have no motor cyclist officers like our English friends, a point on which I lay especial emphasis, because, unless a man is an active rider, he cannot adequately realise the conditions.

"Our journeys run from 90 to 130 miles a day in summer, but about 35 miles a day in the heavy and skiddy roads in the Aisne district. Our job is to accompany the cars belonging to the Staff to the line of fire, to carry despatches to the trenches, to bring the enemy's intercepted wireless telegrams to headquarters, to accompany convoys of heavy transports of food or ammunition, and to fetch help and spare parts to stranded lorries.

"When we meet our good friends, the British motor cyclists, we greet them with a hearty handshake, and exchange souvenirs in the shape of buttons and pots of jam. We greatly admire the English machines, especially as regards their comfort and the excellence of detail in the smallest accessory. The most cordial relations exist between the French and British motor cyclists, and when one of us is charged with a mission to General French's staff or other British headquarters he returns perfectly enchanted with the cordial reception he has received. We shall have happy remembrances of the British Army, which we shall bear in mind all our lives."

A French despatch rider taking cover in a wood. The photograph was taken near Soissons by the driver of an armoured car.

We now give a few extracts from some rough notes written by our correspondent at a place in France called by the English soldiers "Villagers Cottages," which is not a bad rendering of its true name.

Some Impressions on Mobilising.

"Men of all ages presented themselves at *les Invalides* with their machines. French motor cyclists are probably as good mechanics and as good riders as their English comrades, but our manufacturers have turned out motor cycles without gears or clutches, which did not matter so much in August and September, but since the roads have become muddy through the rain and cut up by the artillery, the machines, slowed up by convoys, knock themselves to a standstill on the slightest pretext. Our officers are doubtless competent enough, as far as cars are concerned, but know nothing about motor cycles.

Incompetent Repairers.

"The repairing of the machines is grossly neglected, and none of the mechanics attached to the artillery workshops understand motor cycles. These repair lorries are mere accessory stores,

A group of French military motor cyclists. In the centre is a well-known competition rider, M. Touchet, French agent for the Regal-Green. He reports that his machine has given great satisfaction under trying conditions.

Notes from a French Despatch Rider.—

and have not the tools for repairs, while those of our English friends are excellently equipped, and one of them turned out the other day a complete crankshaft for a car belonging to our staff. Not a bad performance! I fancy.

"The worst of it is the French motor cycle corps was organised in a hurry at the moment of mobilisation. We have all types of machines—English, French, German, and Belgian—as well as several nameless mounts constructed from parts coming from goodness knows where. And the trouble of getting spares, the delay and the amount of red tape involved are appalling. The best foreign machines are the English, which are greatly admired, as are also the officers in charge of the riders. The makes I saw most of were the Triumph, Rudge, B.S.A., and P. and M., and I was especially taken by the Douglas, owing to its easy starting and the way it holds the road in the grease. I wish I had one of these most attractive machines.

"In bad weather I advocate the fitting of sidecars, as without them the riders unwittingly become acrobats. The other day one of our men captured a Wanderer from the German Army. This is now used to carry news to the allied troops, to whom Victory will soon hold out a crown of laurels."

E.F. (MILITARY MOTOR CYCLIST ATTACHED TO THE FRENCH ARMY CORPS).

Feeding the Guns.

WE have received the following letter from W. Pratt, the erstwhile rider of a P. and M., who now drives a heavy lorry in the Ammunition Column attached to the 116th Heavy Battery, R.G.A.:

"I have just been reading a copy of *The Motor Cycle* (December 3rd), which, by the way, is the first I have seen since I have been out here, now over two months, and, as you know that I am an enthusiastic motor cyclist, you can guess I have been reading this copy with 'some gusto,' and the events described therein bring back many memories of days gone by on the good old P. and M. and others in Six Days Trials, London to Edinburgh and Exeter, etc.

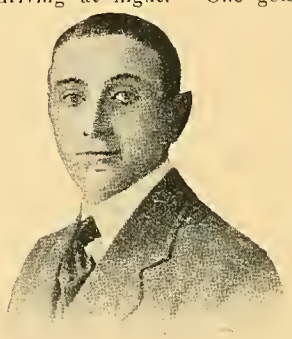
"At the present moment we are sleeping in a house—on the floor—which is the first time we have been billeted in such comfortable quarters since I have been out here, so you can guess we generally have to rough it. I am writing by the light of two motor lamps taken off a car, as gas or electric light is unknown in this village.

Light Vehicles must make Way.

"I see many names of men in *The Motor Cycle* who, I should have thought, would have long ago been with us out here, but no doubt they have good reasons for staying where they are. I would like you to convey my congratulations to Georgie Brough on his performance in the Bristol Trial. It is like him, and what one would expect; but you can tell him from me he would often have his work cut out to average 20 m.p.h. over here on these roads and the traffic. It is a common occurrence to meet a single convoy of forty motor lorries, and when you meet these there is no other place for you but the ditch or the side of the road, which much resembles a ditch. The convoy have orders not to get off the crown of the road (generally *pavé*) for lighter vehicles, as if one of these lorries (sometimes with a load of three or four tons of ammunition or stores) gets 'ditched' it may take anything from half an hour to get it out, and you can appreciate what trouble and delay that causes to other traffic, and many bad words are used by every one concerned.

"Bob White and myself are on the same lorry (40-45 h.p. Maudslay), and we intend to stick together if possible. We have had many interesting experiences, which are too numerous to mention here. We have only ditched our lorry twice, and as on neither occasion has it been our fault we call our sheet a clean one. Our work is very interesting, as we take up ammunition to our battery, and, in consequence, we are always well to the fore, and very seldom sleep out of sound of the guns, and generally on our lorries, which may have anything up to 100 rounds of lyddite or shrapnel. For the first month we were well in the thick of it, and saw many interesting sights. What would you say to a hole by a 'Jack Johnson' big enough to put two lorries in and then not know they were there? Some hole, eh!

"At the present moment we are supposed to be resting, but any time orders may come for a move, and then it means at any minute, night or day, and it is no joke driving at night. One gets very little rest as, perhaps, the battery particularly requires lyddite, or shrapnel, as the case may be, and it has to be got there in the shortest possible time, no matter what the obstacles.



Mr. W. Pratt, who recounts on this page his experiences driving an ammunition car with the British Expeditionary Force.

Knowledge of French Useful.

"I have seen a lot of praise given to the motor cycle riders, which, without doubt, they deserve, but those of us who have taken on this work of driving these big, heavy vehicles, perhaps for the first time, have many difficulties to overcome, which require a considerable amount of skill and nerve. At night one must never leave the lorry unguarded for one moment, which necessitates one doing guard while the other man sleeps in the lorry.

"The other difficulty always before us is being 'ditched,' which is very easily done; more easily than you can imagine with the good English roads before your eyes.

"Just before I close I would like to mention that I have found my knowledge of French very useful, and I generally act as interpreter to the column, and hope to be able to use my German in a similar manner when we arrive in Berlin!

"As I write, I have just heard we are off into action again, so to-day has been a busy one with us. I cannot tell you where we are going, but when our guns start you will soon hear of another German retreat, and that is how 'I do my little bit' by serving the guns which give the Germans a nasty shock every time a shell leaves the muzzle. I forgot to mention our guns are the guns of South African fame, 4.7, so you will have some idea of the damage they do.

"With best wishes for Christmas and a happy New Year to you and all those readers who remember me.—BILLY PRATT."

THE MACHINE REQUIRED.

IT is with pleasure that we reproduce a letter we have received from Lance-Corporal D. H. Noble, the Rover rider, now serving with the 69th Company A.S.C. (M.T.) It is such an interesting communication that we reproduce it *in extenso*:

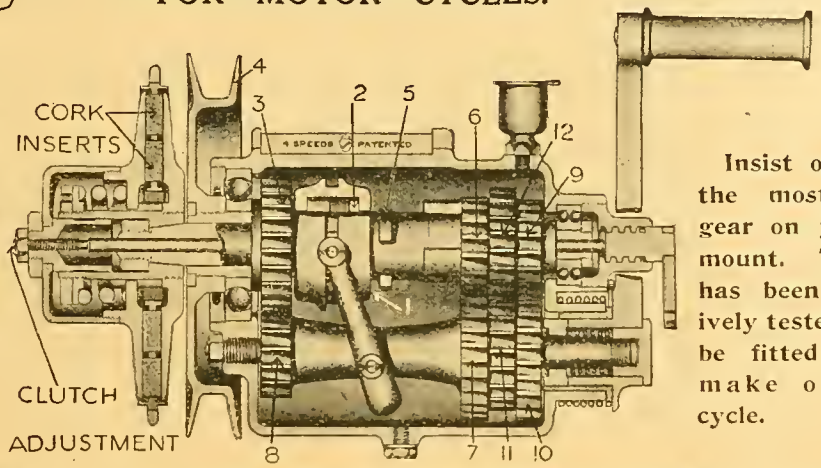
"The weather and roads are becoming really awful now—cut up by the constant heavy traffic and deep in mud soup. I was held up the other day by the deluge getting in the magneto, and had to take the whole thing down in a little *café* by the light of one oil lamp, finally arriving 'home' at 11.30 p.m. Incidentally, an Indian sentry, whose challenge I did not hear, nearly shot me. Otherwise the T.T. Rudge I have been riding has gone excellently, although, being gear and clutchless, it is hardly suited for 12 m.p.h. convoy riding, so I hope shortly to be astride a Douglas. To be suitable at all for convoying lorries a machine (unless it is a lightweight) must have a handle-bar controlled clutch, a gear emphatically *not* in the hub, and efficient spring forks which *will* hold the road (one type which I have in mind is absolutely a nightmare to steer over *pavé*). Protection from the wet and mud is also most desirable—we are rigging canvas mud shields on most of our bikes—as once one gets wet it is a difficult job to get dry again—no hot bath and a spare suit of clothes to change into after a long and wet ride at speed. Otherwise I am sure the British Army in France is the best looked after. There is plenty of excellent food and warm clothing. We motor cyclists have just received short leather coats, and the lorry drivers long fur-lined ones."

THE DINE IDEAL TRANSMISSION

FOR MOTOR CYCLES.

Amongst others the following British makers are now fitting Mark 10 as standard.

Abingdon Ecco Co.
Burney & Blackburne
Campion Cycle Co.
N.U.T. Motor Co.
Reed, H., & Co.



Insist on having the most perfect gear on your next mount. This gear has been exhaustively tested and can be fitted to any make of motor cycle.

FOUR SPEEDS. KICK START. CHAIN and BELT DRIVE.

17 OTHER MODELS TO CHOOSE FROM—CATALOGUE ON APPLICATION.

JARDINE, - - NOTTINGHAM.

MARVELLOUS PERFORMANCE OF J.A.P. ENGINE ON CYCLE CAR.

MELBOURNE to SYDNEY.

Extract from letter received from an Australian user of the J.A.P. Engine.

Australians argued that a J.A.P. would overheat where a . . . would not. It was then that I challenged any . . . or other engine (regardless of power) to do what I could do with my 738 c.c. O.H.V. J.A.P.; and I made it my business to meet these enthusiasts under all conditions, and finally, after completing the Melbourne to Sydney journey, I openly said (and say again) that no other engine than a J.A.P. would ever have taken me across that 600 miles of indescribable country, and in succeeding in accomplishing this journey, believe me, your engines have received the greatest test that ever an air-cooled engine has been subjected to, and had you yourself gone over the road beforehand, I am positive you would have said that I could never get there with 8 h.p. carrying the cargo I had on board, using a friction drive in the bargain. But I knew my engine and its capabilities, and although it roared in the low and slipping gear when the sand was a quarter up to the axles, it did not complain, but stuck to its task as though it knew it was a case of getting to the next township or leaving its driver to die of thirst—and a J.A.P. has never been guilty of that so far—and on those hills (or ranges) how it pulled when a nasty corner prevented a run, and a tree or two lay across the track. That was when anxious moments arose, but my faithful engine would settle down to business, and, although the ascent seemed slow, we would always get there, and in many cases I would jump out on the summit and look down those mountain slopes and marvel at ever having climbed them. At all events, the question of a J.A.P. overheating has been silenced for ever, and the J.A.P. is the most popular engine in Australia to-day.

"I feel as though it is my duty to inform you of the marvellous behaviour of your engine on my overland journey with 160° in the sun."

Write now for our Illustrated Catalogue, containing detailed description of all Models, to Dept. B.

J. A. PRESTWICH & CO., Northumberland Park, TOTTENHAM, N.

Telegrams: "Prestwich, Tottlane, London." Telephone: 1613 Tottenham.

THE WONDERFUL SUNBEAM TRANSMISSION

BE QUITE CLEAR ON THIS POINT.

In May, 1914, Three Sunbeam Motor Cycles for the first time competed in the Tourist Trophy Race, and they won the Team Prize.

Very well! This most important Competition showed the supremacy of the Sunbeam Chain Drive—but not of any and every Chain Drive.

Remember that Sunbeam Chain Drives, and Sunbeams alone, combine the advantages of both Chain and Belt without the disadvantages of either.

A study of the 1915 Sunbeam Catalogue brings out this point, and all prospective purchasers should at once send for same.

Preliminary leaflet giving detailed specification will shortly be ready, and sent on application to:

J. MARSTON LTD., 11, Sunbeamland, Wolverhampton.

London Showrooms: 57, Holborn Viaduct, E.C.; and 157-158, Sloane Street (close by Sloane Square), S.W.

Another ROYAL RUBY

Have you seen the Royal Ruby War Map, Price 6d.? The best thing in War Maps on the Market.

PRICE.—Complete with Sturmey-Archer 3-speed gear and free engine hub ..... **36 Guineas**

Code Word: "Adelopode."

If desired, we can fit Banks 3-speed countershaft gear without clutch instead of Sturmey-Archer 3-speed hub gear, at the same price.

Code Word: "Adelosine."

MASTERPIECE.

Royal Ruby Modele de Luxe 2-stroke Lightweight, fitted with Villiers Unit.

Everything of the very best quality.

SPECIFICATION.

Frame.—Low built, soundly constructed, and with dropped back, giving low position, 28in. from ground to top of saddle; made throughout of "Royal Ruby" fittings, and best quality weldless steel tubing. **Forks.**—Druid new pattern lightweight, with extra springs. **Engine.**—Villiers 2½ h.p. 2-stroke, 70 × 70 mm., with c.c. 269. **Carburetter.**—Amac special. **Brakes.**—Bowden front brake, with outside lever and belt rim brake operated by foot pedal. **Belt.**—Dunlop ¾in. **Silencer.**—Twin type of special design. **Saddle.**—Brooks B 180 pan seat. **Carrier.**—Tubular. **Tank.**—Specially well made, holding 1¼ galls. of petrol and 1½ gills of oil, and fastened on two supports brazed to frame. **Lubrication.**—Through Best and Lloyd's sight drip feed with pump. **Control.**—Ignition and carburetter levers on handle-bar, compression release by outside lever worked by Bowden wire to handle. **Handle-bars.**—Semi T.T. or upturned (optional). **Mudguards.**—Deep section, with side shields as shown. **Stand.**—Good front and rear stands as shown. **Wheels.**—26in. × 2in., B.E. Roman rims, fitted with best quality hubs. **Footboards.**—Aluminium, as shown. **Bag.**—Brooks' side bag. **Tools.**—Fully equipped tool-roll. **Inflator and Clips.**—Celluloid inflator and clips brazed to frame. **Tyres.**—Dunlop, 26 × 2in., B.E., rubber studded motorcyclette tyres.

Write for Catalogue, giving full specifications of other models, from the 2-stroke Lightweight at 25 Gns. up to the 8 h.p. modele de luxe at 80 Gns

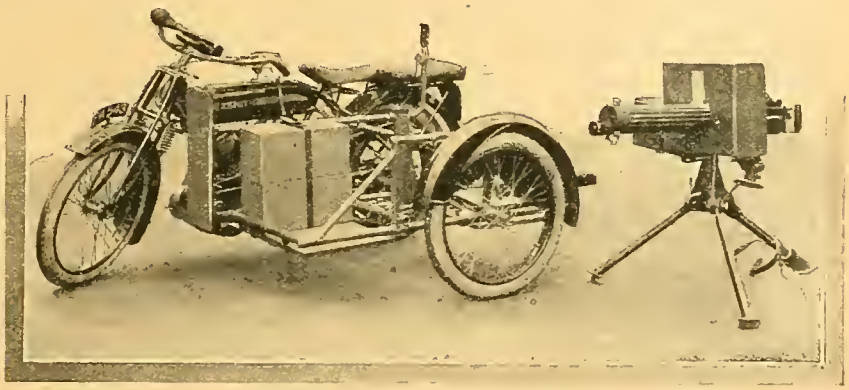
ROYAL RUBY CYCLE CO.,

Ruby Works, Cannel Street, Ancoats, Manchester.

The Zenith Machine Gun Sidecar Combination.

WE recently had an opportunity of inspecting a particularly fine sidecar outfit on which a quick-firing gun is mounted, Mr. F. W. Barnes, of the Zenith Company, being responsible for the design of the sidecar chassis. The sidecar is constructed throughout of straight tubes and is immensely strong. In the centre is a column supporting the gun, on which it is pivoted, providing an ample amount of lateral movement. A locking device holds the gun in position, so that it is held rigidly until its use is required; the gun may be worked either ahead or astern, as by undoing the locking screw referred to the gun may be lifted out, turned completely round, and used in the reverse direction. When the gun is in action a "spade," which is hinged to the near side sidecar member, can be let down so as to hold the combination steady while the gun is being fired. If the sidecar is lifted up and the leg pushed forward it makes an efficient sidecar stand.

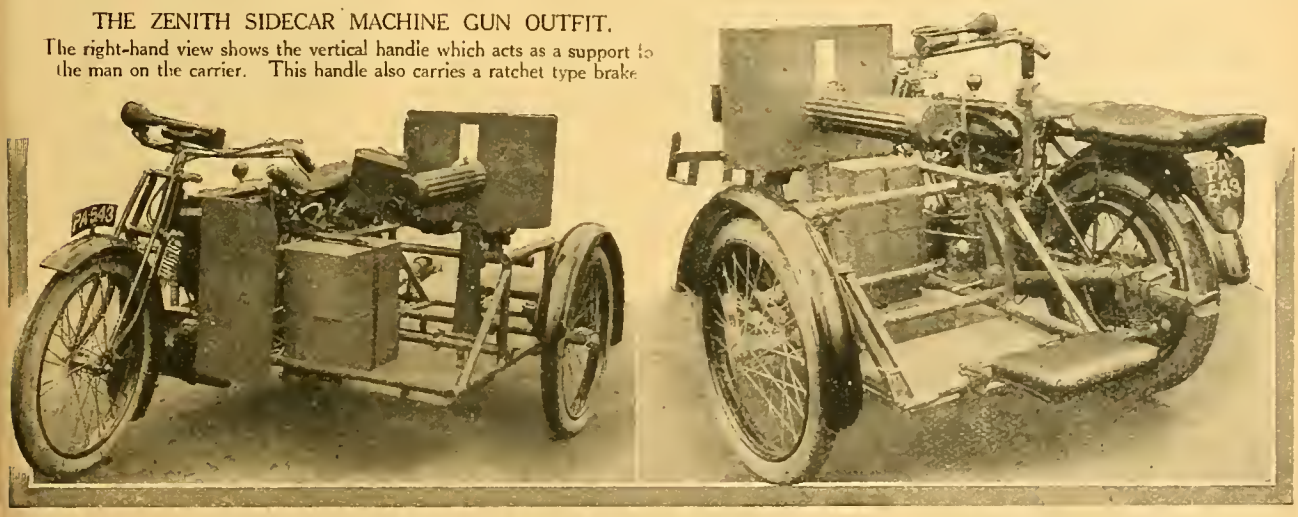
The quick detachability of the gun is an especially important feature, as, in the event of the combination arriving at a spot where further progress by road is not possible, the gun may be lifted up and the tripod shown in the illustration quickly detached and carried with the gun to a convenient position. A platform is provided upon which the gunner sits, and provision is made for the conveyance of ammunition boxes. A comfortable cushion is to be found on the luggage carrier, and also a handle to which one of the gun's crew can hold on, and to which is attached an auxiliary brake provided with a ratchet lever so that it will stay on in any position. The tripod rests on a spring carrier, and when in position acts as an efficient form of spring footrest for the passenger riding on the carrier. The gun used is the Vickers light machine gun.



Quick-firing gun dismounted from sidecar chassis and mounted on its tripod. This operation is the work of less than a minute, and is necessary on occasions when further progress by road is impracticable. The bicycle and chassis are Zeniths.

THE ZENITH SIDECAR MACHINE GUN OUTFIT.

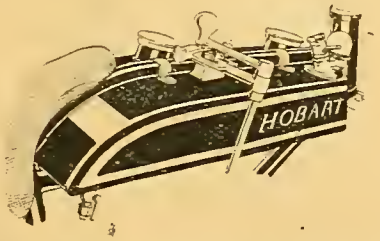
The right-hand view shows the vertical handle which acts as a support to the man on the carrier. This handle also carries a ratchet type brake



A Motor Cyclist with the Ambulance Service.

A RECENT issue of the *Ilford Guardian* contains an interesting letter which has been received from Sergeant A. R. Abbott, the well known motor cyclist and captain of the Essex Motor Club, who is attached to the 24th Field Ambulance Motor Transport, having charge of close on a dozen ambulance cars. The following are extracts:

"I will endeavour to give you an outline of our work as briefly as possible. Our hospital is situated about six miles from the firing line, which is about the limit of the range of shell fire, although now we do not take much notice of bullets or shells. The cars go to within one hundred or two hundred yards, and the stretcher bearers then walk the rest and carry back the wounded to us. As far as possible we stay behind an old farmhouse or cottage to shelter from the stray bullets, and there are plenty of them —*souvenirs d'Allemands!* On a dark night it is hell driving up there, and the roads (?) are awful, with ditches each side. We also have to dodge innumerable shell holes in the road that would take two tip-cart loads of ballast to fill up. We have had one car hit, but up to now nobody has been shot. We also had one car overturned in a ditch, and got it out two days afterwards under shell fire. We had to rig up a tripod of scaffold poles, and—although I say it myself—this was a smart piece of work."



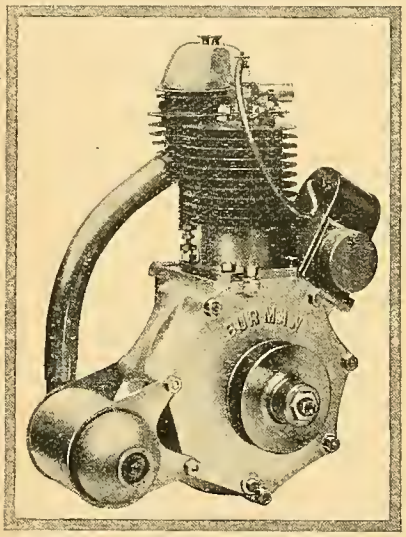
Tank of the new two-stroke Hobart, showing large filler caps, lubricator, and change speed lever. (See page 683 of our last issue.)

1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

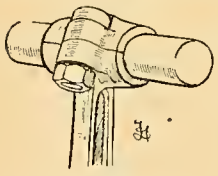
THE BURMAN 2½ h.p. ENGINE.

AT the present time, when most new productions in the small engine line act on the two-stroke principle, it is particularly interesting to find a well-designed and original small four-stroke. Such an engine is the Burman 2½ h.p. manufactured by Burman and Sons, Ltd., 89, Gooch Street, Birmingham.



Pulley side of the engine.

The enclosed overhead inlet valve and the crank case are the first points to strike the eye. The latter is of peculiar shape, for the bolt lugs are internal and their external radii are joined by neat curves so that the crank case can be wiped down with ease, and there are no ridges to collect mud. The valves are operated by a single cam, and the rockers are mounted in such a way that each has a long bearing surface on which to work. A Dixie magneto is mounted at a slight angle behind the cylinder, and is driven from the camshaft through a single intermediate gear wheel. A large silencer is attached to the front engine bolts, and is supplied as part of the unit. Dealing next with the cylinder, which has a bore of 76 mm. (the stroke being 65 mm.), the design is clean, and a clear air passage is left between the valve port and cylinder wall. The overhead inlet valve, complete with its seating and spring, drops into position from the top, and is held in place by a screwed dome. The inlet pipe casting, which is formed with the rocker bearings and cooling ribs, fits over this dome, and is held in place by a large diameter nut, and the rocker operates the valve through the medium of a small plunger, which prevents air leaks and takes up any side thrust. The inlet pipe is bushed to receive the inlet tappet rod, and the pipe is specially formed so that the bush does not choke the passage of the gas. Over the whole rocker gear fits an aluminium cap, precluding all grit, but removable for lubricating purposes by two small thumb nuts.

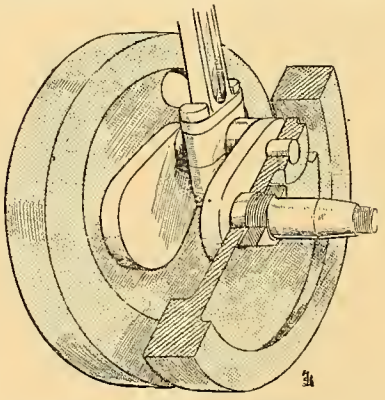


The gudgeon pin is fixed to the connecting rod by a split rod end

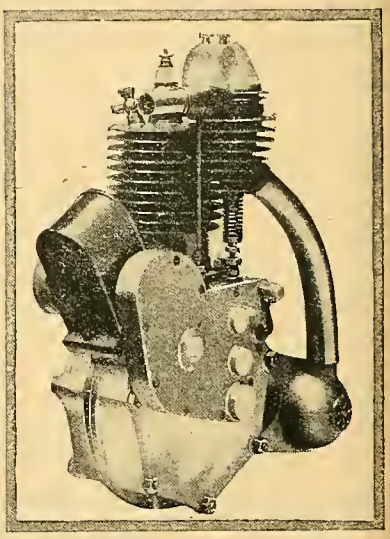
EDITORIAL NOTE.

ALREADY many full descriptions of 1915 models have appeared in these columns, and as a guide to readers we give below the dates upon which the different descriptions were published:

Sept.	3rd.	Henderson and Levis Popular.
,,	24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct.	1st and also 29th.	Three-speed shaft-driven Rex.
,,	8th.	Radco and Abingdon.
,,	15th.	Ivy, Vindec, and 4 h.p. Brown.
,,	22nd.	J.A.P. engines, Calthorpe, Lucas dynamo.
,,	29th.	Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and two-stroke Ariel.
Nov.	5th.	Sparkbrook, Lady's Metro, 2¾ h.p. and 6 h.p. Enfields, Omega, and 4 h.p. A.J.S.
,,	12th.	6 h.p. Humber, Sun Vitesse, and Levis.
,,	19th.	Diamond, B.S.A., 6 h.p. twin P. and M., Indian, Royal Ruby, Velocette, 6-7 h.p. Sunbeam, James, Rover, twin-cylinder two-stroke Premier, and New Hudson.
,,	26th.	Rudge, O.K. Junior, Wooler, New Imperial, J.H., Lady's Radco, Wulfruna, Bradbury, and Hazlewood.
Dec.	3rd.	Norton, Grandex, Connaught, Brown, Clyde, Brough, and Lady's Ivy.
,,	10th.	Allon two-stroke, Wulfruna, Premier two-stroke, O.K. two-stroke, A.J.S., and Velocette.
,,	17th.	4 h.p. and two-stroke Triumph, Radco, and Paragon two-strokes, Rex-Jap, Symplex, Bat, Connaught, Quadrant two-stroke, Twin Excelsior, Hobart two-stroke, and Hockley two-stroke.



The Burman flywheels are attached to a solid crankshaft.



The 2½ h.p. Burman engine has an enclosed overhead inlet valve.

Novel Crank Construction.

Perhaps the most interesting feature of the engine is the crankshaft construction, which is quite unusual. The crank itself is a solid forging, hardened and ground to size. The crank pin is hollow, and through this is driven a pin which serves to locate the flywheels. The flywheels are internal, and the inner webs are set eccentric to their outside diameter, so as to provide correct balance. They are bored to fit the crankshaft, and have a hole to suit the positioning peg already mentioned. Consequently, they can be dropped into position and held on by locking nuts in such a manner as to ensure true running. This, unfortunately, is not a common feature on most inside flywheel engines, and materially affects high speed running.

The connecting rod carries a split big end of large dimensions, and the small end is also split and grips the gudgeon pin firmly, so that the pin oscillates in the piston. This method has much to commend it, for besides providing a much larger bearing area, no other gudgeon pin fixing is required. A ball bearing is fitted to the crankshaft on the

Unequalled!

By Appointment.

ANGLO - AMERICAN
OIL COMPANY, Ltd.,
36-38, Queen Anne's Gate,
WESTMINSTER, S.W.

Where to go for Magneto "Spares"

ISN'T it time you overhauled that magneto of yours? Some of the parts may have worn and need replacing. It is far cheaper to do this now, than to wait until serious trouble develops, and the machine breaks down. We keep a comprehensive stock of "spares" for magnetos of *all* makes, and can send you any part, from an armature to a terminal, per return. Write for prices. They are low.

A MAGNETO HOSPITAL.

¶ We keep a staff of experts who do nothing else but repair magnetos; so if your machine is out of order, send it to us and we will make it as good as new. We despatch all work within 24 hours of receipt. We guarantee satisfaction with *all* makes.

THE NEW Simms Plug.

¶ The "New Simms" is a non-soot rustless plug which never misfires. It sparks perfectly at all engine speeds, even at starting. Ask your dealer to show you the plug in the blue tin box. That is the New Simms Plug—the best there is for motor cycles.

PRICE, EVERYWHERE,
3/6 EACH.

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Photography for All. Photography by Rule.
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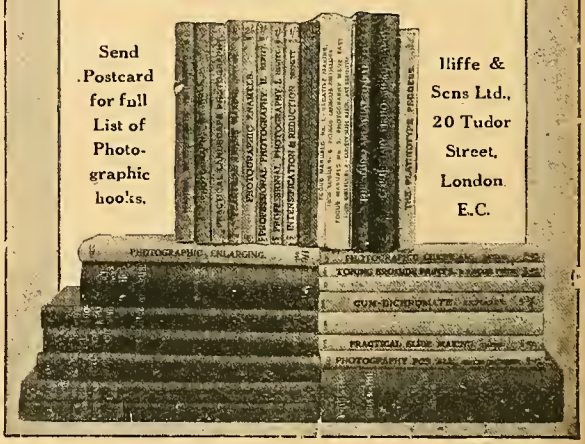
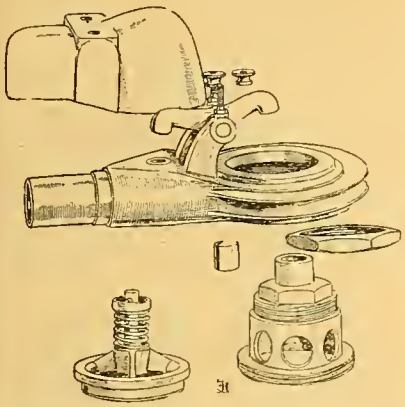


Iliffe & Sons Ltd., 20 Tudor Street, London E.C.



Details of the Burman inlet valve, and dome construction.

pulley side, and all the other bearings are plain and of ample proportions.

Altogether the engine is an example of excellent design and high-class workmanship.

NEW COMETS FOR 1915.

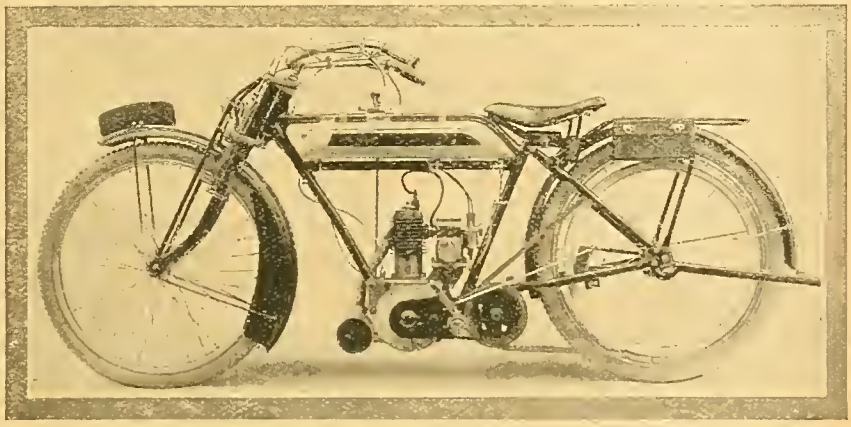
MR. A. H. HADEN, of Princip St., Birmingham, was one of the first of our manufacturers to realise the possibilities of Overseas trade in motor cycles and parts. He has, in consequence, reaped the benefit of his enterprise, and it is hardly surprising to find that the greater part of his business is done out of England. New Comet models range from two to eight horse power, and include two and four-stroke engines and special ladies' models.

Among the lightweight machines there is a wide choice. A very compact motor cycle is turned out, fitted with either the Precision Junior unit or a 211 c.c. two-stroke with a two-speed countershaft gear and chain and belt drive. In each case the frame is very strong without being heavy, and the fittings throughout are stout and of sensible proportions. Druid forks, 26in. wheels, and comfortable foot plates are included in the specification. Care has been taken to ensure the most comfortable riding position, and it is particularly noticeable that even the lightest models are fitted with a double top tube. Both lightweights can be obtained with open frame suitable for lady riders, in which case both the top tubes are dropped sharply downwards, and meet in a common lug part way up the saddle tube. This gives plenty of dress room, and still leaves a frame of ample strength. The open frame models are, of course, fitted with a belt shield, to prevent damage to the rider's dress.

To pass on to one size larger, we find a serviceable mount equipped with a 350 c.c. two-stroke engine and a three-speed hub gear. This is a robust machine, capable of solo work in any country. With its 26 × 2¼ tyres, strong stand and carrier, comfortable saddle and wide guards, it forms a serious touring mount which is at the same time not so heavy as to be unwieldy, weighing as it does approximately 150 lb. Here, as in other models, we find details carefully carried out, and the foot brake is arranged so that a fall is not in the least likely to put it out of action. This model may be obtained with pedalling gear and foot-rests in place of footboards.

Among the long list of remaining models to suit all tastes the big twin may be taken as a worthy representative. It is designed to suit the 6-8 h.p. J.A.P. or Precision engines, and is built throughout to withstand the heavy strains of sidecar work on bad roads. The mudguarding and fittings are of the first order, and the complete machine strikes a high note in motor cycle construction.

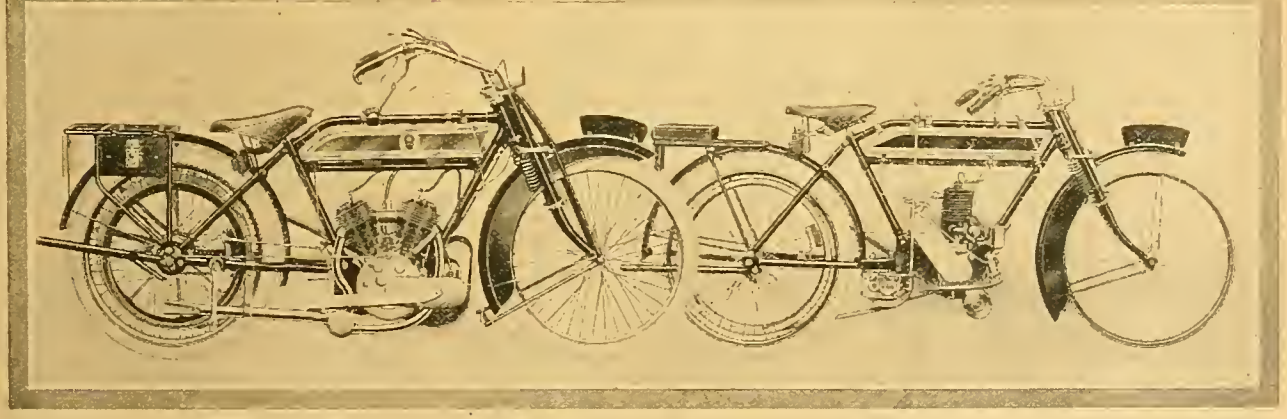
An equally wide range of sidecar chassis is manufactured at the works, and extends from the light touring machine to the very heavy types suitable for heavy loads in bad country and commercial work. The quick detachable sidecar clip is a point worthy of attention on all models.



The new Dot lightweight, particulars of which appear on this page.

A DOT LIGHTWEIGHT.

Mr. Harry Reed, of Manchester, maker of the Dot motor cycle, has long been known for his powerful machines. Of interest, therefore, is the new Dot lightweight machine, which is fitted with a 2½ h.p. J.A.P. engine 70 × 76 mm. bore and stroke (292 c.c.). A Dixie magneto is mounted on a platform behind the cylinder; in rear of this again is an Amac carburetter. The transmission is by a chain to the Albion two-speed gear situated in the countershaft, and thence by belt over a large pulley to the rear wheel. Saxon forks and a Brooks saddle combine to make the machine comfortable. The front mudguard is provided with side flaps. Hutchinson tyres are standard, and the general lines of the machine are neat and effective.



Extremes of the New Comet 1915 range, the big twin-cylinder and the light two-stroke. Both models are built "with an eye" for Overseas trade.

Sturmey-Archer Three-speed Countershaft Gear.

WE have several times mentioned the new Sturmey-Archer gear, which is adopted by many leading makers as standard for 1915, and its many excellences. We now propose to give a complete description of the gear and its method of operation.

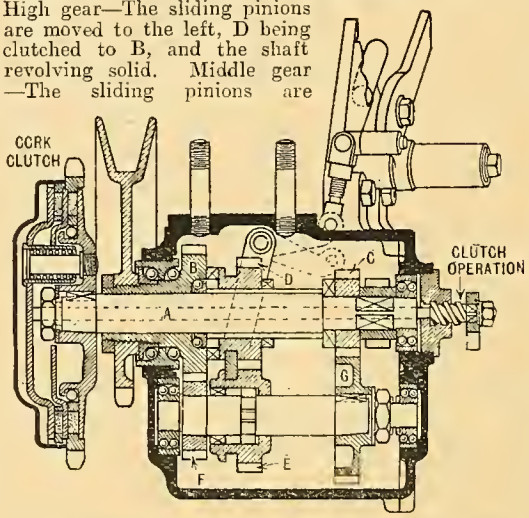
In the first place, it should be noted that the gears are all continually in mesh for the full width of the teeth, and consequently there is no danger of the edges of the teeth being chipped, to the detriment of the entire gear.

The Clutch.

The clutch consists of a main body, keyed to the main gear box axle and four other friction plates. Two of these are prevented from revolving by the spring boxes, of which there are six, one being shown in the drawing; the other two plates, carrying a series of corks, are coupled together by tongues on their peripheries, and one of them carries the driven sprocket. The only parts liable to wear are the cork inserts, which are easily renewable. The outer dust cap is sprung over an extension of the sprocket. The clutch is disengaged by a rod running through the main axle, and operated from the handle-bar through the quick pitch screw shown on the right. It is very smooth in action.

The Gear Box.

The main axle A, to which the clutch is keyed, carries gear wheels B and C, one at each end, both free to revolve upon it. That on the left, B, has an extension, on which a driving sprocket or pulley is mounted. The centre part of the shaft is fluted, and upon this slides the third gear wheel D, provided with dogs at each side. The layshaft has a gear wheel keyed to each end, and is formed with dog clutches in the centre, which engage with a corresponding set on the sliding pinion E. The pinions on each shaft are operated by the same lever, and slide together. The action is as follows: High gear—The sliding pinions are moved to the left, D being clutched to B, and the shaft revolving solid. Middle gear—The sliding pinions are moved to the central position, and the drive is through D, E (now clutched to the layshaft), F, and B. Low gear—The sliding pinions are moved to the right, D being now clutched to C, and the drive is through C, G, F, and B.



Diagrammatical section of the new Sturmey-Archer three-speed countershaft gear, having all the gears constantly fully in mesh, and cork insert clutch. The letters are referred to in the text.

The gear ratios are 1, 1.632, and 2.662, and the following gears are therefore available: 3, 4.9, 8; 3½, 5.7, 9.3; 4, 6.5, 10.7; 4½, 7.34, 12; 5, 8.15, 13.3, and so on in similar proportion.

Kick Starter Mechanism.

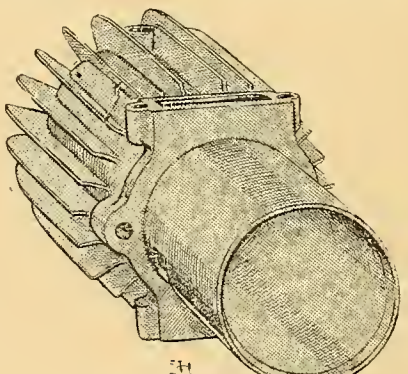
The kick starter is so arranged that, when the spring brings the lever to the normal vertical position, a projection on the free-wheel pawl comes into engagement with a fixed cam which depresses the pawl out of action, thus making for quiet running and absence of wear. When starting the engine by means of the kick starter, the gear lever should be placed in the neutral position with the clutch in engagement. When the engine starts, the clutch is withdrawn before the low gear is engaged, after which the clutch is re-engaged, and the gears changed as required. When changing gear, it is not necessary to declutch, but the exhaust lifter should be used momentarily. It is recommended that the gear should be lubricated with engine oil, a large accessible hole being provided for this purpose.

A New Twin Connaught.

AS regards two-stroke motor cycle engines, the new horizontally opposed twin Connaught marks a new epoch. So far some difficulty has been experienced in constructing air-cooled two-stroke engines having a cylinder capacity exceeding very moderate limits, but there would appear to be no reason why this limit should not be approximately doubled by employing a twin. In the case of the Connaught this has not yet been done, as the new engine has a bore and stroke of 60 × 60 mm., but it must be realised that, although the crankshaft impulses occur at the same intervals as would be the case in a horizontal twin four-stroke, yet both cylinders fire simultaneously, and, therefore, double the number of explosions take place. Thus, the balance is as good as possible with a twin engine, and the torque is as good as with a four-stroke horizontal twin.

The cranks are set at 180°, and carefully balanced, the shaft running on ball bearings with plain compression retainers. Both cylinders project a long way into the aluminium crank case, the inlet port being formed in the casing of the rear cylinder.

Both cylinders and crank case are bolted firmly to a stout aluminium casting which forms a combined bedplate and silencer, and is rigidly attached to the frame at both ends. This bedplate bolts directly to the exhaust ports, and thus no exhaust pipes are employed. The lid of the crank case, which also acts as a magneto platform, is formed by part of the transfer pipe casting which lies along the top of the engine. This transfer pipe includes a very unusual device, consisting of a rotary throttle sleeve in the rear cylinder lead. The object of this is curious. All two-stroke riders know that when running light, either downhill or with the clutch out, their engines develop a tendency to four-stroke, and it has been found that by cutting out the rear cylinder on the Connaught by means of the before-mentioned throttle the full charge passes to the front cylinder, which continues two-stroking regularly, giving the same number of impulses as though both cylinders were in action.



The back cylinder of the new twin Connaught. On top is the transfer port, and directly below lies the exhaust port, while, below the flange, the corner of the inlet port can be seen.

The magneto problem for an engine of this type requires some consideration, as two sparks have to be generated simultaneously, but in the engine we inspected the trouble had been overcome by a special U.H.

Lubrication is by petroil, and the frame and fittings, with the exception of the special engine fixings, are on standard Connaught lines. Photographs of the new engine appear on the opposite page.

A TWO-SEATED SIDECAR.

For some time past Messrs. A. J. Stevens and Co., Ltd., have been testing a two-seated sociable sidecar. This new model has given great satisfaction, but it is not yet known whether it will be placed on the market for 1915, as the company is experiencing so great a demand for the standard models.

Clubs and Affiliation in War Time.

Reply to our Leaderette from the A.C.U. Secretary.

To the Editor of "The Motor Cycle."

I CANNOT help feeling that, unintentionally, you have struck a wrong and almost unpatriotic note. The services that motor cyclists in general, and the motor cycling clubs and their parent society in particular, have been able to render the country in this time of war, have been not inconsiderable, and, I suggest, should be an added reason why individuals should continue to support their clubs and the clubs to rally round the Union.

Instead of drawing attention to the fact that a good many motor cyclists who are not serving their country are economising by resigning from their club, you should have exhorted them to "carry on" as usual and individually to do their best to obtain new members, so that their club funds may the better be able to carry those of its members who are away serving their country as honorary members in every sense. Those you refer to who are neither serving their country nor supporting their clubs cannot surely be many; as honorary secretary of, I think, the second largest motor cycling club in the Union, I have not received one single resignation since August 1st.

One gathers from your article that matters motor cycling are dormant, and that as there is nothing for clubs or the Union to do we should all sit with folded hands and keep them away from our pockets until brighter days dawn. Such pessimism is unwarranted, harmful to the industry, and unfair to the "great federation of clubs so carefully and laboriously built up."

As a matter of fact, not a day has passed since the commencement of war without several new members joining the Union, whilst during the same period clubs have notified me of 646 new club members. The number of applications for particulars of tours and for free legal defence has been actually greater than during the corresponding period of last year. Are not your circulation figures equally encouraging? [They are.—Ed.] What of the refreshing leaderette on the state of the industry that follows the article in question?

Even admitting, however, that there may be a drop in club membership this year, is this a good reason why clubs should reduce the amount of their membership subscriptions? Clubs are not run for profit, and, as a general rule, the subscriptions are merely sufficient to pay for stationery, printing, and postage, together with the capitation fee of 6d. or 5s., as the case may be, to the Union. There is still less reason why the comparatively small fee paid by the clubs to the Union should be reduced. The fewer the number of members to be benefited the more expensive the provision of such benefits becomes, whilst such heavy charges as rent of offices and other administrative expenses have to be paid as in normal times. As to the latter, it may be of interest to state that more than one half of the clerical staff of the Union have enlisted, and that the Union is, in each case, making up their pay to their original salary figure.

To remove any misapprehension, it should be clearly understood that the Union has never had any wish unfairly to tax its clubs, or to draw one penny from them more than they can afford. The Union does not, any more than the clubs, exist for profit, but, unlike its clubs, it has necessarily to spend many hundreds of pounds a year to maintain its position as a parent society, an expenditure that this year will probably show a balance on the wrong side.

In their own interests club secretaries should be careful to exclude from their list of members all those who do not punctually pay their subscriptions; there is no liability on a club to pay a capitation fee in respect of other than its paid up members, and it is quite optional for the club to decide whether this shall be on the sixpenny or the five shilling basis.

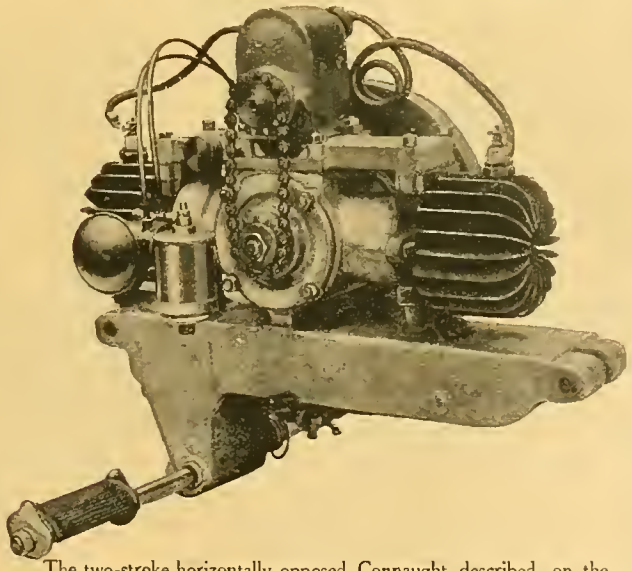
I feel sure that my committee will willingly waive all claim to any fees in respect of those honorary club members now serving their country; to go further than this would be merely suicidal, and would, in your own words, so destroy or weaken our "great federation" that "recovery would indeed be difficult if not impossible."

In conclusion, sir, may I add that we should each and all of us do our very best to encourage during 1915 the sport and pastime of motor cycling, the branch of automobilism that to an even greater extent than mechanical flight has proved itself an unexpected national asset, unexpected, that is, save to those few who have had the privilege of guiding the movement during the last ten years! This is no occasion for our leading motor cycle journal to pitch its opinions in a minor key, rather should we all rejoice that the British motor cycle has found its place in the sun, and determine to maintain it there.

T. W. LOUGHBOROUGH,
Secretary, Auto Cycle Union.

A Concession Outlined.

[As to the suggestion that we have taken a pessimistic attitude, we have only to point out that "Carry on" has been the title of a leading article and our motto of encouragement from August and onwards. There is no getting away from the fact that competitions are dormant; indeed, they are discouraged by the A.C.U., and this body must know that competitions are the life and soul of the average club. Our correspondent's denial of the facts seems to suggest that he is at the moment out of touch with the conditions obtaining in club circles. However, criticism is largely disarmed by Mr. Loughborough's outline of a workable scheme of give and take between the parent society and its affiliated clubs. That such a scheme should be evolved was the main plea of our article.—Ed.]



The two-stroke horizontally-opposed Connaught described on the preceding page. Note how the aluminium silencer forms a bed plate for the engine.

A PREMIER SIDECAR MACHINE GUN.

THE PREMIER CO., LTD., have given their attention to the production of a sidecar machine for gun carrying. We have already announced that the Motor Machine Gun Service is to become a permanent section of the army, and every division of the army in the present war will gradually have a motor machine gun service attached to it. Hitherto, the sidecar machine guns which have been utilised for service have been pleasure type vehicles adapted for the conveyance of a light machine gun, but the Premier product is specially designed throughout for the work in view. It is immensely strong, as will be gathered when we state that the sidecar chassis tubes are 1½in. diameter and of 10 gauge. Mounted upon the ordinary chassis is a subplatform supported on large diameter coil springs, a metal tray extending its whole width. A most novel feature of the Premier war implement is the snap security for the legs of the tripod on which the machine gun is mounted. By depressing a clutch pedal the claws securing the feet are released, and the gun complete with its tripod can be removed quicker than it takes to tell. An arrangement fitted by the Premier Co. to the gun which we have not seen before, but which struck us as being immensely practical, consists of a tray to support the ammunition belt. This tray swivels together with its ammunition as the gun is moved, which simplifies the rapid feed of the gun.

FINAL TOUCHES TO THE DESPATCH RIDER

ONE day last week it was our privilege to follow some interesting manœuvres, in the country south of London, in which about one hundred and twenty motor cyclists were engaged. The riders were supposed to be attached to headquarters which were situated at The Hnt Hotel, Wisley, to two divisions, one of which was at Church Cobham and the other at Ottershaw, and to four brigades, two belonging to each division. Of these, the first and second brigades were at Stoke D'Abernon and Esher respectively, and the third and fourth brigades at Weybridge and Staines. There were also motor cyclists supposed to be attached to cavalry belonging to the various brigades. This force was working against six men, each representing thirty thousand. The enemy wore white sweaters over their macintoshes and white bands round their caps.

Most of the participants slept in a barn at Esher, in which, as they learned the next morning, a poor man had hanged himself some twelve months previonsly. Many of them were grateful that this interesting piece of news had not been conveyed to them the night before.

The start was made at 7.45 a.m. We attached ourselves to the e[n]
Lieutenant Busby [w]
to Leatherhead. I[n]
short time, and fin[e]
Here a number [o]
recovering from the [r]
took very great ir[n]
machines. It was [w]
the men came roun[d]
the enemy in hidi[n]
full speed and to[o]
safety. The men w[e]
handled their mach[i]

(1.) Part of the 2nd Division in Leatherhead. Lieut. Vernon Busby, R.E., is on the right. (2.) Watching the proceedings from the main road. Two c[yclists]
Merrow Corner. (6.) Comparing [notes]

The Last Official Test before being sent Abroad.

n Division, of which harge, which retreated s position there for a drew to East Clandon. n officers who were s in a private hospital the men and their resting to see the way r suddenly to discover then turned round at a side turning into rticularly fine lot, and th great skill. The latter were Rudges, B.S.A.'s, Triumphs, and Douglases.

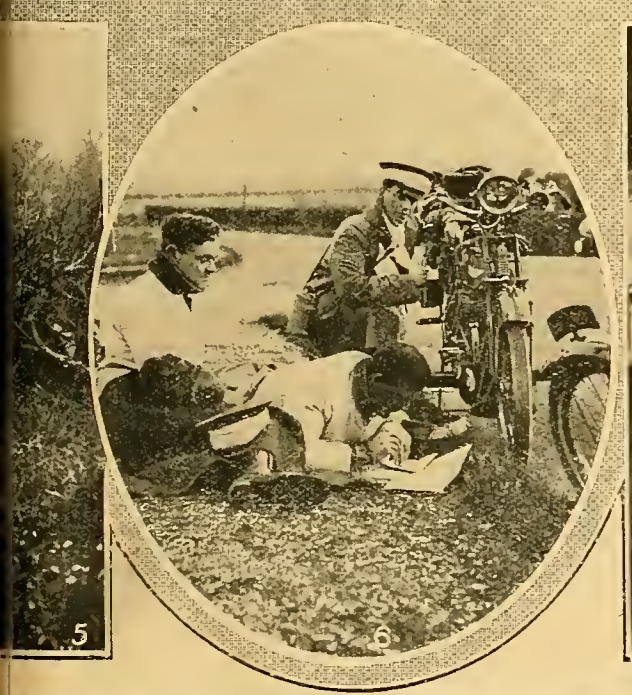
The weather was inclined at first to be misty and cold, but later on it cleared up, and the day was fine and the roads good on the whole.

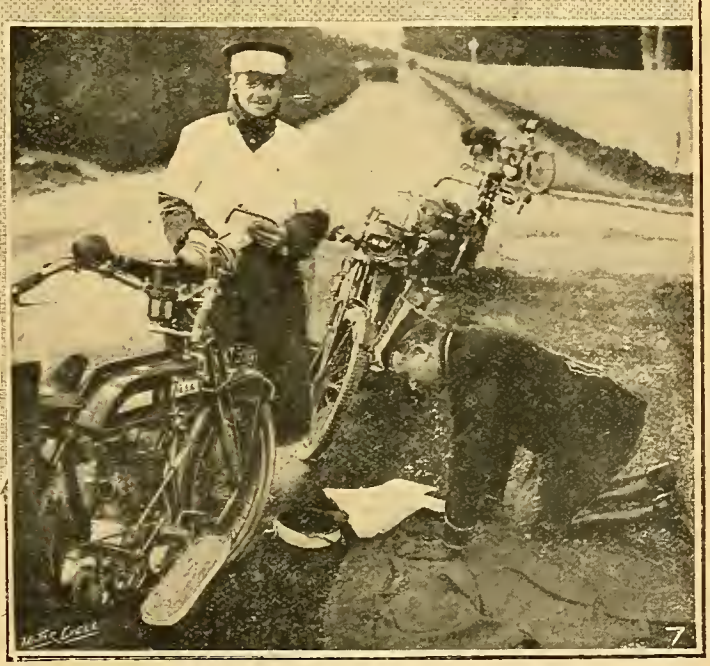
Forty-two Despatch Riders Captured!

The duty of the enemy was to try and intercept messages passing between the various bodies, and that they succeeded is borne out by the fact that they captured no fewer than forty-two despatch riders. In the case of a despatch rider being captured, his message was marked to show that he had been taken, and he was sent off again to try and find some other road over which he could deliver his despatch without being caught again.

The main purpose of the test was to give the finishing touches in instruction to a number of trained men in a thorough understanding of map reading and the art of keeping away from main roads.

The proceedings were prematurely terminated by a despatch handed in at Guildford to the effect that everyone was to return to barracks and report himself. This unexpected official summons to headquarters was answered with great promptitude.





...it Belgian officers were interested spectators (3.) Riders at headquarters awaiting instructions. (4.) Studying the map of operations. (5.) In cover near ...7.) Another interested Belgian officer.

CURRENT CHAT

TIMES TO LIGHT LAMPS

Dec. 24	... ..	4.53 p.m.
,, 26	...	4.54 ,,
,, 28	.. .	4.55 ,,
,, 30	.. ...	4.56 ,,

Seasonable Contributions.

This issue contains articles of seasonable and topical interest. These consist of "A Lighter Spirit" (page 696), "Why I Dislike Sidecars," by Colney Hatch (page 711), and "A Message in Morse" (page 698).

The Edwards Cup.

In the Edwards Cup reliability trial, organised by the Leicester and District M.C.C., and referred to in our last issue, H. J. Woodgate's time was given to us as 3m. 13s. This should have been 2m. 13s. This club has now transferred its headquarters to the George Hotel, Haymarket, Leicester.

Rubber Supplies.

Somebody, with an obvious axe to grind, is circularising motorists to the effect that a rise in the price of plantation rubber will shortly necessitate a corresponding increase in the price of tyres. We have the highest authority for declaring that both these statements are devoid of fact. Indeed, it is pertinent to point out that rubber having been declared contraband of war and its export prohibited, supplies in this country should be plentiful. There is therefore no necessity for the motorist to depart from his normal practice of buying tyres as and when he wants them.

Stolen Machine.

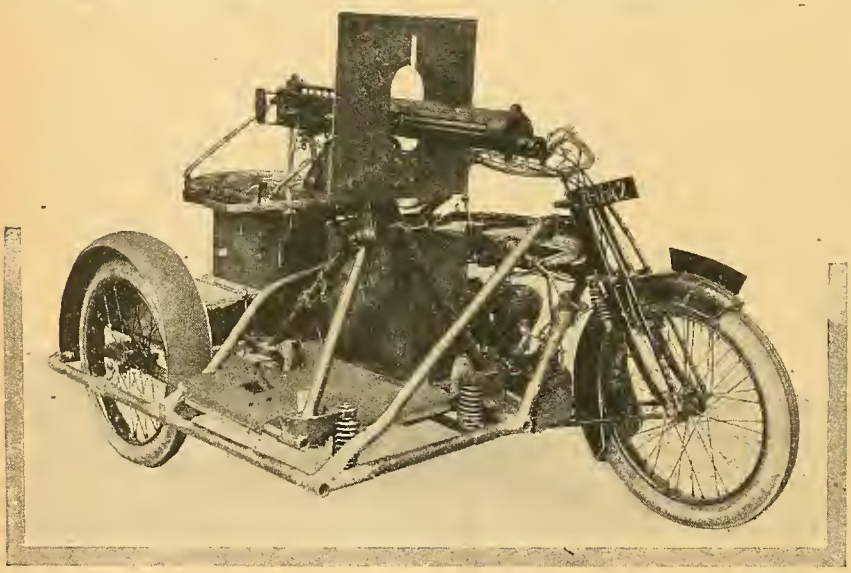
A 1914 4½ h.p. James was stolen from Churchers College, Petersfield, Hants, last week. Engine No. 3,817, frame No. 51215. The owner, A. H. G. Hoggarth, would be glad of news of his machine.

Bristol New Year Trial.

We hear that the Land's End trial is likely to prove a great success. Entries, which must be sent to Mr. F. C. Wasley, 9, Victoria Street, Bristol, close on the 26th inst. A gold medal will be awarded to every rider who complies with the regulations and is not more than five minutes early or late at any timed check. Similarly, silver and bronze medals will be presented to those within fifteen and forty-five minutes respectively.

Trials and the War.

Anent the forthcoming Bristol trial, to be held on January 1st and 2nd, Mr. F. C. Wasley, the trials secretary, writes as follows: "We fully realise the seriousness of this most deplorable war, and, as a club, are doing all we can to help, and have already contributed over £50 to different war funds. We do not, however, see that any useful purpose is being served by abandoning all trials. This view was shared by several competitors in our last trial, who expressed their opinion that the trade would welcome a winter trial to give them an opportunity of showing the paces of their 1915 machines. We have greatly appreciated the help we have received from manufacturers in the past, and feel that it is the duty of clubs to utilise their best efforts to stimulate the trade during the present crisis."



The Premier machine gun sidecar. Notice should be taken of the pedal on the platform, pressure on which immediately releases the tripod from the three locking sockets. (See page 707.)

SPECIAL FEATURES

THE LIGHTER SIDE OF MOTOR CYCLING.

FINISHING TOUCHES TO THE DESPATCH RIDER.

An Interesting Test.

A.C.U. Affiliation Concession.

Our leaderette urging for special consideration of the affiliation question in war time on the part of the A.C.U. has drawn a reply from the secretary of that body, who outlines a concession in respect of club members serving their country.

Warm Clothing for Despatch Riders.

That the motor cyclist despatch rider in common with every branch of the Expeditionary Force, is being well looked after is confirmed, if such confirmation were necessary, by the letter from D. H. Noble published in this issue. He says that they have good food, and they have just received short leather coats. The lorry drivers, among whom are many well-known motor cycle riders, have received long fur-lined coats.

The Sidecar Machine Gun Batteries.

Fifty-one further applications have been received by the Editor of this journal for service in the Sidecar Motor Machine Gun Batteries, and several have been inspected and accepted for service. All the applications are receiving the consideration of the authorities.

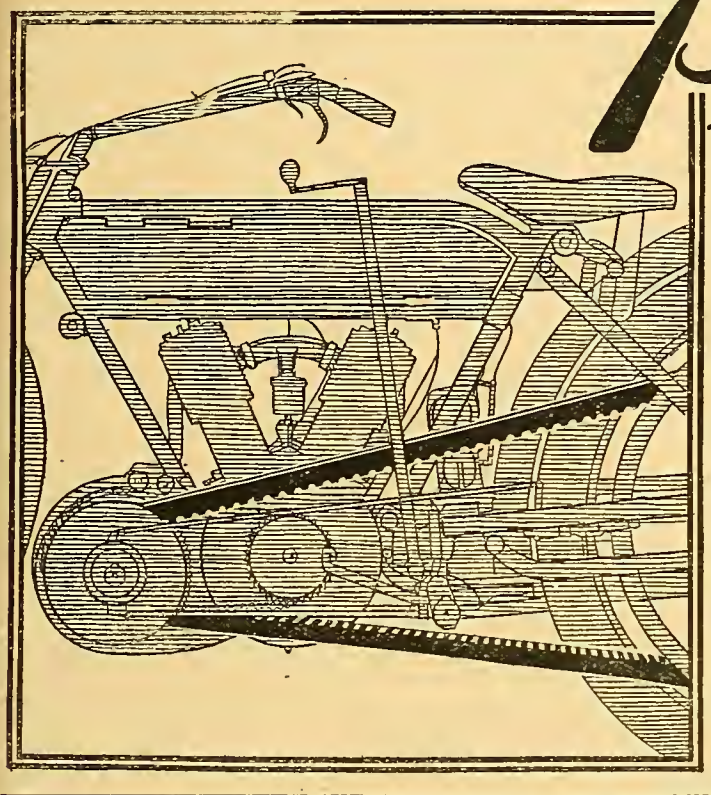
Many men ask for transfers from other regiments to the Motor Machine Gun Batteries; this is, in most cases, impossible, as it interferes with training.

The Dardanelles Hero.

The following story of Lieutenant Commander N. Holbrook is told by Fred T. Jane in *The Evening Standard*:

"The last time I met Lieutenant Holbrook was under conditions which in their own way were almost as exciting as the torpedoing of the *Messudieh* must have been. He and my brother-in-law (who is also on a submarine) had elected one night to tune up a 9 h.p. motor bike which had jibbed; and for comfort they decided to do so in a basement room. They removed the controls—both switch and throttle being under suspicion. Unexpectedly the engine started. When I came on the scene in response to cries of 'help,' one of them was on the machine struggling to find a brake in the midst of infernal smoke. The other was hanging on behind to the carrier, waltzing about full length on the floor. A 9 h.p. motor bike trying to jump off her stand under full power is no mean thing to combat, especially with a wall some ten feet ahead, and those in supposed control nearly asphyxiated!

"Somehow, we short-circuited it with a screwdriver just as the bike had started to leap to the wall. I think we corrected her in mid-air. Anyway, there was an almighty tumble, with Holbrook underneath, and I scale about fourteen stone! The quaintest thing about this war is that men who have had 'silly episodes' are always the ones who have come up."



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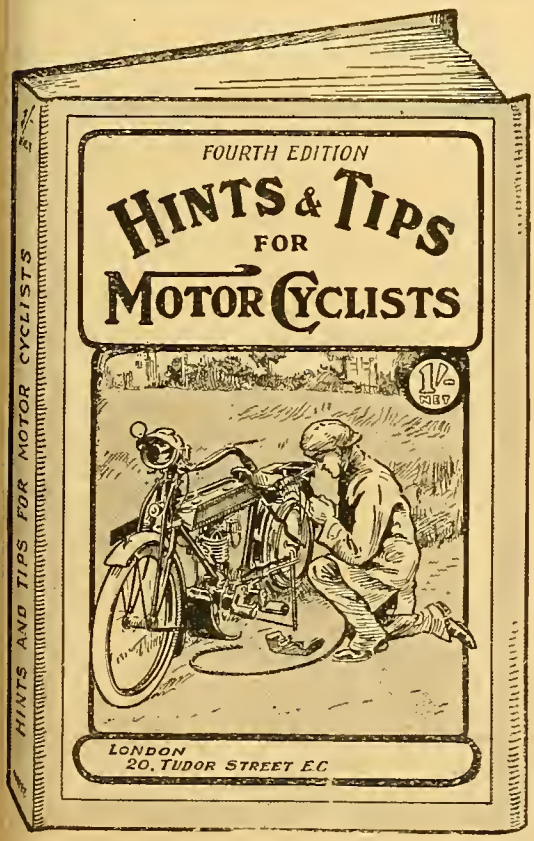

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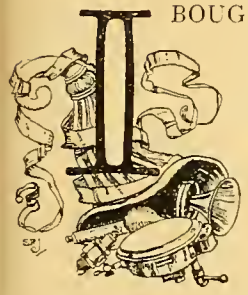
WHY I DON'T LIKE SIDECARS.

Being the Irresponsible Musings of Colney Hatch, Esq., with Some Sage Advice to Motor Cyclists who are in Love.



I BOUGHT my first sidecar in the year 1903 or thereabouts. I bought it as the direct result of a blighted love affair. She was a peach; I have loved many others since, but she was absolutely It, and even my latest 8 h.p. [No gratuitous ads., please! — ED.] has not banished her image from my heart. Her parents were wealthy—and fastidious. I was poor, and a motor cyclist. The course of true love did not run smooth—for my 4 h.p. twin Werner seldom fired on both cylinders. However, I won her and took her out in my trailer. She longed to do a mile a minute, and the Werner would only touch 43 m.p.h. on the flat. So I let it all out down Dashwood, and the trailer rod broke. When she recovered consciousness, she shared her parents' attitude towards me. I got another girl and bought a sidecar.

The Duplex Steering Type.

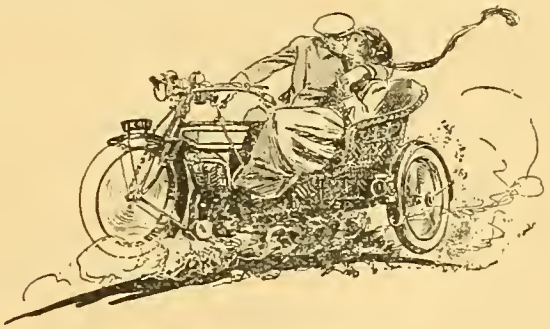
My new discovery was the daughter of a minister, and the sidecar had duplex steering and was fitted to the left-hand side of my Werner, from which I was accustomed to mount. Her papa's manse had a large circular geranium bed in the centre of the drive. I pushed the Werner off till it fired on one cylinder, and I ran round the geranium bed, hopping timidly along the offside of the sidecar outfit, and wondering how on earth I was to mount. Charity began to scream faintly; her mamma was dancing with

"I left the house under a cloud——"

apprehension on the top step of the manse, and papa—so far as I could see—was hardly praying. Three times we encircled that geranium bed, and still my coward heart shirked the leap aboard from the offside; my right leg dare not quit mother earth, and my left leg scarcely felt as if belonged to me at all. At last—on the fourth lap—I began to feel very bored with the geraniums, and at last I did a sort of half hop. My left boot caught Charity on the ear, my right shin caught the sharp end of the offside pedal, and I said—what any unregenerate man would naturally ejaculate in an unguarded moment, before he had got used to the restraining idea of a minister as a prospective pa-in-law. I left the house under a cloud, I may say under two clouds, one consisting of the parental wrath, and the other of half-combusted lubricant, for the automatic valve of the pump had struck work, and the crank case was clucking audibly with about a quart and a half of oil in it.

The Flexible Pattern.

For a time I eschewed girls, and spent the summer trying to perfect the adjusting of the steering arm, which ran from the sidecar wheel to the front hub. I failed in this task, and simultaneously alienated all my male friends, eight of whom I bushed in hawthorn



"I made full use of the opportunities."

hedges at blind corners, owing to that steering arm jamming relentlessly on full lock at speed. The next summer dawned; it was obvious I must get a new girl and a new sidecar or drive alone. I got a new girl—I am an expert at that; and a trade friend coaxed me to buy a new "flexible" sidecar. I was very pleased with the new sidecar in my preliminary spins. With the outfit at rest it leant against the bicycle with a sort of "Don't mind me!" expression, and when I got on the road with the chair empty, it did not affect the steering in the slightest; I steered just as if I were on a solo bicycle, and only realised the presence of the sidecar when I took a left-hand corner, on which occasions the flexible sidecar would caress my leg lovingly. I soon gathered sufficient confidence to offer Esmeralda a run. Esmeralda was of the plump species, and we had no sooner got off than I found that her weight caused the flexible sidecar to assume a permanent lean towards me. As Esmeralda was inexperienced in affairs of the heart, and had proved quite absurdly coy, this came in handy, and I made full use of the opportunities—till the first left-hand corner, when that infernal sidecar fairly jammed my leg against the bicycle and cause me acute agony. Rounding the corner, it released its vice-like grip of my thigh, and I inwardly determined to engineer a hasty breach with Esmeralda, and to find a new girl,

Why I Don't Like Sidecars.—

preferably about six stone. How trouble clouds men's minds—it never occurred to me to keep Esmeralda and get a rigid sidecar.

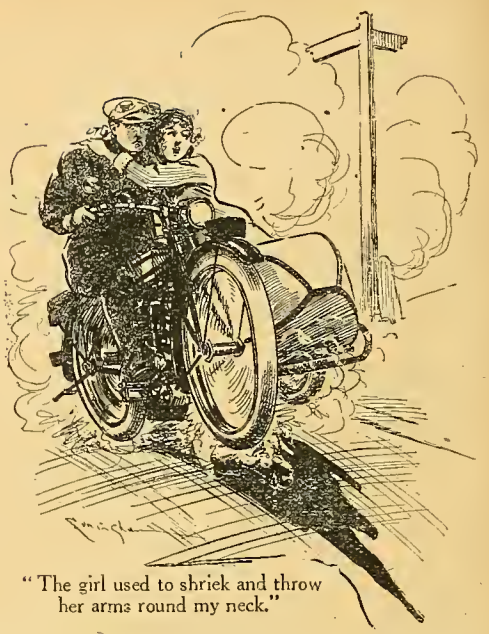
Tyres and Security Bolts.

However, fate arranged affairs for me. Owing to the flexible sidecar flexing itself out of track, the back tyre burst; we stopped and bought another, and, by the dealer's advice, inserted four security bolts. At the next right-angle corner, the back cover came off. I mended the tube, being much puzzled by the security bolts, to which I was unaccustomed, and, as I got them back wrong, they tore four splendid rips in the tube in the next mile. I bought a new tube, put them in wrong again, and bought another tube. Esmeralda was getting distinctly ratty (Mem.—Excellent thing to see how a girl takes roadside trouble; apply this test

"Exit Esmeralda."

to all future applicants for a vacancy as Mrs. Hatch). Finally we arrived at the country bower where I had promised Esmeralda tea with strawberries and cream. My wages were only 35s. a week at this date. The series of tyre troubles had emptied my purse, so Esmeralda had to pay for my tea and her own too; she did not speak to me all the way home, and I did not trouble to ask her for another appointment. I sold the sidecar next week to my tailor, who had county-courted me the year before for the suit in which I won Charity's heart; and his tyre bill for that summer must have been about £14; so all's well that ends well.

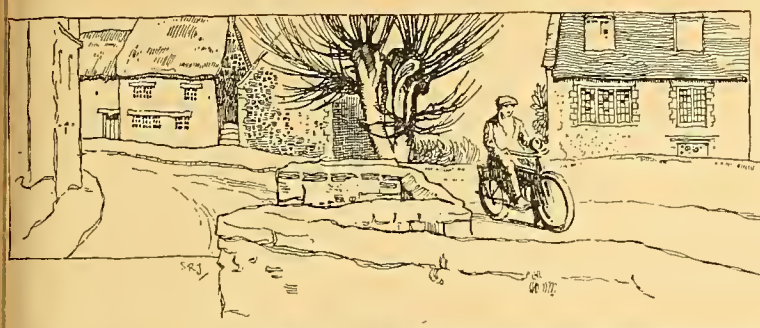
Next time I got a rigid sidecar which frightened me to death. By this time I had got the six stone girl—I won't mention her name, as she landed me for breach of promise, and it's a sore subject. I explained to the judge that the sidecar was the root cause of my heartless behaviour, and that I would marry her next week if she'd take a course of Virol or something and get her weight up to ten stone; but, not being a sidecarist, he was adamant, and awarded her £50; even this I took as a personal insult, for I am worth more than that to any girl—why, my 8 h.p. cost £75, and is worth—[*No* free ads.—ED.] It was on this wise. Whenever we took a corner at all fast, the sidecar used to rise gracefully off the earth and tickle my left ear. The girl used to shriek and fling her arms round my neck, instead of leaning out hard in the opposite direction. I told her till I was tired that there is a time to embrace, and a time to refrain from embracing, and that the author of the maxim had right-hand right-



"The girl used to shriek and throw her arms round my neck."

angled corners with a sidecar specially in his mind; but she was too timid for the game, and we had to part. Her successor was a buxom widow of 11st. 9 lb. and held the sidecar well down without any leaning out; she has means, and we propose to buy a cycle-car for the honeymoon, with which I anticipate my troubles on corners at any rate will end.

This column, which stands near Norman Cross on the Great North Road, was recently erected to the memory of 1,777 soldiers and sailors, natives or allies of France, taken prisoners of war during the Republican and Napoleonic War with Great Britain, 1793-1814, who died in the military depot at Norman Cross, which formerly stood near to this spot, 1797-1814.



LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Chain Cases.

Sir,—On reading "Occasional Comments" by "Ixion," I find he refers to chain cases on motor cycles as being rather a failure. As an owner of a 1914 A.J.S. combination, I must say that I have yet to come across the faults he finds with average chain cases. There is no rattle, I do not require a sledge hammer, etc., to take down the cases, and also they are no great trouble to re-fit, and I must say the little trouble is repaid by the extra life of chains. I also do not think "Ixion" will find that A.J.S. engines give the vibration he mentions in the chain stays. Possibly they have better balance than most.

W. H. BROWNING.

Dogs and Motor Cyclists.

Sir,—A certain rider of an F.N. combination in Manchester uses a big black dog as a weight in his sidecar. The faithful creature clears the road in his own native canine fashion, accompanied now and again by the hooter. When the master leaves the outfit on the road, he keeps a guard from his perch in the sidecar, and strangers and children dare not come near the machine.

Many motorists have got dogs at home. Why, then, do they not train their pets for such useful purposes? A run or two in an empty sidecar will be quite sufficient to get these intelligent creatures used to their new work. I.H.

Powerful Solo Machines.

Sir,—I have studied your Buyers' Guide with great interest, and it appears to me that every class of rider is well catered for excepting one, namely, the big twin soloist. I have lately ridden a 6 h.p. Matchless with hub three-speed gear and 1⅝in. belt over 5,000 miles solo, and it has given me the greatest satisfaction in every way, excepting that it weighs, when ready for the road, about 305 lb., which I consider unnecessarily heavy. With regard to this question of weight, a few years back a well-known firm of cycle makers used to produce a machine weighing 24½ lb., guaranteed to carry 17 stone. Now this machine had to withstand very severe strains when running fast, say twenty miles an hour downhill, and coming in contact with a loose stone; and surely if such a machine could be built, in view of the fact that a 5 h.p. twin engine only weighs 60 lb. or less, a 5 h.p. solo machine could be built which would weigh less than 200 lb. when ready for the road.

Personally, I must say I prefer the hub three-speed gear for solo work, because I think it is lighter, and I consider a machine looks smarter without a countershaft gear, though I know this is a matter of opinion. I also prefer the simplicity of the belt only for transmission.

I prefer the big twin, because it enables me to glide up hills in a manner impossible on a low-powered machine, and every motorist knows the value of power, especially in a hilly country. I do not consider it much more expensive to run, for, although it may cost more in petrol, oil, and tyres, I think it costs less in engine repairs—an expensive item. I have just taken the cylinders off my 6 h.p. J.A.P. engine, and can find no trace of wear after 5,400 miles solo work, whereas I have known 2¾ h.p. engines that required the big ends taking up after less than 3,000 miles. Obviously, a 6 h.p. engine, if only called upon to do the same work as a 3 h.p., will last pretty well twice as long.

F. R. L. CHALK.

Belt Fasteners.

Sir,—My present machine is a 1910 Douglas, which I have been riding since the beginning of that year, and I was interested to read "Ixion's" recent remarks about belt fasteners, for I had a lot of trouble with mine. I used to buy the Stanley ⅝in. size and grind it down on either side as narrow as the pin would allow; but even then the ⅝in. belt would soon stretch and wear narrower than the fastener, and I had to scrap several good belts simply because I could not get a fastener narrow enough to use.

Suddenly I had an idea of how to make a very narrow fastener, but I did not think it would work, and was delighted when I found it would. I have used it now for nearly three years, doing over 10,000 miles; it seems unbreakable, and shows very little signs of wear. It has enabled me to use up all the old belts, and I carry a number of hooks of various lengths to slip in for quick adjustment.

FRED HALL.

A Mute Appeal.

Sir,—As one of those (whom "Ixion" so gracefully refers to as) "mute people who never write to the papers, but who are nevertheless" (I blush as I include myself amongst them!) "the base and backbone of the industry," may I, for once, emerge from my shell to make a few suggestions to those good people, the motor cycle manufacturers, in the hope that you, sir, and "Ixion," may give a little prominence to these suggestions (especially the last), and press them home.

1. CARBONISATION.—"Ixion's" complaint is, indeed, a just one. But give us a detachable cylinder head, as one of the Transatlantic firms have already done, and the job of scraping off deposit becomes an easy one.

2. CONTROL PEDALS (BRAKE AND CLUTCH).—Fix these so that they are ready to the toe without having to lift one's foot off the footrests.

3. LIGHTING AND IGNITION.—Is it impossible to combine these in one "dynamo-magneto," and who will be the first firm to do it?

4. SILENCE.—When, oh when, shall we have a really efficient silencer instead of the tin-canister-sounding-box now supplied as standard with nearly all our machines? Why should a 4 h.p. motor cycle be so much more noisy at ordinary speeds than a 20 h.p. car? They say it is a question of power—that "silence means loss of power." Is this necessarily so at ordinary speeds?

Would it not be possible to silence the exhaust almost totally, and valves, too, for normal output, and provide a cut-out to give, not an open, but a more open exhaust when the need for extra power demands that the back pressure be relieved.

I cannot think that this ideal is impossible of attainment, and I believe we should have had it embodied in the ordinary touring mount long ago, if only the thousand or so professional men like myself—to whom the fussy noisiness of the motor cycle is now its chief drawback—had pressed for a silent machine.

Power and noise! Are they so inseparable? Certainly not in the human mind, for power never seems so powerful as when silent: nor yet in Nature, for what more glorious sight than a seagull strongly breasting a 60-knot gale with never a flutter or a squawk! (Rev.) AUSTIN LESTER.

The Bristol-Land's End Trial.

Sir,—I note with joy that the Bristol Motor Cycle Club intends to hold a twenty-four hours trial on January 1st and 2nd.

There are many competition riders, who, for various and excellent reasons, are debarred at the present moment from assisting their country at the Front, who will, undoubtedly, hail with glee the fact that there is at least one club left which is not numbered amongst the pessimists.

Competitions are, undoubtedly, necessary to the trade, when a medal is not dependent on the excellence of the rider's watch, but on the reliability of the machine. Again, such runs as this help to keep men fit for active service should they be called upon. I sincerely hope that both the trade and private owners will join together to make the trial a success, more especially as, in my opinion, the B.M.C.C. trials are really sporting and the members sportsmen CHAS. H. R. NORRINGTON.

Why an Engine Konks.

Sir,—Will you allow me to confirm Mr. A. W. Tutt's experience detailed in your issue of December 17th? I also had, some years ago, a single-cylinder motor cycle with overhead valves arranged in the area of the combustion head. It was not only the worst engine to konk, on the least provocation, that I ever possessed, but at night the whole of the exhaust valve cage and the first few inches of the exhaust pipe always glowed red hot, despite thorough lubrication and good carburation. Timing was not late, and the ignition was by battery and coil (non-trembler) and make and break contact. The carburetter was at first a surface type; this was afterwards changed to spray, but the konking still continued. Despite every attention on the part of the makers, I was forced finally to part with the machine, and never traced the reason why it was such a culprit. It was supposed by the makers, but never confirmed, that the piston was too good a fit and compression too high, as their next batch of engines was turned out with looser pistons and reduced compression. I did not own one of the later batch, but saw plenty on the road. To the best of my knowledge, the makers never really knew what made that engine konk but konk it would, and to a standstill on level ground. The gear ratio was 4¾ to 1. G.F.W.

Sir,—I have a theory about the cause of engine konking; if it is a false one I would like to get rid of it. I quite agree with what most of your contributors have to say on the subject, but to me there seems to be a more common cause for so common a complaint. My theory is this: Engine konking will not occur provided you can keep the flywheels of your engine revolving fast enough to put the piston over compression easily, and no tendency for backlash to come into play, or for moving cycle to help flywheels to drive piston over compression. When this latter occurs it is very evident, immediately the crank pin passes dead centre and with explosion pressure on top of piston, the engine will bound forward until it meets with the resistance offered by the slower going cycle. This, to me, seems to be the konking point. Certainly a slack piston or slack bearings, spark advanced too far, pre-ignition, and detonation greatly increase any konk.

As proof for or against my theory, maybe someone who has had experience of brake-horse-power tests, with brake pulley direct coupled to engine-shaft, will tell me if an engine is more difficult to make konk in such a case than in ordinary everyday use, as there can be no question of backlash. It would also be very interesting to know what must be the number of revs. per minute of a few of the best known engines to overcome full compression.

BACKLASH.

A Silent Machine.

Sir,—I wish you would try to persuade the manufacturers of motor bicycles to make them a bit more silent. I very nearly missed getting one at all just because of this. You see, I am blessed with several aunts, and when the governor wanted to give me my lightweight, my aunts had a regular meeting, and nearly bullied my mother into forbidding it. Their chief objection seemed to be the *vibration*, which, they said, would be awfully bad for me, but fortunately my uncle, who is a doctor, looked at it in a different way. He said, "Stuff and nonsense; lot of old women; do the boy good; shake up his liver." Well, now, here's the funny part of it, for *I don't find I get shaken at all*, and I believe it is all rot about the vibration. People *think* the machine quivers a lot simply because they hear the engine coughing, because it is not properly silenced like it is on a car. And I think there are a lot of people who would get a motor bicycle if it were not for this stupid idea. Also I must say I hate the way the dogs come round in the country when they hear my machine approaching. I nearly had a bad spill the other day because of this.

When I get a bit older I intend to get a Rover, which is the most silent motor cycle I ever heard. My brother, who thinks no end of himself because he is an engineer, is very keen on the Douglas because of its "even talk," as he calls it, and it is certainly very silent and smooth purring, but I like the Rover best. GEORGE RENN.

Running Costs.

Sir,—"E.W.B.'s" costs, as published by you, were of great interest to me, as I also ride a Douglas and keep a careful account of the annual costs. I agree that in order that the "running cost" may be arrived at correctly the cost of the tyres, chain, and belt used must be included under "running costs" and the amount be deducted from "depreciation." I have followed out this principle in working out the costs for 1913 and 1914 with two new Douglas machines as follow:

	1913. 4,400 mls. £ s. d.	1914. 5,000 mls. £ s. d.
Depreciation of machine, accessories, and spares	8 3 10	8 9 9
Running costs (fuel, tyres, etc.)	7 18 7	8 17 8
Fixed charges (licences, etc.)	2 17 8	3 6 3
Wear and tear of waterproof clothing, etc.	15 0	15 0
Total	£19 15 1	£21 8 8
Total cost per mile run	1.08d.	1.03d.
Running cost per mile run	.43d.	.43d.

The depreciation being practically a fixed amount per annum, it will be seen that any excess of 5,000 miles can be done at ½d. per mile.

Petrol consumption comes to 96 m.p.g. this year, against 129 m.p.g. last, when I used a very small jet, but my 1914 heavy consumption is partly due to the fact that during the early part of the season I wasted considerable fuel owing to valve and magneto timing being wrongly set.

I think few riders obtain cheaper motoring, and I venture to say that the Douglas would be a still more popular machine if Messrs. Douglas could let us have more easily removable cylinders, completely enclosed chain drive (with sufficient clearance to be able to fit a chain with bolt and nut fastening), larger sized chains and tyres, and accessibility to magneto without removing flywheel. NAIRN.

The Break of Platinum Points.

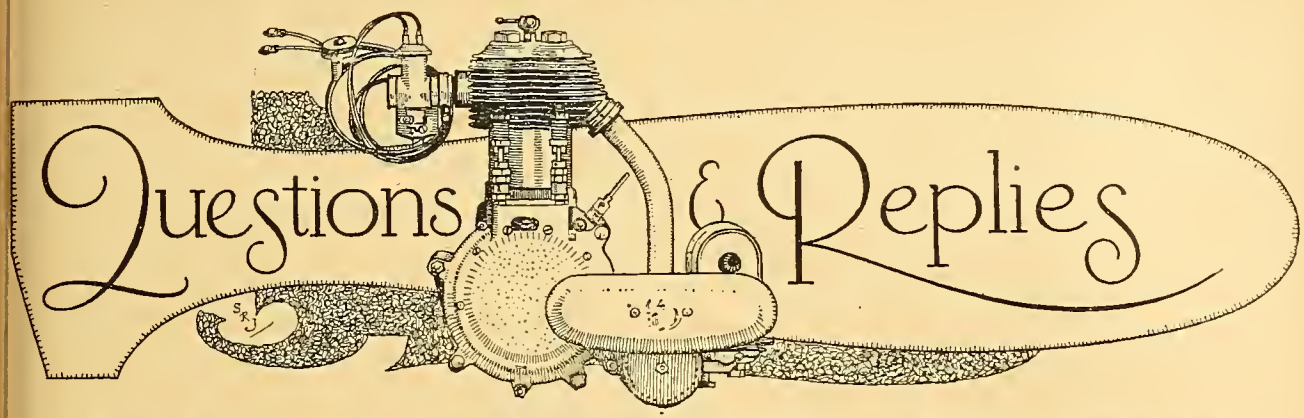
Sir,—I notice a letter under the name of W. Pointer with the following paragraph (issue December 10th): "The unaccountable sluggish running of an engine has been improved by *increasing the break* of platinum points."

This is a little phenomenon which I have been conversant with for some time, and I would like to see the matter discussed (if of interest), because I have come to the conclusion that sufficient regard to what I may term *arc of opening in relation to engine speed* has not been paid by magneto makers.

It appears to me that some engines of a low revolution power require a prolonged "dwell" before the break is *closed*. This idea is not synonymous with a retard of the break, and I feel that when this happens it must be due to the condenser of the magneto not being quite in proper proportion for the particular case, *i.e.*, either the condenser takes too long to saturate (electrically), or that it discharges too quickly (and consequently is not hot enough).

I have come to the above conclusions because I have found that on a high speed engine the points had to be fixed as close as possible, so decreasing the "arc of opening," to obtain good results, and on a low speed engine it required to be opened four times the amount.

GOVERNOR BALL.



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Engine Stops on Engaging Clutch.

Can you tell me why my machine runs well on free engine but on letting in the clutch it stops firing?—J.H.

The engine probably stops because you do not accelerate sufficiently before engaging the gear. Also, the clutch should be engaged very gradually.

Exemption from Licence.

I have a motor cycle and sidecar fitted with box body, which is used solely for trade purposes. My name and address are printed on the front, back, and sides. I have not paid the revenue tax, but have recently been informed that I am liable for it. Can payment be enforced?—F.A.M.

If the machine is used solely for trade purposes and the trade body is not taken off and a touring body fitted on any occasion whatsoever throughout the year, no local taxation licence need be paid.

Newcastle-on-Tyne to Manchester.

Can you oblige me by stating what you consider the best road from Newcastle-on-Tyne to Manchester?—W.R.H.

Your best route would be as follows: Newcastle, Durham, Darlington, Northallerton, Boroughbridge, Knaresborough, Harrogate, Blubberhouses, Skipton, Colne, Burnley, Accrington, Bury, to Manchester. We are afraid that the last part of the journey will not be very pleasant, but there is no better alternative route.

Sidecar Springing.

Which system of springing do you consider to be the best for a sidecar combination: Front and sidecar wheels sprung and driving wheel rigid, front and rear wheels sprung and sidecar wheel rigid, all three wheels sprung, or only front wheel sprung?—J.H.G.

Undoubtedly, the best system would be to have all three wheels sprung. It does not make very much difference from the passenger's point of view, but, naturally, from the driver's point of view the best sprung combination all round is the most comfortable.

Magneto Terminals.

I have bought a magneto, but am rather puzzled how to wire it up. There are two terminals, one for the plug and one on the coutact maker cover. What is that for? Is it for a wire to run to the frame?—NOVICE.

The only terminal you need connect up is that leading to the sparking plug; the other is for the switch. If you care to have one, put the switch on your handlebar and run a piece of low tension wire from it to the terminal on the contact breaker.

Care of the Circulation System.

I think the most interesting and instructive portion of your delightful paper is that devoted each week to "Questions and Replies." Early in May I purchased a 3½ h.p. water-cooled Humber which has given me every satisfaction. Now that the winter has set in, and as it is uncertain how long the machine will have to be kept in the shed, I should be grateful for your advice in the treatment of the water tank and the various channels through which the water passes. I frequently drain off the water by means of the tap provided, and when doing so the water is very rusty, and, after pouring this away, there is, of course, a sediment at the bottom. Having completely emptied the water out, I leave the tap open and pour clean water through the tank so as to let it clean all parts as much as possible. Although the water may be drained off there is bound to be a certain amount of moisture left in the various parts sufficient to go on rusting. Is it advisable to keep the water drained off when not using the machine day by day? Would paraffin, or thin oil, poured into the tank and allowed to run through, prevent the rust eating through the different parts?—E.W.S.

It is quite beneficial to empty the water from a water-cooled engine at frequent intervals. This rusty deposit is nearly always present, but can be minimised by using rain water only. You need not mind the rust; all you have to fear is freezing. On frosty nights the water should be carefully emptied. The rust only attacks the surface of the metal. Washing out the circulation system occasionally with a saturated solution of washing soda is beneficial.

Fitting a Sidecar.

Will you kindly let me know the correct way to fit a sidecar? What I wish to know is, ought the sidecar wheel to be level with the back wheel of the motor cycle or three or four inches ahead of motor cycle wheel, as I notice some have the wheels quite opposite each other, others have the sidecar wheel 6in. ahead of motor cycle back wheel?—M.E.P.

Theoretically, the two wheels should be level, but practically, it is quite satisfactory to have the sidecar wheel a few inches in advance; this is more convenient in most cases, and is the plan most usually adopted.

Avoiding Brentford.

Would you kindly give a route from Great Portland Street, London, W., to Wellington College, Berks, avoiding tramlines altogether? It is fairly easy to find a route from Great Portland Street on to the road through Egham and Staines, but I wish to avoid the tramlines between Hounslow and London.—J.M.B.S.

We should recommend the following route: Great Portland Street, Marylebone Road, Oxford and Cambridge Terrace, Bayswater Road, go down Holland Road into Hammersmith Road, across Hammersmith Bridge, and go through Castelnau, over Barnes Common to Richmond. Halfway up Richmond Hill turn to the right and cross the river again. Here you have tramlines for a short distance, but these cannot possibly be avoided. When you come to a railway bridge you will see that the trams branch off to the left; you keep to the right, and follow the signposts to Staines. This is quite a good way out of London. From Staines you go through Bagshot and Camberley to Wellington College, which is near Crowthorne.

Silencer for Two-stroke.

I think of buying a two-stroke cycle, but think them usually rather noisy. Could I have any silencer fitted, say a Clair, or does this type of engine have to have a special silencer.—B.E.F.

The silencer in question should do a great deal towards rendering quiet a machine of the type referred to in your letter.

The Local Taxation Licence.

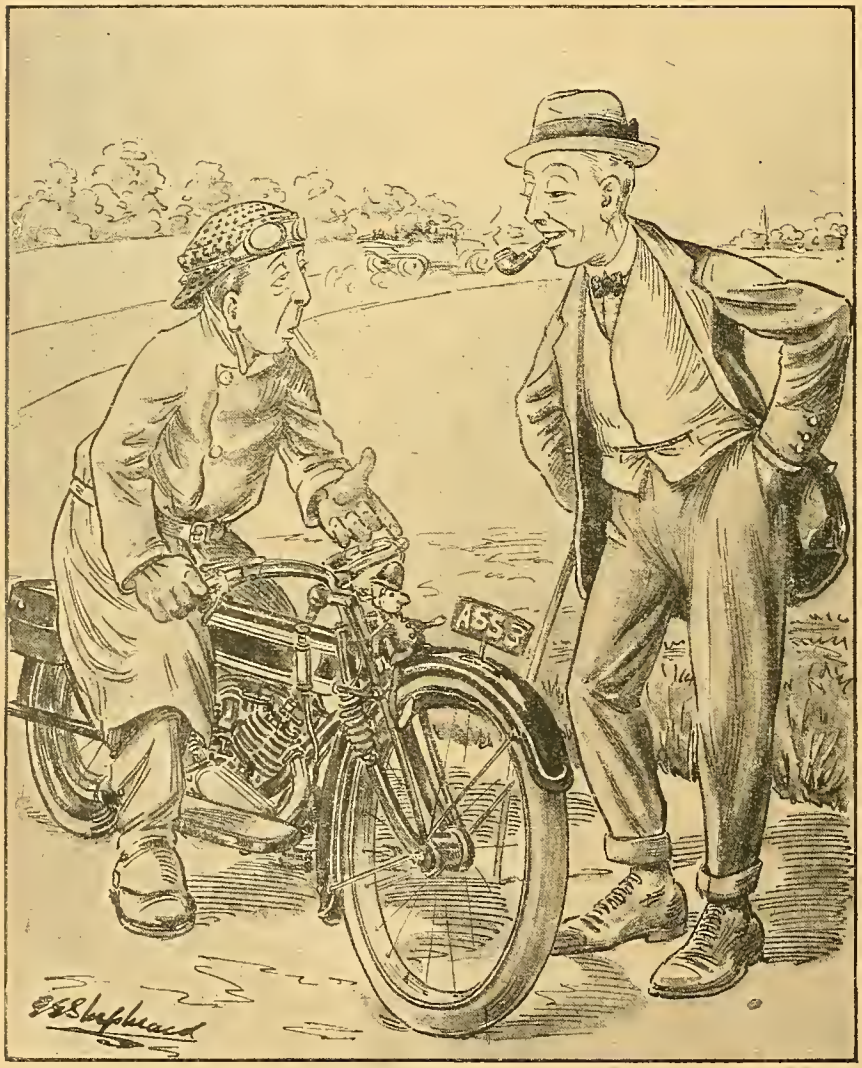
I have purchased a new solo machine delivered on Saturday, the 12th of December. By making use of the twenty-one days' grace would this obviate the necessity of paying the 10s. tax for 1914, as twenty-one days from 12th December means 2nd January, 1915, and on the 1st or 2nd of January I could pay the £1 tax for year 1915?—F.R.B.

We are afraid you will be under the necessity of paying the 10s. if you use the machine. You have twenty-one days' grace in which to pay the 10s., but you have to pay all the same. The only alternative is not to use the machine at all until 1st January.

Removing a Pulley.

I have a 3½ 1911-12 machine and am taking it down in order to rebush the main bearings. After taking off the expanding pulley flange, I find I am unable to remove the inner pulley flange, which appears to be made in one with the main shaft of the pulley. Is it necessary to remove this flange in order to remove the spindle from its bearing? Is this flange made in one with the spindle, or is it shrunk on to it?—G.F.

It is usual for the inner flange to be made in one with the boss, upon which the adjustable flange works. This boss is keyed to the engine shaft. It can be removed by a series of hard wood wedges placed between the flange and the crank case, and the end of the crankshaft tapped with a wooden mallet, or, better still, a pulley drawer may be used.



A DOUBTFUL COMPLIMENT.

"Hello! old chap, got a new mount?" "Yes, dear boy, two-cylinder, three-speed, magneto, spring forks——" "And fool proof, I presume?"

Control for a Philipson Pulley.

What is the best control for a Philipson pulley—hand or foot? My machine is a 3½ h.p. single.—T.M.

The best method of control for the pulley is a device shown in our issue of December 10th, sold by Messrs. Bowden Wire, Ltd. The control is by hand and Bowden lever.

An Expired Driving Licence.

I was driving a car recently when I was asked by a policeman for my licence. I had it with me, but found it had run out last September, and I had forgotten to renew it. Should the authorities have advised me that the renewal was due, and, if so, would that be sufficient excuse?—D.J.

There is no obligation on the part of the authorities to remind you that your licence is about to expire. In some districts the authorities are kind enough to advise you, but in many places they do not, and the onus rests solely with the holder of the licence. The police will now be quite in order in prosecuting you for driving with an expired licence.

The Local Taxation Licence.

Will you kindly tell me whether I am bound by law to take out a licence to keep a motor bicycle which I find I shall not be able to use until about June? Must I take out a licence at once, or will it do in June?—F.H.W.

If you have not used the machine during this year there is no need to take out a licence until you commence to use it in June, when the licence must be obtained within twenty-one days of the date when the machine is first used. If you have used the machine this year you are liable for the licence fee £1 if used before October 1st, or 10s. if only used since that date.

A Sidecar for Security.

I have to ride about fifty miles each week over roads which are exceedingly slimy. Shall I do any harm to my 2¾ h.p. Douglas if I attach a sidecar to it in the winter (to be used without passenger) to lessen the risk of skidding? Of course, a Douglas is as safe a machine as one can have in grease, but on bad roads a bit less anxiety and watchfulness would be welcome, if it can be secured without spoiling the machine for its ordinary running in the summer. I am in a hilly district, but have nothing very severe—only long slopes—in this particular journey.—J.A.H.

The machine in question would take a light sidecar in fairly level country quite satisfactorily. It might, however, be advisable to lower the gear by means of the adjustable pulley, and drive carefully, so as not to rattle the engine to pieces.

EXPERIENCES WANTED.

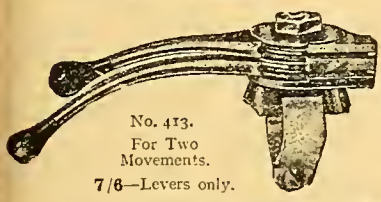
"X.Y.Z." (Herts.)—Omega two-stroke. Efficiency and durability.

"D.H." (Walsall).—Efficiency of F.R.S. electric lighting outfit on sidecar combination.

"J.F.R.W." (Suffolk).—Indian and Zenith for solo and sidecar work. Reliability, durability, and consumption.

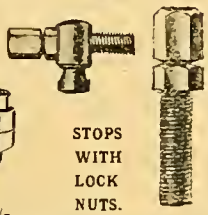
BOWDEN WIRE

BOWDENITE.



No. 413.
For Two Movements.
7/6—Levers only.

PORTABLE CLIP. 2/-



STOPS WITH LOCK NUTS.

A Catalogue worth having.

The Bowden Wire 1914 Catalogue contains 72 pages and over 100 illustrations of a great variety of Aids to Efficiency, designed by Experts of wide practical experience. It is a most useful guide. If you do not already possess one, write for your copy to-day.

Our manufactures include—

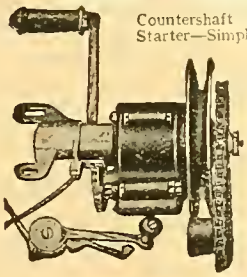
BOWDEN WIRE for controlling Brakes, Clutch, Air Inlet, Magneto, etc. Made in various strengths and finishes, at from **2d.** per foot.

BOWDEN CONTROL LEVERS used with BowdenWire Mechanism for Brake, Clutch, Air Inlet, Magneto, and other controls, are made straight or curved, and for one, two, or three movements.

STOPS & CLIPS Stops with Lock Nuts. For use with Bowden Wire Mechanism. When ordering, give number and description of wire with which stop is to be used. Price from **4d.** each. Clips can be had in great variety.

WHEN ORDERING send remittance to cover cost of postage—any balance will be refunded.

BOWDEN TWO-SPEED GEAR—



Countershaft Type with Kick Starter—Simply constructed—no complicated parts. Fits a number of machines without any, and most machines with slight alteration. Guaranteed for Engines up to 6 h.p.

Price from **£8 8 0**

BOWDEN RAPID VALVE GRINDER.

Helps you to grind a valve quickly and with absolute accuracy without dismantling cylinder. The most efficient valve grinder made.

Price 7/6

BOWDEN WIRE LTD, LONDON

Pratt St N.W.

Godbold.

MATCHLESS

POINTS OF SUPERIORITY.

No. 5. RELIABILITY.

Convincing evidence of the superior reliability of the 8 B Matchless lies in the fact that one of these famous machines was chosen in 1913 to represent Great Britain in the International six days' test of endurance, and was also again chosen in 1914. A dual honour that has been justified by unparalleled success in every form of competition where Merit Tells.

Remember that this choice was made by experts with intimate knowledge of all other motor cycles. *Verb. sap.*

H. COLLIER & SONS, LTD. PLUMSTEAD S.E.

MISCELLANEOUS ADVERTISEMENTS.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, the issue of "The Motor Cycle" for Dec. 31st, must be closed for press earlier than usual. All copy and instructions for paragraph advertisements in that issue must therefore be in our hands not later than first post on Thursday, Dec. 24th.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.B.C.

A.B.C., the ideal 3½h.p. Call or write for trial runs, etc. No obligation.—Reg. Lucas, M.C. Garage, Brunt St., Mansfield. [XS518

A.B.C., 3½h.p., 1915 models, 4-speed, gate change gear box, laminated springing fore and aft.—Agents, Alf. Wray and Culshaw, Southport, Lancs. [9627

TO END THE YEAR WELL

And begin the New One better get into touch with

WAUCHOPE'S

Who offer you your choice of the Kingdom's largest selection of MOTOR CYCLES, SIDECARS, and LIGHT CARS at the very lowest unbeatable prices for cash or easy terms, or in part exchange for your present mount. Every machine new or second hand in perfect riding condition, and fully guaranteed.

GET TO-DAY'S LIST. IT INCLUDES THESE :

9015.	4	h.p. 1914 3-speed	**TRIUMPH** ..	£48 0
9022.	6	h.p.	**ROVER** Light Car, 1912 Mod.	£65 0
9024.	2¾	h.p. 1912 2-speed	**DOUGLAS** ..	£30 0
9026.	3½	h.p. 1911 2-sp.	**KERRY** and S'car	£30 0
9027.	3½	h.p. 1914 Twin	**ZENITH**	£40 0
9029.	2¾	h.p. 1914 2-sp.	**ROYAL ENFIELD**	£32 10
9030.	2¾	h.p. 1913 T.T.	**DOUGLAS** & Sc.	£42 10
9031.	2¾	h.p. 1908 Twin	**FAIRY**	£10 10
9032.	3½	h.p 1913 T.T.	**ROVER**	£30 0
9035.	6	h.p. 1913	**A.C.** Sociable	£48 0
9036.	5-6	h.p. 1912 2-sp.	**F.N.** and Sidecar	£27 10
9037.	3½	h.p. 1912 2-speed	**B.S.A.**	£32 10
9038.	2¾	h.p 1914 T.T.	**DOUGLAS**	£48 0
6147.	3½	h.p. 1910	**REX**	£20 0
6343.	8	h.p. 1911 3-sp.	**CHATER-LEA,** Sidecar	£50 0
6378.	6	h.p. 1911	**ZENITH** and Sidecar .	£38 10
6421.	3½	h.p. 1908	**Minerva**	£15 0
6842.	3½	h.p. 1912 F.E.	**RUDGE**	£27 10
6863.	3½	h.p. 1910	**BAT**	£20 0
7418.	8	h.p. 1912 2-sp.	**MATCHLESS** and Sidecar	£58 10
7521.	5-6	h.p. 1911 4-cyl.	**F.N.** and S'car	£22 10
7541.	3½	h.p. 1912 F.E.	**RUDGE**	—
7551.	3½	h.p. 1905	**REX**	£12 10
7575.	3½	h.p. 1909	**TRIUMPH**	£21 0
7589.	3½	h.p. 1910	**N.S.U.**	£16 0
7620.	3½	h.p. 1913	**TORPEDO**	£27 10
7664.	3½	h.p. 1910	**QUADRANT**	£15 0
7665.	3½	h.p.	**QUADRANT** and Sidecar .	£12 10
7666.	3	h.p. 1910	**N.S.U.**	£16 10
7702.	8	h.p. 1912	**ZENITH** and Sidecar .	£49 0
7708.	3½	h.p. 1908	**N.S.U.**	£15 0
7850.	3½	h.p. 1908	**TRIUMPH**	£18 10
7992.	3½	h.p. 2-sp.	**FAFNIR** and Coach-built Sidecar	£22 10
8079.	3½	h.p. 1912 Standard	**TRIUMPH** .	£28 10
8165.	6	h.p.	**BAT** and Sidecar	£22 10
8175.	6	h.p. 1913 2-speed	**N.S.U.**	£45 0
8197.	3½	h.p. 1911	**N.S.U.**	£20 0
8198.	3½	h.p. 1907	**TRIUMPH**	£17 10
8210.	2¾	h.p.	**F.N.**	£10 10
8238.	8	h.p. 1913 2-sp.	**BAT** and S car	£48 0
8258.	5-6	h.p. Twin	**V.S.**	£16 10
8277.	6	h.p. 2-sp	**N.S.U.** and Sidecar ..	£25 0
8306.	3½	h.p. 1907	**TRIUMPH**	£17 10
8320.	3½	h.p. 1911	**ARIEL** variable gear	£20 0
8323.	3½	h.p. 1912	**LINCOLN-ELK**	£20 0
8335.	3½	h.p. 1909	**TRIUMPH**	£20 0
8336.	2¾	h.p.	**F.N.**	£10 10
8338.	3½	h.p. 1910	**BRADBURY**	£20 0
8359.	6	h.p. Twin	**BROWN** and Sidecar	£20 0
8412.	3½	h.p. 1908	**TRIUMPH**	£18 10
8502.	3½	h.p. 1908	**TRIUMPH**	£20 0
8504.	5-6	h.p. 1909 2-sp.	**REX** and S'car	£28 10
8529.	5-6	h.p. 4-cyl.	**F.N.** and Sidecar ..	—
8561.	3½	h.p.	**VINDEC** and Sidecar	£17 10
8568.	3½	h.p. 1910	**BRADBURY**	£18 10
8592.	3½	h.p. 1908	**QUADRANT**	£15 0
8619.	2¾	h.p. 1911 Standard	**DOUGLAS** .	£20 0
8654.	3½	h.p. 1910 Standard	**TRIUMPH** .	£22 10
8682.	6	h.p. 1913 2-sp.	**V.S.-J.A.P.** & Sc.	£45 0
8706.	6	h.p. 1913 2-sp.	**ENFIELD** and Sc.	£55 0
8708.	2¾	h.p. 1910	**DOUGLAS**	£17 10
8718.	3½	h.p. 2-sp.	**FAFNIR** and Sidecar .	£22 10
8741.	3½	h.p. 1912	**TRUMP-J.A.P.**	£30 0
8762.	6	h.p. 1913 3-speed	**BAT**	£45 0

9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone: Holborn 5777.
Wires: "Opificer, London."

MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S.—Early delivery 1915 models. Sole di agents.—The Exeter Motor Cycle and Light Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Plymouth.

A.J.S., 1914, new 6h.p. combinations, motor bic and sidecars for delivery from stock; exchan extended payments entertained.—Wauchope's, 9, Lane, London.

1914 A.J.S., 6h.p., and sidecar, with hood, s detachable wheels, etc.; original price £94/ shop-soiled, reduced to 80 gns.—Julian, Broad Reading. 43 years' reputation. [X

A.J.S.'s, four 1914 6h.p. combinations, with h horns, speedometers, hoods, screens, etc., £62, £66, and £67/10; 2¾h.p. 3-speed sporting model, soiled, £39/10; all fully guaranteed; new 1915 in in stock.—A.J.S. Specialists, The Walsall Garage, sall. [X

Ariel.

1913 6h.p. Ariel and Coachbuilt Sidecar, J speedometer, lamp, horn, tools, etc., cost excellent condition, carefully used; £54, or near —Hartley Clegg, Ltd., Burnley. [X

1913 Ariel and Sidecar, 7h.p., fitted with the Ex 2-speed gear and chain drive, coachbuilt sid with screen, new tyres, speedometer, lamp, etc.; £5 —Hebden's Motor Mart, St. James' St., Burnley. [

Auto-Wheels.

AUTO-WHEELS, 1915 models, now ready; immed delivery; £14/14 and £15/15; trade suppli Wilkins, Simpson, and Co., 11, Hammersmith Rd., don. [9

Bat.

BAT, 1914, 6h.p., 3-speed twin, kick starter, new dition; £52.—P. J. Evans, John Bright St., mingham. [9

BATS.—A few good, sound second-hand 1914 3-sp models, fitted with 6h.p. J.A.P. engines; £48 each cash, or extended payments.—Wauchope's Shoe Lane, London. [X9

Bradbury.

BRADBURY, 3½h.p., 2-speed gear, magnificent dition: £25/10.—73, Church St., Camberwell. [9

BRADBURY, 3½h.p., hand operated, free engine, spring forks, good sidecar or solo mount; £23 or with sidecar £28.—Colmore Depot, 31, Colmore Birmingham. [X5

BRADBURYS.—New 1915 horizontal 3½h.p. tw cyl. motor bicycle, 3-speed gear, and chain dr price £64; immediate delivery; exchange or exten payments.—Wauchope's, 9, Shoe Lane, London. [X9

Brough.

BROUGH, marvellous motor cycle, nothing else it.—Tweedale Armstead Motors, Ltd., Magdalen Oxford. [0

BROUGH, 1914½, 3½h.p., horizontal twin, 2-sp counter-shaft, tools, spares, accessories, splen condition; bargain, £48.—Findlay, Bryn Rd., Swan [XS

BROUGH, 1914, 3½h.p., horizontally opposed 2-sp twin, condition absolutely as new, picked eng very fast and powerful, won gold medal last Lond Edinburgh, hardly ridden since; stringent expert amination invited; £40, a real bargain.—Lovegr Rossmore, Wharncliffe Rd., Boscombe. [9

B.S.A.

B.S.A., 1913, 4½h.p., model K, for immediate delive —B.S.A. Agents, The Morris Garages, Oxford. [8

1913½ 3½h.p. B.S.A. and sidecar, with all accesso perfect; £50.—E. Spicer, 88, High St., Deal. [9

B.S.A. 1915 Models now in stock; exchange or tended payments arranged.—Wauchope's, 9, S Lane, London [9

1912 3½h.p. 3-speed B.S.A. with Sidecar, in g order; price £35; cash or easy terms.—R Jones (Garages), Swansea; also at Cardiff. [0

B.S.A., 1914, 4h.p., chain drive, 2,500 miles, perf order, cane built sidecar, spares, electric lighti horn, watch, mirror, ready for road; £60.—Jas. Linds Thurso. [X52

Chater-Lea.

CHATER-LEAS, new and second-hand, No. 7, 8h J.A.P. engines, 3-speed gears, and chain driv and free engines, from £50, complete with sidecars Wauchope's, 9, Shoe Lane, London. [X98

Clyno.

1913¾ Clyno and Sidecar, speedometer, lamps; £6 wanting car.—Letters only, Arnold Tyson, 1 Sloane St., S.W. [97

6h.p. Clyno Combination, 3 speeds, late 1913, origin tyres on, perfect throughout; any trial; cost £10 offers, or consider part exchange 3½h.p.—York, 62, C entry St., Brighton. [96

MOTOR CYCLES FOR SALE.

Scott.

CASH Bargain.—1911 2-speed Scott, excellent condition; £23/15.—Motor Exchange, Westgate, Halifax. [0488

1912-1913 Scott, perfect condition; trial with pleasure; £30 cash.—West End Garage, Blackburn. [0615

SCOTT, 1913 Binks carburetter, Palmer tyres, Lucas lamp, horn, tools, good condition; £38, offers.—Fadlay, Bryn Rd., Swansea. [X5525

SCOTT, 1912, Dunkley sidecar, coachbuilt, 2 speeds, F.E., kick starter, speedometer, watch, lamp set, spares; £30.—A.S., 45, Church Rd., Acton. [X5540

1913 Scott, with Millford coachbuilt sidecar, all accessories; £47/10; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea, also at Cardiff. [0637

1912 Scott, had thorough overhaul, every part in perfect order, full range accessories, including speedometer; £36.—Colmore Depot, 31, Colmore Row, Birmingham. [X5493

1912-1913 Scott, little used, with 12 gn. sidecar, new May, 1914, fast, comfortable, quiet, climber, excellent condition, Jones speedometer; nothing to buy; cost £86, first cheque over £40 secures.—Rev. Newton, Hanham, Bristol. [X5543

Singer.

CASH Bargain.—1913 2½h.p. 2-speed free engine Singer; £25/10.—Motor Exchange, Westgate, Halifax. [0390

SINGERS, new, 4½h.p., 1914 models; offers; with or without sidecars.—Wauchope's, 9, Shoe Lane, London. [X9874

Sparkbrook.

SPARKBROOK, 1915, 2-stroke; delivery 1 week.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0570

Sun.

CASH Bargain.—1914 new 3½h.p. 2-speed Sun-Villiers, free engine, kick start; £56/10.—Motor Exchange, Westgate, Halifax. [0489

Sunbeam.

NEW 1915 3½h.p. Sunbeam; immediate delivery from stock.—Rice Bros., Horsham. [9837

1914 3½h.p. Sunbeam, shop-soiled only, £63 to clear; sidecar to suit, 11 gns.—Cross, Agent, Rotherham. [X5541a

3½h.p. 1914 Sunbeam Motor Cycle, complete, as list, not done 100 miles; £63, bargain.—Rice Bros., Horsham. [9840

Talbot.

TALBOT, 2½h.p., mag., low, complete, riding order; £6/10.—Harper, 4, Grosvenor Rd., Bradford. [X5560

Triumph.

SEVERAL Triumphs, cheap to clear.—Morgan and Maxwell, 80, High Rd., Streatham. [X5556a

1912 Triumph, free engine, splendid condition; £28.—Binder, Chalfont St. Peter, Bucks. [9793

TRIUMPH Junior, 1914, complete, only done 50 miles, as new; £37.—Priestley, 35, Seamoor Rd., Bournemouth. [9852

TRIUMPH, 1912, free engine, £28; 1911 free engine, £20.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [9851

TRIUMPH, 1913, F.E., speedometer, lamp, horn, run 1,200 miles; £38, or offer.—Fuller, 54, Mawson Rd., Cambridge. [9827

TRIUMPH, 1912, 3½h.p., free engine, lamp, generator, horn, etc., excellent condition; £28.—The Morris Garages, Oxford. [X5555

TRIUMPH, T.T.R., 1912 (June), tyres, belt, condition perfect, watch, horn, valve; £30.—Box 7,055, *The Motor Cycle* Offices, Coventry. [X5535

1912 (late) 3½h.p. Triumph, free engine, 1913 silencer, excellent condition; price, with lamp, etc., £32.—Parry, Plas Newydd, Criccieth. [X5386

TRIUMPH, 4h.p., 3-speed, 1914, perfect order, accessories, spares, tools; £50, or offer.—Box 7,031, *The Motor Cycle* Offices, Coventry. [X5238

TRIUMPHS.—Several new and second-hand 1914 models on offer at low prices, cash or easy terms.—Wauchope's, 9, Shoe Lane, London. [X9879

FOR Sale, 1914 4h.p. Triumph, F.E., lamp, horn, and spares, perfect condition; £40.—Box L6,632, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9723

1912 Triumph, free engine model, in excellent condition; £28 cash, or easy terms.—R. E. Jones (Garages), Ltd., Swansea. Also at Cardiff. [0546

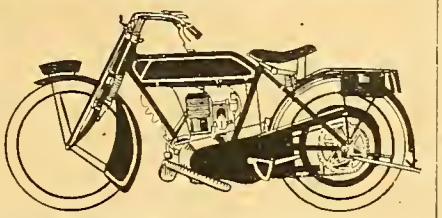
1911 Free Engine Triumph, splendid condition throughout; £21, or with Gloria cane sidecar £30—Edwards, 109, Bridge St., Northampton. [X5549

TRIUMPH, 1913, 3-speed, excellent condition; £37; buyer will be presented with spare tyre, lamp, and spares, value £5.—Wright, 20, Westridge Rd., Southampton. [X5490

TRIUMPH, 4h.p., 1914½, T.T., perfect condition, mileage 2,000, complete, lamp, horn, and generator; enlistment cause of sale; £42.—Upton, Ingestre Rd., Birkenhead. [X5521

1914 4h.p. T.T. Triumph, only ridden a few miles by an officer now on service, consequently as new; price £38.—Wayman, Hillside Monkbams Drive, Woodford, Essex. [9795

FARRAR'S BIG BARGAIN.



4 h.p. 1914¾ **WOLF**, J.A.P. engine, 2-speed countershaft gear, free engine, chain drive, kick starter on right hand side of machine, absolutely new and guaranteed **£36**

Or with Wolf coach-built sidecar, £45.
Showing a clear saving of £12.

PRICES ALL REDUCED.

2¾ h.p. **DOUGLAS**, 2 speeds and clutch £22
3 h.p. **SINGER**, Druids, magneto, P. & M. 2 speeds.. £11
3½ h.p. **REX**, h.b. control, 26" wheels, new tyres.... £7
3 h.p. **EXCELSIOR**, vertical engine, spring forks £7
1913 6 h.p. **ENFIELD** Combination, splendid goer .. £55
1912 4 h.p. 2-speed **TRUMP-J.A.P.** £23
1914 6 h.p. **ENFIELD** Combination, speedometer, etc. £68
1913 3½ h.p. 3-speed **HUMBER** Combination..... £35
2-3 h.p. Twin **MOTO-REVE**, magneto ignition, Druids £11
3½ h.p. 1908 **REX**, M.O.V., Bosch, B. and B. carb. .. £16
3½ h.p. **N.S.U., 2 speeds and free engine**, Bosch magneto £17
3½ h.p. **PREMIER, Bowden 2-speed gear**, Bosch £18
5 h.p. **VINDEC, 2 speeds**, kick starter, Bosch, sp. forks £19
3½ h.p. 1909 **REX** de Luxe, **2 speeds**, handle starting . £19
3½ h.p. **TRIUMPH**, ball bearing engine, M.O.V. £19
5 h.p. 1908 **REX** de Luxe, **2 speeds**, handle starting £19
5 h.p. 1908 **REX, 2 speeds**, kick starter, Bosch, Amac £19
8 h.p. **Cycle Car**, Chater-Lea engine, **3-speed gear** box and worm drive, speedometer, screen, etc. £60

SPECIAL SIDECAR COMBINATIONS.

4 h.p. 2-speed **ROC** and Torpedo Sidecar £20
3½ h.p. 2-speed **N.S.U.** and Torpedo Sidecar £20
5 h.p. 2-speed **REX** and Torpedo Sidecar £20
All in good running order.

NEW 1914 MACHINES.

1914 4 h.p. **TRUMBULL** Cycle Car ..... **What offers?**
1914 3½ h.p. **ARIEL**, 3-sp. countershaft gear **What offers?**
1914 6 h.p. **NEW HUDSON**, 3 speeds ..... **What offers?**

SPECIAL BARGAINS IN NEW ENGINES.

5-6 h.p. **BLUMFIELD** Engines, complete with inlet pipe, exhaust pipes and silencers, magneto bracket, valve lifter, magneto sprocket, variable pulley, and magneto chain cover, all new and unused £11 11
8 h.p. **J.A.P.** Water-cooled Engine, new.... **What Offers?**
8 h.p. **PRECISION** Water-cooled Engine, new **What Offers?**
Douglas Variable Pulley, good 9 6

SECOND-HAND ENGINES.

4 h.p. J.A.P. M.O.V., variable pulley, etc. £4 10
4 h.p. Bedelia, single, with magneto £4 10
6 h.p. 1913 Rex, with pulley, etc. £4 10
8 h.p. twin, water-cooled, M.O.V. £6 0
6½ h.p. single, water-cooled £3 0

SIDECARS.

GLORIA, spring wheel, cane body, fit Triumph £5
FARLOW, 1913, underslung, cane torpedo body £5
FARLOW, 1914, demonstration wicker model £5
FARLOW, 1914, lightweight model, used trials only .. £5
Also several New **FARLOW** Sidecars at big reductions.

Farlow sidecar sale is now on.

Great reductions. **Tremendous value.**

Get our list and save pounds.

NEW MOTOR CYCLE FRAMES.

Fully Guaranteed.

25/- each

New Clincher clearance De Luxe tyres, 26 × 2½; also a few 26 × 2¼ ..... 25/- each.

FARRAR'S MOTORS

(Telephone 919

Hopwood Lane, HALIFAX.

MOTOR CYCLES FOR SALE.

Triumph.

TRIUMPH, 4h.p., 1914, 3-speed, semi T.T., in almost new condition, new Kempshall, never been used with sidecar, the very mount for despatch riding; £43, lowest.—Herring, Chideock, Parkstone Av., Parkstone, Dorset. [9844

TRIUMPH, 1914, 4h.p., 3-speed, free engine, Montgomery £16/16 sidecar, best P. and H. head light, Lucas sidecar and rear light, horn, speedometer, luggage grid, tools, and innumerable spares; £60.—Tye, 17, Moor Rd., Rushden, Northants. [X5536

TRIUMPH, 3½hp., late 1909, just been overhauled and re-enamelled, tyres in excellent condition, back nearly new acetylene lamp and generator, usual tools, etc.; will take £20.—Box L5 014, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0553

TRIUMPH, 1912, clutch model, in guaranteed perfect running condition, new tank, tyre, 1914 mudguards, and other improvements, not used this year, recently overhauled by expert; first cheque for £26 secures.—H., 52, Poole Rd., Bournemouth. [9843

3½h.p. Triumph, new 1912, free engine clutch model, Bosch mag., 26×2¼ plated rims, Clincher studded tyres, splendid condition, guaranteed throughout faultless, powerful hill-climber, fast, all accessories, lamp set, watch, mirror, £27; nearly new sidecar, latest, £5/5, bargain.—17, Ford Sq., Philpott St., Stepney. [X5562

Trent.

3½h.p. Trent Motor Cycle, B. and B., h.b.c., mag., good tyres and condition, fast, and sidecar; £15.—E. Harding, 98, Canal Rd., Mile End, E. [X5527

Trump.

TRUMP-J.A.P., late 1913, 6h.p., special racing engine, 3-speed Armstrong gear, kick starter, 18 gn. sidecar, complete with accessories, only machine that won 6 hours' record (Brooklands); £55.—Cass's Motor Mart, 5, Warren St., Euston Rd., W. Museum 623. [9847

V.S.

CASH Bargain.—V.S., 7-9h.p., 2-speed, free engine, and sidecar; £24 10.—Motor Exchange, Westgate, Halifax. [0616

Werner.

WERNER Lightweight, Bosch, Avon Stonehenge tyres, Dunlop belt, spring forks; bargain, £8.—35, Gowlett Rd., East Dulwich, S.E. [9808

Williamson.

WILLIAMSON, new 1914 and second-hand machines going cheap, cash and exchange.—Wauchope's, 9, Shoe Lane, London. [X9872

WILLIAMSON, 1914, 8h.p., water-cooled, coachbuilt combination, new condition; £65.—P. J. Evans, John Bright St., Birmingham. [9865

1914 8h.p. Water-cooled Williamson and tandem seated sidecar, hood, screen, brand new; list £111, what offers?—Hebden's Motor Mart, St. James' St., Burnley [9855

1913 Water-cooled Williamson and sidecar, all accessories, tyres good; owing buying light car, £65, or near offer.—Mills Motors, Ltd., 4, Wood Side Parade, North Finchley. Finchley 1745. [9645

WILLIAMSON, Mills-Fulford sidecar, engine 8h.p. W.C., new this season, enamel, plating fine order, fine running order, fully equipped, spares, etc.; £55 cash; bought car.—Dr. Ede, Wolsey Rd., E. Molesey. [0634

Zenith.

ZENITH, 8h.p., nearly new, countershaft, clutch, enamelled red, complete with sidecar and fittings; £68.—Turpin's, 22 and 29, Preston Rd., Brighton. [0509

ZENITHS.—Great bargains.—6h.p. twins from £30, supplied with or without sidecars; 1915 model Zeniths, 4-5h.p., for immediate delivery, cash, exchange, or easy terms.—Wauchope's, 9, Shoe Lane, London. [X9680

ZENITH-GRADUA, 1914, 8h.p., counter-shaft gear, clutch, and kick starter, 90 bore side valve J.A.P. engine, Millford Empress sidecar, complete with accessories, perfect order throughout; £62; cash or extended terms.—Elce and Co., 15, Bishopsgate Av., Cannonile St., E.C. [0552

ZENITH Bargains.—1914 8h.p. coachbuilt sporting combination, £58; 1913 3½h.p., with good wicker sidecar, £35; 1912 3½h.p., with full equipment, £28, or with sidecar £32; 1911 6h.p. and smart cane sidecar, £35; all fully guaranteed.—P. J. Evans, John Bright St., Birmingham. [9866

ZENITH, 1913¾, 6h.p., 1914 improvements, capital condition, recently overhauled, Lucas lamp, generator, tail lamp, Klaxon, front cylinder lubrication, underslung Millford sidecar, ready to ride away; owner on active service; 55 gns.; trial run given.—Apply, Z., Elstree, Bromley, Kent. [X5388

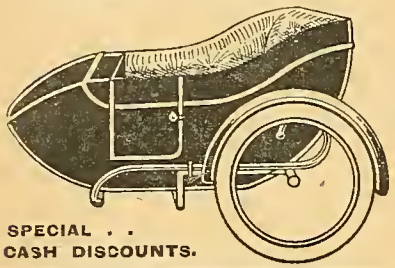
Miscellaneous.

ZENITH, Triumph, A.J.S., Pheion-Moore, Douglas sidecar combinations, etc.; sale, exchange, bargains.—Timmons, Mansfield. [X5576

1914 Standard Auto-Wheel, new, £13; 1914 B.S.A. Auto-Wheel, new, £14; 1914 6h.p. twin New Hudson combination, complete, £70; 1914 Connaught, complete, £24.—Shard, Tilston, Malpas. [X5498

PERFECTION SIDECARS.

FROM £5 5 0. SEND FOR LIST.



SPECIAL . .
CASH DISCOUNTS.

NEW 1914's. OFFERS WANTED.

LAGONDA 11 h.p. 4-cylinder 2-seater Light Car	£145 0
VICTOR-PRECISION, 8 h.p., w.c., accessories ...	£100 0
WILLIAMSON w.c.-Sidecar Combination	£99 5
REX-J.A.P. 8 h.p. 3-speed Combination	£94 10

BANTAM BRIGADE.

1915 2½ h.p. Popular **LEVIS** (NEW)	£25 10
1914 **SUN-VILLIERS,** 2-stroke (new)	£26 5
1914 **CALTHORPE** Minor, 2-speed	£19 19
1913 2¾ h.p. T.T. **DOUGLAS**	£35 0
1913 2½ h.p. 2-speed F.E. **SINGER**	£29 10
2½ h.p. 2-speed F.E. **F.N.**	£23 10
1912 2¾ h.p. 2-speed F.E. **ENFIELD**	£23 10
MOTOSACOCHE, magneto, Druids	£13 10

SECOND-HAND BARGAINS.

1914 8 h.p. **J.A.P.** Cycle Car, 3 speeds	£68 10
SABELLA-J.A.P. 8 h.p. Cycle Car	£49 10
A.C. Sociable, magneto, 2-speed, F.E.	£42 0
BEDELIA, 8-10 h.p., twin, very speedy	£39 10
1913 6 h.p. 2-speed **REX** (NEW): reduced to ..	£49 18
1913 6 h.p. **REX** de Luxe and Sidecar	£44 10
1913 4½ h.p. 2-speed **LINCOLN-ELK** and Sidecar	£39 10
1912 3½ h.p. (Bowden 2-speed) **BRADBURY**	£29 10
1912 2¾ h.p. F.E. **REX,** almost as new	£24 10
1912 3½ h.p. 2-speed F.E. **ALLDAYS**	£29 10
1911 2-speed **SCOTT** late model	£29 10
1912 3½ h.p. F.E. **PREMIER**	£25 0
1912 3¼ h.p. 3-speed **BRADBURY** and Sidecar ...	£33 10
1912 3½ h.p. 2-speed **BRADBURY,** coach Sidecar..	£32 10
P. & M., 3½ h.p., 2-speed, grand condition	£32 10
1911 3½ h.p. 2-speed **HUMBER**	£19 10
1911 3½ h.p 2-speed **HUMBER** and Sidecar	£29 18
1911 7-9h.p. 2-speed **REX** and Sidecar	£29 10
1911 3½ h.p. 2-speed **REX** de Luxe	£27 10
1911 3½ h.p. 2-speed **REX,** 84½ ×89	£27 10
1911 3½ h.p. tourist **REX,** spring forks	£19 10
1911 3½ h.p. **LINCOLN-ELK**	£21 10
1911 F.E. **PREMIER,** almost as new	£21 0
1910-11 5-6 h.p. 2-speed twin **REX**	£25 10
1910 **V.S.,** 7-9 h.p. 2-speed, and Sidecar	£29 10
V.S., 6 h.p., P. and M. gear, and Sidecar	£27 10
BAT-J.A.P., 6 h.p., fine condition	£18 10
PEUGEOT, 5-6 h.p., 3 speeds, twin	£29 10
MINERVA, 3½ h.p., magneto	£15 10
N.S.U., 3 h.p., magneto, fine condition	£14 10
N.S.U., 3 h.p., 2-speed, nearly new condition	£22 10
EXCELSIOR, 3½ h.p., 3-speed, free engine	£24 10
REX, 5½ h.p., 2-speed, magneto	£24 10
REX, 1909, twin, de luxe, and Sidecar	£24 10
REX, 3½ h.p., Roc clutch	£19 10
REX, 5½ h.p., twin, magneto, and Sidecar	£19 10
REX, 5½ h.p., magneto, 1908 model	£19 10
3½ h.p. **VINDEC,** magneto ignition	£15 10
JAMES, 1910, 3½ h.p., magneto	£12 10
Twin **KERRY,** 6 h.p., and Sidecar	£15 10
3½ h.p. **HUMBER** Tricar, chaio drive	£5 15
ROVER, 3½ h.p., 2-speed, and Sidecar	£17 10
CORONET, 4 h.p., low frame	£8 15
ANTOINE, 3 h.p., battery ignition, runs well	£6 15
2¾ h.p. **BRADBURY,** battery ignition	£6 15
Twin **REX,** less engine	£4 10
AVON 26×2 Studded Covers for Douglases	11/9
Mark VI. Armstrong Gear, braud new	£6 6

Lists on application. Trade enquiries welcomed.
Cash offers wanted.

1915 DOUGLASES.
EASY PAYMENTS AND EXCHANGES QUOTED.

Collier's Motories,
WESTGATE, HALIFAX.

MOTOR CYCLES FOR SALE.

Miscellaneous.

PALMER'S Garage, Tooting.—2½h.p. F.N., late type, mag., B. and B.; cheap, £8.

PALMER'S Garage, Tooting.—3½h.p. Rover tricar, m.o.v., good tyres, h.b.c.; £6/10.

PALMER'S Garage, Tooting.—7h.p. Indian, 2 speeds, clutch, kick start, powerful; £28.

PALMER'S Garage, Tooting.—3½h.p. Triumph, 1913, 3 speeds, like new; bargain, £36.

PALMER'S Garage, Tooting.—4½h.p. F.N., 4 cyls., exceptionally low built, many new fittings; £15.

PALMER'S Garage, Tooting.—2½h.p. Motosacoche, 1912, mag., variable gear, free engine; £12/10.

PALMER'S Garage, Tooting.—3½h.p. James, late model, mag., Druids, runs well; £18/10.

PALMER'S Garage, Tooting.—6h.p. Rex and sidecar, twin-cyl., spring forks; £7/10.

PALMER'S Garage, Tooting.—6h.p. 1914 Zenith, counter-shaft gear, kick start; opportunity; £40. [X5547

WANDSWORTH Motor Exchange.—Xmas great bargains. Come, get your present; it'a waiting.

WANDSWORTH.—Rex, braud new, 1913-14, 6h.p., mag., 2 speeds, guaranteed; 45 gns.; exchanges.

WANDSWORTH.—Douglas, 1913-14, model R, twin, mag., 2 speeds, clutch, kick; £35; exchanges.

WANDSWORTH.—Zenith-Gradua, 1912, 3½-4h.p. J.A.P., enclosed Bosch, nice order; 28 gns.; exchanges.

WANDSWORTH.—Rex 1912-13 combination, 6h.p. twin, enclosed Bosch, 2 speeds; £32/10; exchanges.

WANDSWORTH.—Humber, 1911-12, 3½-4h.p., mag., 2 speeds, handle starting, perfect; £19/10; exchanges.

WANDSWORTH.—Radco, 1914-15, latest 2-stroke, mag., mostly soiled; sacrifice £19/19; exchanges.

WANDSWORTH.—T.A.C. (late), 7h.p., 4 cyle., mag., 3 speeds, beautiful machine; £32/10; exchanges.

WANDSWORTH.—V.S., 1911, 7-9h.p., mag., 2 speeds (kick), nearly new; £28/10; exchanges.

WANDSWORTH.—Rex 1911-12 7-9h.p. twin, mag., newly enamelled, new condition; £27/10; exchanges.

WANDSWORTH.—Triumph, 1912-13 T.T., 3½-4h.p., mag., very fast; bargain, £28/10; exchanges.

WANDSWORTH.—F.N., 1911-12, 5-6h.p., 4 cyls., mag., drip feed, guaranteed; £18/18; exchanges.

WANDSWORTH.—Chater-Lea-Peugeot, 7-9h.p. twin, mag., low built, powerful; £18/18; exchanges.

WANDSWORTH.—Humber, 1910, 3½-4h.p., mag., 2 speeds, Druids; great bargain, £17/10; exchanges.

WANDSWORTH.—V.S., with sidecar, 3½-4h.p., mag., 2 speeds, F.E.; trial; £16/16; exchanges.

WANDSWORTH.—N.S.U., with sidecar, 5-6h.p., mag., 2 speeds, running; gift, £13/10; exchanges.

WANDSWORTH. — Motosacoche, 1½-2h.p., mag., Druids, nice little machine; £10/15; exchanges.

WANDSWORTH.—Easy terms.—Wandsworth Motor Exchange, Ebner St., Wandsworth Town Station. 'Phone: Battersea 327. [X5569

SEVERAL Second-hand Motor Cycles always in stock from £10 to £70; easiest easy terms.—Lamb's, 151, High St., Walthamstow. [0533

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope'a (cash or easy terms), 9, Shoe Lane, Fleet St., London. [9882

SECOND-HAND Motor Cycles.—We have a large stock of machines in excelleot conditioa at very low prices to clear; send us your requirements and we will guarantee to satisfy you.—The Morris Garages, Oxford. [0314

MORGAN and Maxwell.—Pay us a visit and compare our prices. We have a large stock at moderate prices. Auto-Wheel, Ariel, Antoine, Bat, B.S.A., Bradbury, Campion, Chater-Lea, Douglas, Enfield (fine twin sidecar combinations), F.N., Humber, Indian, Campion, J.A.P., L.M.C., Moto-Reve, New Hudson, Premier (two, one P. and M. lightweight, one 3½h.p.), Rex (several fine Rexes), Roc, Rudge, Scott, Singer, Triumph, Zenith. Two good cycle cars for sale, cheap. We can give quick delivery of all mounts. Magnetos, clutches, 2 and 3-speed gears, engines (air and water-cooled), Binks, B. and B., Senspray carburetters, decompressors, cheap sidecars, lamps, belts, pillion seats, helmets, overalls, etc. Please state exact requirements. Come to us if you want a machine for military use. —Morgan and Maxwell, The General Motories, 80, High Rd., Streatham, London. (D) [X5557

TRICARS FOR SALE.

9 h.p. Riley Sociable 3-wheeler, 3-speed, mag.; £7/10 to clear.—Reive, Old Cumnock. [X5566

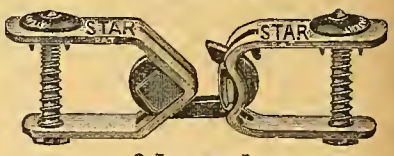
SIDECARS AND FORECARS.

SIDECAR.—Good wicker sidecar, well upholstered; 40/-. —Hodder, 41, Broadway, Frome. [X5489

GLORIA Cane Sidecar, off Triumph, £3; Cowey speedometer, 30/-.—109, Bridge St., Northampton. [X5550

GENUINE 1914 £20 Scott Sidecar, cane body, wind screen, fibre trunk aud apron; bargain, £12.—Rice Bros., Horsham. [9838

THE FAMOUS STAR FASTENER.
GUARANTEED NOT TO PULL THROUGH.



9d. each.

Belt Manufacturers Fit Them.

BLAKE FASTENER.
The strongest cheap fastener on the market.
Plated 6d. each.

LEATHER COVERED LINKS.
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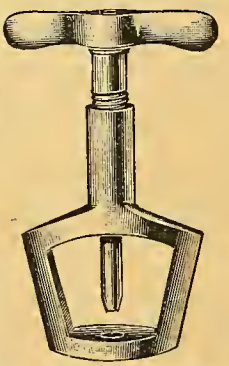
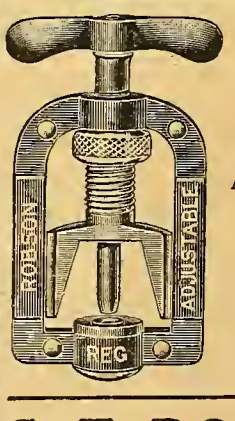


BELT PUNCHES
⅜, ⅞, 1, 1⅛.
1/- each.



2/6 each.

SELF-CENTRING ADJUSTABLE BELT PUNCH.

TWO SIZES—
(⅞ to 1). (⅞ to 1⅛).

S. T. ROBSON
275/7, Coventry Road,
BIRMINGHAM.

TYRES

50% OFF LIST.

All goods sent on 7 days' approval against remittance.

SPECIAL CLEARANCE LINES.

	Our Price.	Usual Price.
DUNLOP 1913 Pattern—		
26 × 2½ heavy studded	17/6	32/6
26 × 2⅜ extra heavy	25/-	41/9
650 × 65 Pillion	21/-	50/-
HUTCHINSON—		
26 × 2½ Passenger	30/-	40/-
26 × 2½ Passenger	28/-	41/3
26 × 3 for 2½in. Passenger	26/-	44/-
26 × 2½ T.T.	15/-	33/-
24 × 2½ Brooklands	15/-	23/-
24 × 2½ „	15/-	24/6
26 × 2 T.T. wired-on	15/-	29/3
26 × 2½ „	16/6	31/-
CLINCHER—		
26 × 2½ Dreadnought	32/6	47/3
26 × 2½ for 2½in. Dreadnought	32/6	47/3
26 × 2½ Dreadnought	35/8	50/10
26 × 2½ A Won	23/-	34/-
26 × 2½ for 2½in. De Luxe	27/6	41/-
26 × 2½ De Luxe, rubber-studded (Junior)	16/6	
26 × 2 A Won	13/8	29/-
26 × 2 B grade	12/6	25/-
700 × 80 small car tubes for 650 × 65 rims	21/6 6/3	
26 × 2½ extra heavy tubes	5/3	7/9
MICHELIN—		
26 × 2½ heavy trident	25/-	32/6
26 × 2½ „ standard	15/-	35/-
ENGLEBERT—		
26 × 2½ wired-on for F.N. machines	15/-	28/6
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650 × 65 square	22/-	
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28 × 3 Grip rib patt. for Indians.	25/-	
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26 × 2½ Heavy Non-skid	22/6	40/-
28 × 2½ „ „	18/6	35/-

We guarantee the above goods to be new and in perfect condition.

All makes of tyres stocked.

SECOND-HAND COVERS, all sizes, 3/6 each.

ELITE—Best Quality Tubes (Guaranteed).

26 × 2	5/-
26 × 2½	5/6
26 × 2⅝	6/-
26 × 3	7/6
Butted extra	1/3

BELTS.

CONTINENTAL—			
½in. section	foot	1/6	2/2
⅝in. „	„	1/3	1/11
¾in. „	„	1/1	1/7
⅞in. „	„	11d.	1/5

Clearance Line. Best English made Belting, Rubber and Canvas. (Cannot advertise name.)

⅝in. section	foot	1/-	1/9½
1in. „	„	1/3	2/1

LEATHER BELTING—Service Pattern.

⅝in. section	foot	1/-	
1in. „ with fastener	„	1/3	

RETREADING.

Special heavy	15/-
Heavy	12/6
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Sections on application.

ELITE offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over

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ECONOMIC Tyre Co.

DUNLOP, 50/-, 650×65, 1913; Pillion Dunlops, 21/-; ditto, 26×2¼, 17/6; extra heavy, 26×2⅜, 25/-; Clincher 26×2 A Won, 13/6; B. quality 12/6.

KEMPSHALL Non-skid, 26×2¼, clearance, 32/6; ditto, 650×65, 42/6; ditto, 28×3, 60/-. All sizes Anti-skid also stocked.

MICHELIN, light, 24×2 9/-, 26×2 10/6, 28×2¼ 12/-, 26×2½ 12/-, 24×2 leather tread Semelle 21/-, ditto 26×2 26/-.

137, Lewisham High Rd., S.E.—Special clearance lines; 7 days' approval against remittance. [9890

LEGGATE, Edinburgh, for tyre value.

LEGGATE, Edinburgh, for great reductions and genuine value in brand new clearance Clincher tyres.

LEGGATE, Edinburgh.—Goods are all guaranteed fresh stock, and sent anywhere on seven days' approval against cash.

LEGGATE, Edinburgh.—Clearance.—1914 Clincher Dreadnought, extra heavy, rubber studded, beaded covers, 26×2¼ 32/6, list £2/7/3; 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10.

LEGGATE, Edinburgh.—Clearance.—1914 Clincher de Luxe very heavy rubber studded, beaded covers, 26×2⅜, to fit 2¼ rims, 27/6, list £2/1; 26×2½ 29/6, list £2/2/9.

LEGGATE, Edinburgh.—Clearance—1914 heavy (4-ply fabric) Clincher rubber studded beaded edge covers, 26×2 17/6, 26×2¼ and 26×2½ 20/-; list almost double

LEGGATE, Edinburgh.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-.

LEGGATE and Co., Motor Cycle Specialists, 15 Slateford Rd., Edinburgh. [X5533

7/6 Guaranteed Allowance on old covers for practically any new motor cycle cover costing 40/- or more.—Taylor's, Ltd. 21a, Store St., Loudon, W.C. [0628

CONDITION as New, Ligar plain tread cover, 26×2¼, only ridden 60 miles; will accept 15/-.—Box No. L6,155, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0589

FOR Sale, two Hutchinson T.T. rubber-studded new covers, 26×2½, fit 26×2¼ rims, 20/- each; also two ditto passenger, 24/- each.—Rossiter, Draper, Kingswood, Bristol. [X1848

26×2⅜.—Five 4-ply passenger 3-ribbed covers, slightly mould marked, but fully guaranteed just the same; clear 21/- each; also two rubber studded. Sections on application.—Stella Tyre Works, Holloway Head Birmingham. [X5241

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SITUATION wanted in fitting shop for motor cycles, 5 years' experience with Triumph, B.S.A., Enfield, and Bat. and other makes.—Apply to E. Thorpe, c/o Mr. E. Whitmore, Glebe Wood, Methwold, Norfolk. [9668

SITUATIONS VACANT.

SHEET Metal Workers and Coppersmiths.—Good all-round chargehand wanted, must be first-class workman, and able to control men, one used to motor and general work preferred.—State age, wage, union or non-union, to Box No. L6,663, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9829

REPRESENTATION.—Holland-Belgium. Dutchman, living Amsterdam, over 20 years in the bicycle and motor trades, well acquainted with all leading houses, wishes further representation, first-class English manufacturers, for bicycle and motor goods and accessories. Highest references.—4898, Seyffardt's Central Annonce Bureau, Amsterdam. [9802

BUSINESSES AND PROPERTY FOR SALE, TO BE LET, OR WANTED.

THE Premier Motor Company, Limited (in voluntary liquidation), Aston Rd., Birmingham.—The liquidators of the above named company invite tenders for the purchase of the company's business as a going concern. The assets consist of stock-in-trade, book debts, plant, machinery, fixtures, and goodwill. Tenders are required to be sent in to the liquidators not later than the 23rd instant. Full particulars and cards to view can be obtained from the liquidators, Mr. George Cranmore Taylor (of the firm of Messrs. J. W. Hinks and Taylor), 115, Colmore Row, and Mr. Charles Thomas Appleby (of the firm of Messrs. Poppleton and Appleby), 26, Corporation St., both in the City of Birmingham; or Messrs. Thomas, Guest, and Pearson, Solicitors, 29 Temple Row, Birmingham. [9814

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J. E. S. LOCKWOOD, Patent Agent, 3, New St. Birmingham. Guide and price book free. [9390

FLETCHER WILSON, Chartered Patent Agent; nineteen years' experience in motor patents Coventry. [9470

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HENRY SKERRETT, Chartered Patent Agent, 24, Temple Row, Birmingham.—Patents, trade marks, and designs. Motor patents a speciality. [0636

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To cash purchasers we have a few new motor cycles and light cars of this year's manufacture to offer at considerably reduced prices. We can also allot early delivery dates for all 1915 models (some are ready now), and for these goods we are continuing our system of

EXCHANGES.

Write for our "Exchange Form." It will enable you to easily describe your old machine; and immediately upon receipt of the particulars we will quote you a definite allowance. If desired, the balance can be sett ed by our convenient method of

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Our terms are cash (or its equivalent) for one-fourth of the purchase to be paid down, and the remainder is payable in twelve equal monthly instalments. These terms also apply to our

SECOND-HAND MACHINES,

a selection of which appear below. Each of these machines have been very carefully overhauled and tested, and we give a guarantee of their perfect condition. We will with p easure forward a complete list of our stock upon request.

Date.	H.P.	Particulars.	Price.
1911	2½	**ROYAL ENFIELD** lightweight	£16
1912	2¾	**ROYAL ENFIELD,** 2-speed ..	£24
1913	2¾	**ROYAL ENFIELD,** 2-speed ..	£28
1913	3	**ROYAL ENFIELD,** 2-speed, Model 140	£34
1914	6	**ROYAL ENFIELD** Combination, Cowey speedometer, 3 lamp sets, horn	£68
1914	7	**INDIAN,** 2-sp., electric lamps and horn, speedometer, INDIAN COACH-BUILT SIDECAR	£60
1911	6	**ZENITH,** Gradua gear, speedometer, F.R.S. lamp set, rear lamp, and COACH-BUILT SIDECAR ..	£42
1912	3½	**ZENITH,** Gradua gear	£28
1911	3½	**BRADBURY,** 2-speed model, with Smith speedometer, and horn	£25
1914	1	**WALL AUTO-WHEEL**	£10
1911	3½	**TRIUMPH,** roadster	£23
1911	3½	**TRIUMPH,** clutch model, and GLORIA SIDECAR	£33
1912	3½	**TRIUMPH,** clutch model	£33
1912	3½	**TRIUMPH,** 3-speed	£38
1913	3½	**TRIUMPH,** T.T. roadster	£32
1913	3½	**TRIUMPH,** clutch model	£37
1914	4	**TRIUMPH,** T.T. model	£36
1914	4	**TRIUMPH,** 3 speed, speedometer, F.R.S. lamp set, horn, mirror, rear lamp, and SWAN DE LUXE SIDECAR and lamp	£56
1911	3½	**RUDGE,** clutch model	£26
1912	3½	**RUDGE** Multi, head lamp, rear lamp, and horn, and MILLFORD SPRING WHEEL SIDECAR ...	£38
1912	2¾	**HOBART,** lady's mod., 3-speed	£20
1912	3½	**B.S.A.,** 2-speed model	£35
1909	5	**VINDEC,** free engine, KERRY SIDECAR	£19
1910	5	**V.S.,** 2-speed, lamp, generator, horn, mirror, and COACH-BUILT SIDECAR	£26
1911	3½	**KERRY-ABINGDON,** lamp, horn, and KERRY SIDECAR ...	£20
1910	4½	**F.N.,** 4 cylinders, B. & B. carburetter, speedometer, and horn ..	£13
1913	3	**N.S.U.,** twin-cylinder engine, 2-speed gear model	£25
1910	5	**KERRY,** Bosch magneto	£14
1909	2¾	**MINERVA,** lamp, generator, and horn	£10
1914	10	**SINGER** Light Car, with dickey, dynamo lighting, hood, screen, spare wheel and new tyre, horn, speedometer, foot mats, etc.	£160

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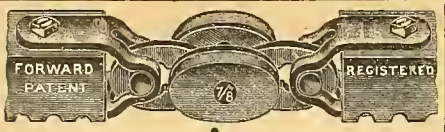

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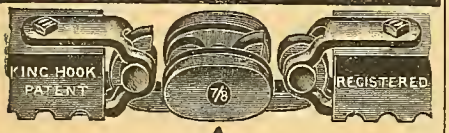

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MOTOR Car Tuition, £3/3, driving and mechanism until proficient and satisfied. — Prospectus, Palmer's Garage, Tooting. [X5545

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DOUGLAS, 1912-13, 2 speeds, fair condition.—Kirk, Lockwood Rd., Huddersfield. [X5484

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WANTED, Triumph Back Forks, also brake controls. —Goodwin, 22, Benedict St., Bootle. [9788

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DOUGLAS, 1913 and 1914 models, also Morgans; spot cash paid.—Maude's, 136, Gt. Portland St., London, W. [0627

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WANTED, copy of *The Autocar*, March 28th, 1914; will pay full price and postage.—Box 7,052, *The Motor Cycle* Offices, Coventry. [X5509

CASH Waiting.—Wanted, magneto motor cycles, any condition.—State lowest price, Box No. 7,054, *The Motor Cycle* Offices, Coventry. [X5537

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2-SPEED Gear; exchange 12×8 £10 camera, or £6 gramophone, or Lowendall violin, £5.—Septimus Jones, Wollaston, Wellingborough. [9828

WANTED, 8h.p. engine, with gear box, perfect, suitable for Chater-Lea tricar, in exchange for 3½ h.p. Rover, in good running order.—Rich, Shifnal, Salop. [X5218

WANTED, motor cycles, second-hand (Rex-Jap, Douglas, Triumph preferred); state full particulars; rock bottom cash price.—Write, Box L6,590, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0624

WANTED, a new or nearly new 4h.p. single-cyl. motor bicycle, with 3-speed counter-shaft gear, with or without sidecar, Triumph preferred.—Full particulars, lowest price, Rudland, Holsworthy. [9805

WANTED, 4h.p. Rex engine and magneto; exchange J.E.S. set, or speedometer, 4h.p. Excelsior engine and cash; 2½ Lomax, 10/-; 3h.p. Brown motor cycle, complete with magneto, £5/10.—Holmes, Eldorian, Plymstock. [X5520

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Note that by using the "Stanley" Spare Link there is no jerk as the Fastener passes round the pulley, the drive is more even, and there is no tendency for the Fastener to pull out, thus considerably increasing the life of a belt.

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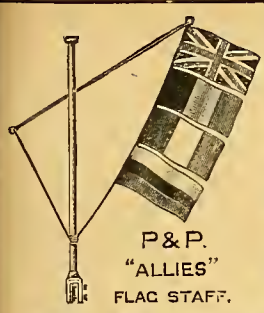

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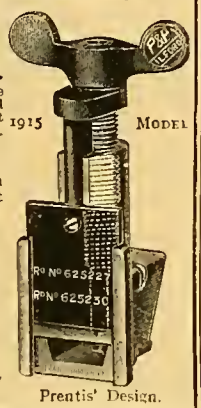

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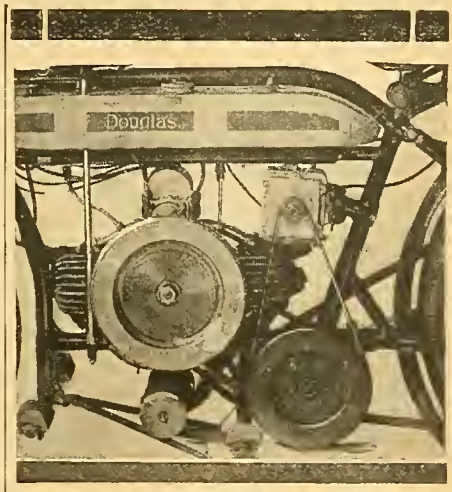

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Car Tubes at equally low prices.
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MISCELLANEOUS.

A WRITE P.C. for 1914 catalogue, 180 pages, 1,000 illustrations; the latest accessories, lower prices then any other house. The Juno 2-stroke, £26/5, 46/3 month, with 2-speed £33, 58/4 month. A silver medal awarded to the Juno.—W. S. Capstick, Esq., 620, Manchester Rd., Bradford, Yorks, writes: "I have been awarded a silver medal in the Bradford M.C.C. speed trial on Blubber House Moor, Harrogate (handicap) with Juno 2-stroke, with a speed of just over 38 miles per hour. The machine will really do more than this. I have got 49 miles out of it several times." Auto-Wheels, £14/14, 27/- month; 3½h.p. 2-speed Calthorpe, £25, or 45/10 month; 2¾h.p. Mead-Precision, £20; cane side entrance sidecar, 90/-. Accessories to value of £4 supplied on monthly payments; engines, any make, cash or monthly payments; sidecar wheel shields, 1/6; sidecar rear lamps, 3/6, 5/6, 8/9, 10/6, 11/6; wheels, 26×2¼, with Villiers free engine hub, 105/-; decompressors, 8 patterns, from 6/-; lathes, £5/10; countershaft gears, 105/-; kick starters, 14/9; Philipson pulley controls, 15/-; Fitall gears, 105/-; Unito couplers, 21/-; tanks or pulleys made, any size or pattern; handle-bars, 7 patterns, from 5/-; knee grips, 4/-; any make of machine or sidecar bought, sold, or supplied on monthly payments; head lamps, 20 patterns, from 8/6 to 60/-; belt rims, 5/6; tappet adjusters, set of four, 4d.; Stewart speed indicators, 50/-; Watford, 63/-; Jones, 63/-; post horns, 9/6; motor cycle houses from 32/6.—M.C. Department, Metropolitan Machinists' Co., Ltd., 248, Bishopsgate, London, E.C. 'Phone: Central 12857. [6615

TRIUMPH Forks, 1913, 16/-; carburetter, 7/6; touring handle-bars, 3/6.—Walker, Buchlyvie, Stirlingshire. [X5568

OILSKINS.—Ponchos 15/6, overalls 7/6, cap covers 3/-, Sou' Westers 2/6, D.B. coats 9/6, reproofing from 2/6.

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MOTOR Suits.—Tri-breasted coats and overalls, 21/-, complete; repairs free.—Para Rubber Co., John Bright St., Birmingham. [0602

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CARBURETTER?—Badcock's By-pass will make yours better than the best; see displayed advertisement in last or next issue. [0261

MAUDES' Christmas Bargains.—A few new 1914 P. and H. lamp sets, large size, Mangin lens mirror; 20/-.—136, Gt. Portland St., London, W. [9887

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A. H. HUNT Electric Head Lamp, 10/6; C.A.V. ditto, 7/6; Lucas lamp and separate generator, 15/-; Lucas horn, 10/-; Amac twin carburetter and control, complete, £1; Middlemore saddle, 10/6; wire wheel 26in., with heavy semi-solid 2in. tyre, 10/-; brass tank suit surface type, or could be converted, 5/-; Parsons chain, 26in.×2½in., 2/6; Lucas self-contained acetylene head lamp, 5/-; too cheap to send on approval; all 1914 goods, except wheel and tank.—G., 135, Holyhead Rd., Coventry [X5030

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War and the Motor Cycle.

WE hope that manufacturers and others engaged in the design of motor cycles will take to heart the advice of a contributor in this issue to continue exertions in the matter of producing motor cycles or sidecar outfits for warlike purposes. Though the pleasure type of vehicle has been adapted to render yeoman service, there is no doubt that much is left to be done in the way of producing a machine particularly suited to the special conditions of warfare. It seems to us that, in particular, better protection is needed for the rider from stray bullets as well as mud. In connection with the transport of machine guns on sidecar outfits, there is no doubt that the motor cycle will be able to play a most important part. Military experts agree that the success of a machine gun battery is due entirely to its operators being able to seize any opportunity presented to it. That opportunity does not exist frequently or for long stretches at a time, as no human body can stand up to the terrible effects of a modern machine gun. On this account, the speedy and mobile motor cycle and sidecar is particularly suited to the work. It is able to move the gun rapidly from one point to another wherever a vulnerable point is likely to present itself, and half an hour or so later be twenty miles away ready to repeat its deadly work on another detachment of the enemy.

We dwell upon the military aspect of the question to show that, with proper attention to developments, the motor cycle and sidecar has found a lasting place in the Army, and, as it is quite a new branch of the Service, it is fairly obvious that much remains to be learned in the production of the ideal machine for the work. Those who turn their attention to a serious study of the conditions while the matter is young are likely to reap the benefits. We urge manufacturers in 1915 to pay special attention to the production of a motor cycle or sidecar outfit for warlike uses. There is ample scope to warrant such a step.

Buying Second-hand Machines.

AT this period of the year, those in possession of the necessary funds and on the look-out for a motor bicycle are able to pick up a very sound bargain. Particularly do these remarks apply at the present stage of affairs. Quite apart from the fact that many enthusiastic motor cyclists dispose of their old machines in the winter in favour of a new model to be delivered in the New Year, there is no hiding the fact that money is not being quite so freely spent on what some people still regard motor vehicles of all kinds, viz., luxuries. We have had evidence of late that there is considerable activity in the second-hand market, and, moreover, a number of cases of what we should characterise as real bargains have come directly under our notice. Hence our remarks to those who may be considering the purchase of a second-hand mount that now is an opportune moment for such a speculation. Those who are limited in funds have the opportunity of making any small improvements or adjustments during the winter months or the less active season, and so being ready for the call of the road in spring-time. We are occasionally asked by readers to assist them in the selection of a second-hand mount, but, though we have helped many Overseas readers, who are more awkwardly situated, we find that such a scheme is almost impracticable so far as home readers are concerned, as ideas on the subject of a bargain differ so very much.

Will the Solo Mount Survive Winter in France?

By H. MORTIMER BATTEN.

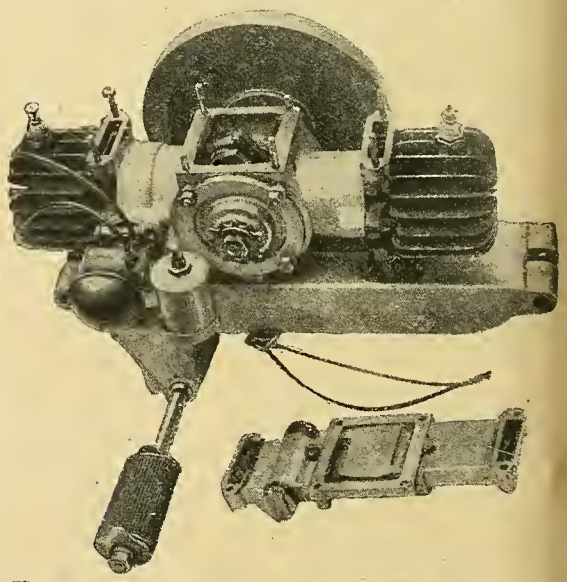
THE ADOPTION OF SIDECARS FOR DESPATCH RIDERS.

A group of British motor cycle despatch riders photographed in wintry surroundings. Five of the nine bicycles are Clynos provided with sidecars—a very desirable provision during the winter campaign, as we have already pointed out in a leading article.

AS was outlined in *The Motor Cycle* of last week, it is reported from France that, owing to the awful condition of the lines of communication —a condition, be it noted, that is mainly due to the constant passage of four-wheeled rubber-tyred vehicles —the motor cycle has lost much of its usefulness, and is in danger of supersedure by the light car. The mud on most of the roads is so deep that the work of riding through it on a single-track machine is most exhausting for the rider, and in many cases is slow and almost impossible. If the conditions are as bad as this, the solo mount cannot be entirely suitable for the work. The likelihood of coming to grief at any moment, of colliding with other traffic, the constant tension to which the rider is put—especially at night —in order to keep himself and his mount right side up, must be trying in the extreme.

This, however, is a trouble which can be so easily overcome that it is not reasonable to suppose that on such scanty grounds the machines will be pronounced unsuitable for those particular services in which they have already proved their worth. The points in favour of the motor cycle are so evident that it is hardly necessary to dwell upon them. All that is required is a third wheel to steady the machine and keep it upright, and a special standard fitment could quickly and cheaply be produced that would entirely overcome the trouble. It would consist merely of a sidecar chassis, mounting a sprung bucket seat for conveying a passenger, and so equipped that spare tyres, petrol, food, water, or any other necessary impedimenta could be carried aboard. There is an immense future for such an attachment, for not only would it put an end to the skidding trouble, but it would enable the rider to carry certain articles with him that cannot be carried on a solo mount, thus adding much to his comfort, and withal it would add little to the weight and deduct little from the handiness of his machine. The lifting danger at corners would be overcome after a little practice.

Messrs. Phelon and Moore are already experimenting with an attachment of this kind, and *The Motor Cycle* has arranged a trial in which the light attachment will figure. The course selected is one of extreme severity, including road surfaces as nearly representing the present mud tracks of France as our West Riding byways and moorland paths permit.



The engine of the two-cylinder two-stroke Connaught which was described on page 706 of our last issue. The transfer pipe, which forms the lid of the crank case and support for the magneto, is shown detached. Both cylinders of this engine fire together and at every complete revolution.

OCCASIONAL COMMENTS

BY "IXION"

I Recant.

I have often attacked the trade with a venomous pen for the starting difficulties with which their designs beset us in winter. I humbly ask their pardon. During the recent cold snap my unheated shed has housed a baby two-stroke and a four-cylinder sidecar, both of which run on an appallingly heavy mixture of Taxibus and benzole. Believe me if you can, but both engines invariably start at the first attempt. The two-stroke bursts into raucous song if I give its back wheel a single finger-tweak, and the four-cylinder does not even require me to pull out the radiator button which shutters the air intake. By the way, the two-stroke has just finished 1,500 miles without being decarbonised, and is still pulling well; but then it hasn't got that "petroil" lubrication, about which I used to rave before I knew as much as I know now. Most two-strokes collect a black glutinous ooze in the neighbourhood of the carburetter, no matter what type of lubrication they affect.

Sidecars for Despatch Riders.

If the suggestion made in our leaderette of December 10th is taken up, and the Government begins to employ sidecars for military despatch riding, not the least advantage of the move will consist in the detachable wheels, which should surely form part of the specification of every such three-wheeler. I am not a little surprised that fixed wheels have been accepted for the sidecar machine gun batteries, though detachability is less likely to be useful on machines which would generally be under gunfire when punctures befell them. Yet even a gun-carrying sidecar should have detachable wheels; the history of war is not destitute of incidents when a wheel taken from a limber has been utilised to carry a gun out of action, and save it from capture; if wheels are sometimes changed under fire by horse artillery, why not with sidecar artillery? There will be no excuse for accepting fixed wheels on despatch sidecars. Time is always of value, punctures are the commonest causes of stoppage, and such punctures would seldom be sustained under fire.

The Cold of it!

It is a thousand pities that Mr. A. V. Roe is so busy constructing aeroplanes for dropping bombs on Germany's aeroplane factories, for he is the only engineer who has ever tackled the weather-proofing of motor bicycles in a genuinely sensible fashion. I had to take out my baby two-stroke at very short notice not long ago, and as it was just an ordinary rather-cold-and-very-sloppy winter day, I did not pause to don the usual South Pole equipment of finnesko, bearskin, etc., but rashly took the road clad in huge farmer's brogue shoes, thick gabardine leggings, Harris tweed coat with double leather lining, lined stormcap, and German indiarubber gloves. When I got home two hours later, my exterior surfaces would have fetched high rents as small holdings; I was wet through from the waist to the feet: and even my upper storey had begun to freeze by conduction. I know I ought to have had footboards and a mudshield; but the makers do not provide them gratis, and one cannot be perpetually changing them from one machine to another. Who will be the first to bring out the roughrider's canoe-cum-coffin-bodied motor bicycle? I sat in front of a roaring fire at the club for half an hour, and my teeth had hardly stopped chattering then, though it was not freezing, and the mud and water on my person were mostly collected off the road—I had only run through a couple of light showers. During the last three weeks I have hardly met a single motor cyclist on country roads, exclusive of the khaki despatch riders, who are training hard for the snow and slush of Flanders.

Driving a Dud.

I very seldom handle a machine which I know to be second-rate, but the other week, in a temporary emergency, I borrowed a machine of recent date made by a firm whose reputation has always withheld me from joining their *clientèle*. It was a most interesting experience. The machine is reliable enough, for I know its history; and it has plenty of power, for it climbed hills quite masterfully. Its weakness was concentrated in the engine, for it was totally devoid of balance. It started easily and pulled well; it even proved much more docile and manageable at traffic speeds than most of its more famous rivals, for it required no driving, and was perfectly agreeable to jog along at ten or fifteen miles an hour, without any carburetter humouring. But when I got it out on the open road, and tried to open up to a modest average of thirty miles an hour, it sought out every joint in my body, and attempted to disintegrate them all. Ugh!

Stuck Piston Rings. A Two-stroke Tip.

The commonest cause of lost power with a two-stroke engine is a stuck piston ring; indeed, it is almost the only engine failing, outside carbonisation, which is conceivable. It is further obvious that the ring can only stick during the cooling process, when the hot engine is put away for the night, and the film of semi-carbonised oil glues it into its groove. It is even likely that the sticking oftenest occurs when the piston is left low down on its stroke, where the cylinder bore is least worn. The trouble may, therefore, be reduced or avoided by injecting a squirt of paraffin when the machine is put away, which will go far to prevent the congealing of the oil; and by leaving the machine with its piston up rather than down. Unfortunately some of the small two-stroke engines have no provision for injections. (It is easy to make a punch mark on the flywheel to indicate whether the piston is up or down.)

Demolitions Fired by Magneto.

By HUGH B. C. POLLARD, Lieut. 25th C. of L.

SOME time ago it occurred to me that the magneto of the average motor cycle was capable of being used to detonate an electric fuse, provided that the low-tension current, not the high-tension circuit, was used.

Some makes of magnetos are provided with a terminal projecting from the contact breaker cam ring. This is usually known as the switch terminal, and is often connected to a handle-bar switch or through a condenser coil to illuminate a tail lamp. In the case of the switch it is an "open circuit," the return current passing through the frame, so that closing the circuit by pressing the switch cuts out the primary current or "low tension" of the magneto so that no secondary or "high tension" current is induced and no spark passes across the points of the plug.

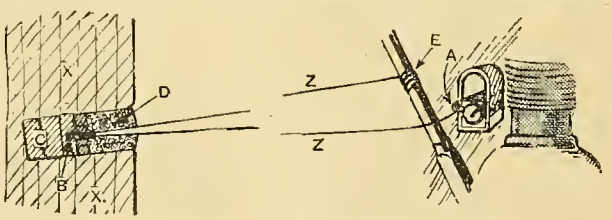
In the modern magneto the low-tension current generated when the engine is moving at a fair rate is considerably in excess of the actual current needed to induce a good spark from the secondary winding. This excess of current is, however, necessary for easy starting when the engine is moving at a very low speed.

Various Methods of Exploding the Charge.

In the usual demolition a detonator is inserted in a primer, the primer in the explosive charge, and the detonator itself exploded by means of a powder fuse. This is the usual military method. Modern civilian practice in the mining and quarrying industries throughout the world have long since adopted the electric fuse and detonator in place of the old powder fuse method. The electric fuse-detonator consists of a water-tight copper capsule, into which pass two insulated wires joined at their head by a twin bridge of platinum wire. The whole of this is embedded in the detonator explosive—fulminate of mercury. When a current is passed along the wire leads the resistance of the platinum wire is such that it grows red hot and fires the detonator. This explodes the primer and the primer explodes the whole charge of explosive.

I have since carried out experiments to prove that the ordinary low tension current of a motor cycle can be used to explode one or more electric fuses simultaneously, its limit of efficiency being determined by the joint resistance of the fuses and that of the length of cable connecting the charge and the magneto.

The method is simplicity itself, an electric fuse is embedded in a charge, and the whole well tamped in position; the ends of the detonator leads (fuses are usually supplied with 48in. leads) are left hanging outside the tamp hole. These are cleaned and connected to a twin-flex cable, the other end of which is attached, one wire to the low tension terminal and the other to the frame of the motor cycle. The cycle is on its stand, and the mere action of starting up the engine suffices to send a current along the cable and explode the charge.



A. Low tension terminal. B. Fuse detonator. C. Charge.
D. Tamping XX. Brickwork to be destroyed. ZZ. Cable (say 120 yds.)
E. End of cable fastened to frame.

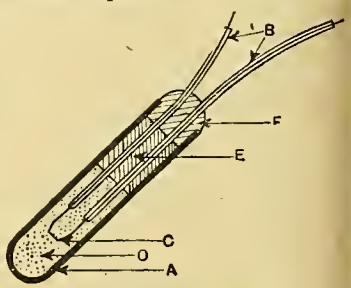
NOTE.—No switch is shown or needed, the completion of contact by touching one cable end to frame or terminal is sufficient to act as switch.

Assuming the current at our disposal to be 8 volts. The resistance of the fuse to be 3 ohms and the resistance of suitable cable to be 5 ohms per 100 yards, we can estimate that a charge can be fired from a point at least 150 yards away.

Advantages of the Electric Fuse.

This enables a motor cyclist to be left in charge of a mined position such as a bridge, and provided that he is safely hidden under cover and his cable concealed, he can wait till the enemy are actually upon the bridge before firing the charge. For firing several charges simultaneously electric fuses are vastly preferable to the precarious business of lengths of ordinary fuse spliced to lengths of instantaneous fuse in a "junction box," and here the motor magneto is decidedly useful.

The service explosive is slabs of gun cotton into which are inserted small disc primers of the same material; these have a small hole bored in the centre to accommodate the pencil-like detonator, and the electric fuses fit these holes without further adaptation. For the purpose of hasty demolitions full instructions and formulæ with regard to the proportion of explosive to material to be shifted are given in the various service text books. It is, however, a simple matter to train men to use the electric fuse, and there is no doubt that it is a far safer method than the usual powder fuse and detonator system. Electric fuses can be got from any explosive factory or acquired locally wherever mining or quarrying is in progress. The cable can be speedily laid along a road from a hand reel carried on the machine, and the same cable can be used time after time. The experiments so far carried out reveal the usefulness of the system, and it must be said that it would add largely to the possible military value of the military motor cyclist if he were instructed in the execution of hasty demolitions by means of the electric fuse fired from his machine's magneto.



Electric detonator fuse.
A. Copper tube closed at one end.
BB. Insulated leads.
C. Platinum wire bridge.
D. Fulminate of mercury (explosive).
E. Plaster of Paris plug.
F. Waterproof wax plug.

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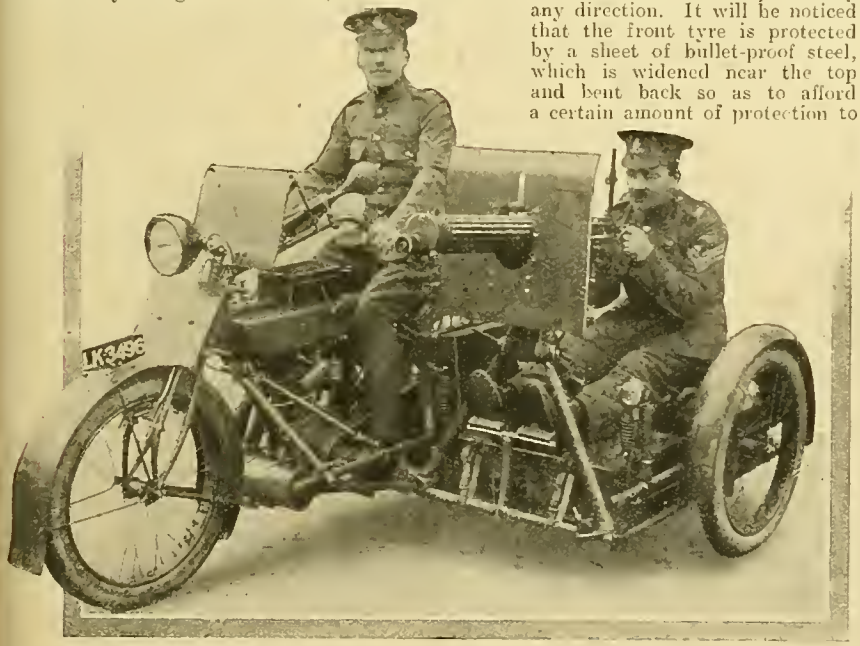
MOTOR MACHINE GUNS FOR THE FRONT.

We have received quite an interesting letter from Sergeant-Artificer Longfield, who by the time this appears in print will be in France with the No. 1 Battery of the Motor Machine Gun Section. This is the first of the new batteries, in which all motor cyclists will take an unusual interest, to be despatched to the Front, and doubtless by now it will already have given a good account of itself. The battery consists of eighteen Scott machines. Of these, six carry the latest type Vickers automatic gun, six are spare gun carriages, and six carry ammunition. Longfield is the mechanical expert in charge of the fleet, while Frank Philipp is stationed at Bisley as chief instructor and demonstrator of the Scott machines. We shall await with interest accounts of the performances made by this new branch of the service—we can wait with confidence; meanwhile, the best of good luck to the crews of the eighteen Scott machines and those in command!

Frank Philipp (centre) and four sergeants of the No. 1 Battery Motor Machine Gun Section. Reading from left to right: Swarbick, Longfield, Philipp, Boxall, and Macvie.

A MATCHLESS SIDECAR QUICK-FIRER.

THE amount of ingenuity displayed in designing the quick-firer machine gun sidecar combination is quite wonderful. The latest addition to the already imposing fleet of these mobile instruments of war is that turned out by Messrs. H. Collier and Sons, 44, Plumstead Road, Woolwich, S.W. The Matchless combination has a specially-built sidecar frame of great strength, and on it the gun is mounted on its own tripod, a most important matter, as it enables it to be quickly detached and carried anywhere with the greatest ease and celerity. Ingenious "turns," which can be released by undoing one screw on each, hold the feet of the tripod to the frame. The ammunition boxes are carried in a case on which the gunner's saddle and footrests are situated; the case is suspended on four spiral springs hanging from special columns brazed on to the frame. An ingenious clamp, visible on the rear of the vehicle, holds all the ammunition boxes together, so that they cannot possibly jump out or rattle. The gun is mounted high, and can be easily worked from the sidecar in practically any direction. It will be noticed that the front tyre is protected by a sheet of bullet-proof steel, which is widened near the top and bent back so as to afford a certain amount of protection to the tank, while a further shield is attached to the handle-bars, which affords a small degree of protection for the driver. The third member of the gun's crew is seated on a comfortable luggage carrier seat provided with a back, to be seen in one of the photographs we reproduce. The outfit is attached to a standard Matchless de Luxe sidecar machine equipped with the Lucas electric lighting outfit, and looks thoroughly businesslike.



The new Matchless machine gun sidecar propelled by a 7 h.p. engine through a three-speed gear box. Observe the bullet-proof steel guard, also the shield attached to the handle-bars, besides the usual protection around the gun.

THE VICKERS LIGHT MACHINE GUN.

THE machine gun which is supplied to the Government sidecar machines has frequently been described as a Maxim. This is an error, the gun is the Vickers light gun .303in. bore, and it differs from the .303in. Maxim in many respects. It is both lighter—weighing but 38½ lb. ready for firing against 65 lb. of the Maxim—and smaller in all its dimensions. The barrel casing is corrugated longitudinally, giving greater strength and cooling surface. The chamber is surrounded by water, which is not the case in the small Maxim. There is no ejector spring but an opening at the bottom of the breach through which the empty cases fall to the ground. The back sight is of the V pattern, and the fore sight a protected blade. Besides these points, which are easily seen, there are many detail differences. Some of the advantages are as follow: Lightness, simplicity, great strength, no tools required to strip lock or change barrel, better means of safety, *e.g.*, the gun cannot be fired unless the cover is down, faults more easily rectified, and the reverse action of crank shortens the breach casing. Thus it will be seen that the Vickers gun is more suitable than the Maxim for motor-cycle work.

1915 MODELS.

Descriptions and Illustrations of New Model Motor Cycles.

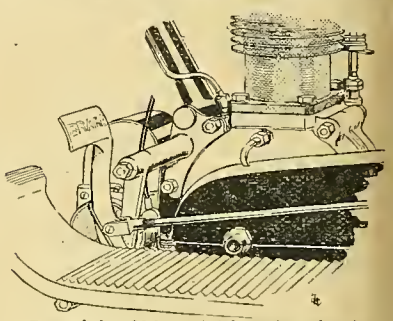
ARIEL REFINEMENTS.

NEITHER the twin nor the single-cylinder Ariel has been materially altered for 1915, but they have both undergone certain slight changes which are in the nature of refinements.

One is immediately struck by the sensible aluminium footplates with a curved toe piece and ribs, so arranged as to be easily cleaned. These plates will in future take the place of the covered boards previously fitted. A closer inspection shows that the spring forks are somewhat wider and stronger, and the front guard is increased in width to suit. The back hub also is wider, and the wheel more powerfully constructed so that the machine is suited for hard work over any surface, however bad.

The chain from the engine to the gear box is totally enclosed, and a pipe leads from the side of the crank chamber in such a manner as to blow oily vapour direct on to the chain and so keep it thoroughly lubricated while running. Inverted exhaust lifter and front brake levers take the place of the external type, and one of the most important requirements is the addition of a handle-bar control to the clutch. A lever is placed in front of the exhaust lifter, and is connected by Bowden mechanism to the foot control, so that two independent methods of withdrawing the clutch are provided.

An important feature of the Ariel motor cycles is that neither the twin nor the single is too heavy for solo work, though the fact that both types are fully capable of heavy sidecar work has been demonstrated often enough, and most of our readers will remember that the famous Bwlch-y-Groes was ascended with a hot engine by a standard 3½ h.p. and sidecar with a passenger of over eleven stone. That this performance was not only genuine but even accomplished with

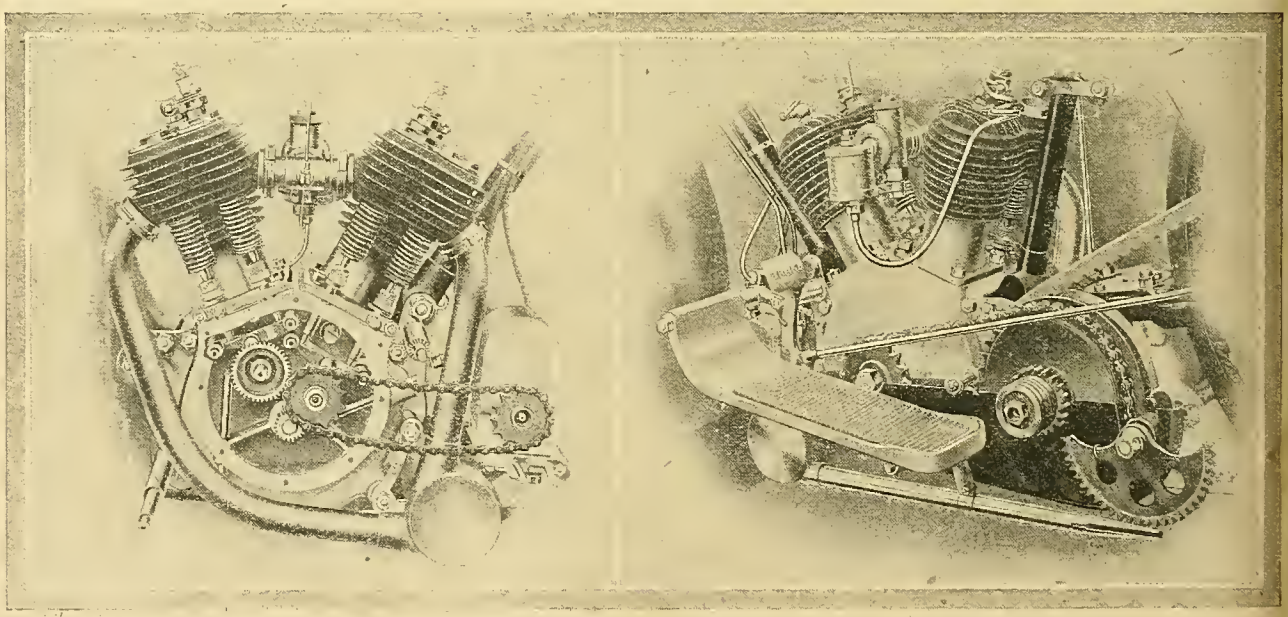


Part of the 3½ h.p. Ariel engine, showing arrangement of chain lubrication, brake pedal, and new footboard.

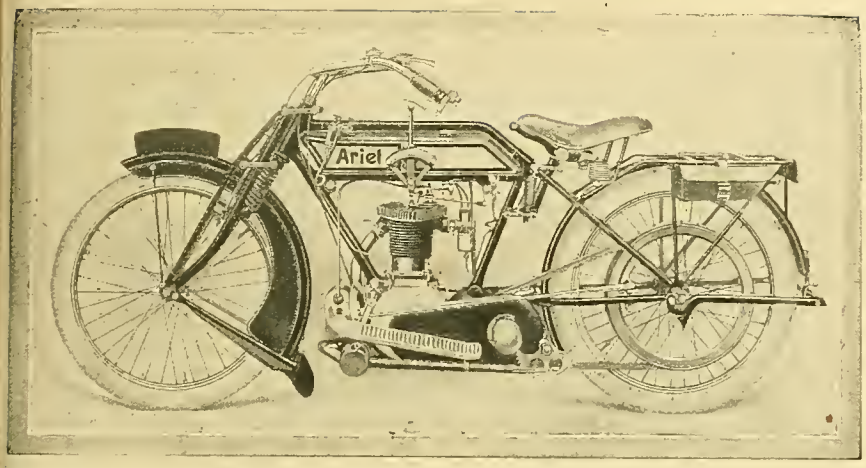
EDITORIAL NOTE.

THE majority of 1915 model motor cycles have now been described and illustrated in these columns, and as a guide to readers we give below the dates upon which the different descriptions were published:

Sept.	3rd.	Henderson and Levis Popular.
,,	24th.	Lady's model Clyno and 2¾ h.p. two-stroke Singer.
Oct.	1st and also 29th.	Three-speed shaft-driven Rex.
,,	8th.	Radco and Abingdon.
,,	15th.	Ivy, Vindec, and 4 h.p. Brown.
,,	22nd.	J.A.P. engines, Calthorpe, Lucas dynamo.
,,	29th.	Quadrant, Harley-Davidson, Matchless Racer, Lea-Francis, J.H., and two-stroke Ariel.
Nov.	5th.	Sparkbrook, Lady's Metro, 2¼ h.p. and 6 h.p. Enfields, Omega, and 4 h.p. A.J.S.
,,	12th.	6 h.p. Humber, Sun Vitesse, and Levis.
,,	19th.	Diamond, B.S.A., 6 h.p. twin P. and M., Indian, Royal Ruby, Velocette, 6-7 h.p. Sunbeam, James, Rover, twin-cylinder two-stroke Premier, and New Hudson.
,,	26th.	Rudge, O.K. Junior, Wooler, New Imperial, J.H., Lady's Radco, Wulfruna, Bradbury, and Hazlewood.
Dec.	3rd.	Norton, Grandex, Connaught, Brown, Clyde, Brough, and Lady's Ivy.
,,	10th.	Allon two-stroke, Wulfruna, Premier two-stroke, O.K. two-stroke, A.J.S., and Velocette.
,,	17th.	4 h.p. and two-stroke Triumph, Radco, and Paragon two-strokes, Rex-Jap, Symplex, Bat, Connaught, Quadrant two-stroke, Twin Excelsior, Hobart two-stroke, and Hockley two-stroke.
,,	24th.	Burman 2½ h.p. engine, New Comet, 2½ h.p. Dot, Twin Connaught two-stroke, Premier and Zenith machine gun sidecar outfits.



The power plant of the 1915 twin-cylinder Ariel. The left-hand illustration shows the valve timing gear exposed.



Transmission side of the latest 3½ h.p. three-speed Ariel.

considerable ease the writer can personally guarantee, having been the passenger in question, the driver on the same occasion being F. C. North, who is at present at the Front serving as a despatch rider.

THE HARLEY-DAVIDSON BIG TWIN.

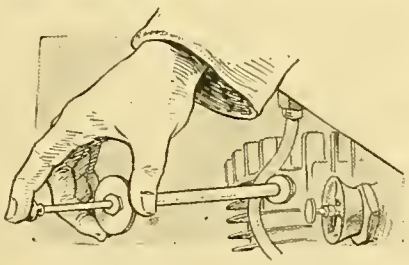
IN our issue of October 29th we published a short description of the 1915 Harley - Davidson models. On a recent occasion we had an opportunity of going carefully over one of these machines with the London agent, Mr. Robertson-Brown, of Messrs. Robertson's Motor Agency, 157b, Great Portland Street, London, W. In doing so we were able to appreciate to the full the excellence of the finish and the number of ingenious fitments with which the Harley-Davidson is provided. It is incumbent on us to mention that the 6 h.p. single-cylinder model illustrated in the issue previously referred to is not being sold in this country. In our former reference we described the twin engine in detail, so in the present article we need only deal with those small and interesting fitments which will appeal to the motor cycle connoisseur.

The carburetter is fixed on a flange on the inlet pipe by means of three big, fine threaded screws, and so can be dismounted without disturbing the inlet pipe unions. The mechanical oil pump, which we illustrated in our previous reference to the machine, is provided with a glass window through which the flow of oil can be clearly seen—a point which is of considerable importance.

It is interesting to note that the saddle position is two inches lower than it was last year, and yet the floating seat-pillar has more movement. The distance from the saddle to the ground is 29½in., and 3½in. tyres are fitted.

The kick starter is of the double type; in other words, it resembles a pair of ordinary pedals, though it is used solely for the purpose of starting the engine up, and causing it to revolve in order to test the ignition. It works through the gear box, and the whole of the mechanism is entirely enclosed.

A most noteworthy feature is the well-designed gate, provided with three notches for the three speeds and the neutral position, and the interesting interlocking device on the top of the gear box, the striking lever being supplied with a cam which engages in the notched



The Harley-Davidson combined filler cap and priming squirt. Observe the peculiar form of the compression tap, and the air intake of the carburetter with shut off valve to facilitate starting.

quadrant on the clutch lever, the object of which is to lock the change speed lever when the clutch is in, so that the gear cannot possibly be engaged and thus damaged. The change speed lever is coupled to the striking mechanism by means of a rod with a universal ball joint at each end, so that any strain on the striking mechanism is impossible.

Another excellent feature is the provision of big grease cups on the fork bearings, while a socket of great strength is fitted to take a fork bracket suitable for any make of lamp on the British market.

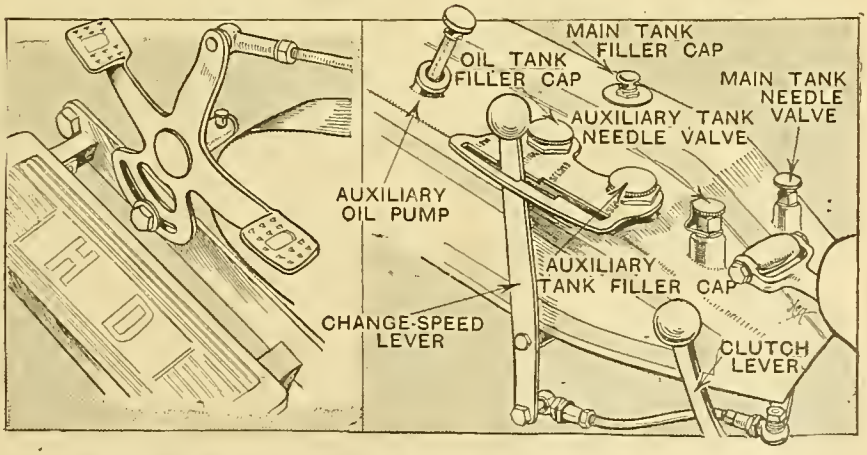
The clutch is provided with dual control, and the friction quadrant forms a part of the pedal, thus leaving the lever free of all encumbrances, or enabling it to be done away with altogether if the rider should desire it. Provision for adjusting the clutch is made through a hole in the front chain cover, through which the screws varying the tension of the clutch springs can be reached.

Larger size chains are fitted for 1915, which are lubricated by the oil release from the crank case. The lubricator for oiling the kick starter spindle is also worthy of mention, as it consists of a long pipe with a cap standing well above the bottom bracket, and so placed that it can be easily reached with an oilcan.

Ingenious Features

The emergency oil pump is provided with a catch which is released by turning round the milled nut on the top of the pump spindle. A long priming squirt is incorporated in the filler cap to the main tank, and the compression taps are of the screw valve type, and designed absolutely to fit the end of the petrol squirt. The tyre pump has no flexible connection but a rubber joint at the end, which can be pushed straight on to the tyre valve. The pump can then be worked with one hand, it being quite unnecessary to hold it steady. Two tanks are provided, the main tank and an auxiliary tank, each of which has a separate needle valve, the milled nut at the top of which is held up by a spring to prevent it vibrating either closed or open. The filler caps, both to the oil and petrol tanks, are of the anti-splash type.

The silencer is large, and there are no bends in the pipe which might cause back pressure. The control wires are of single strand, large size piano wire running in a casing, which in certain places is leather covered. Another excellent piece of design is the internal expanding double-acting brake.

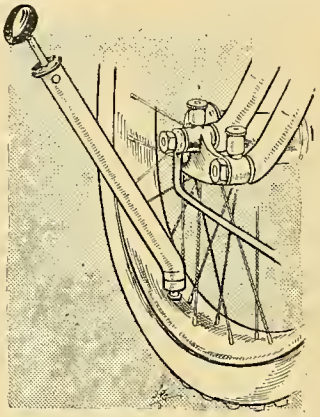


(Left) Friction quadrant for the clutch pedal and lever. (Right) Tank fittings on the 1915 model Harley-Davidson.

A SIDECAR WINDSCREEN.

A MOST practical windscreen for sidecars is being marketed by the Walbro Cycle and Motor Co., Lynn Road, Ely. It is made of celluloid, being finished off with leather beading; the frame is of flat steel. The screen is neat and light, and has been tried over a period of four months, the results obtained being very satisfactory. The Walbro windscreen, as it will be known, is being sold at £1 1s. each for fitting any coachbuilt sidecar. The illustrations show what a particularly attractive and effective article the new Walbro screen is, and how useful it is likely to prove in inclement weather.

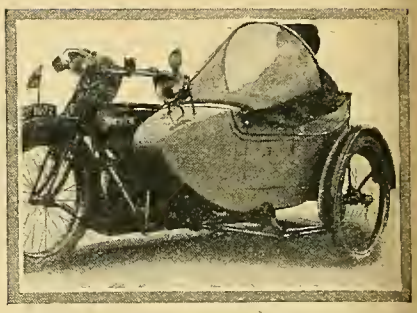
The Walbro screen is of light yet strong construction, and it in no way hinders entrance and exit to the sidecar.



The Harley-Davidson tyre pump. Note the grease cups on the fork bearing. (See previous page.)

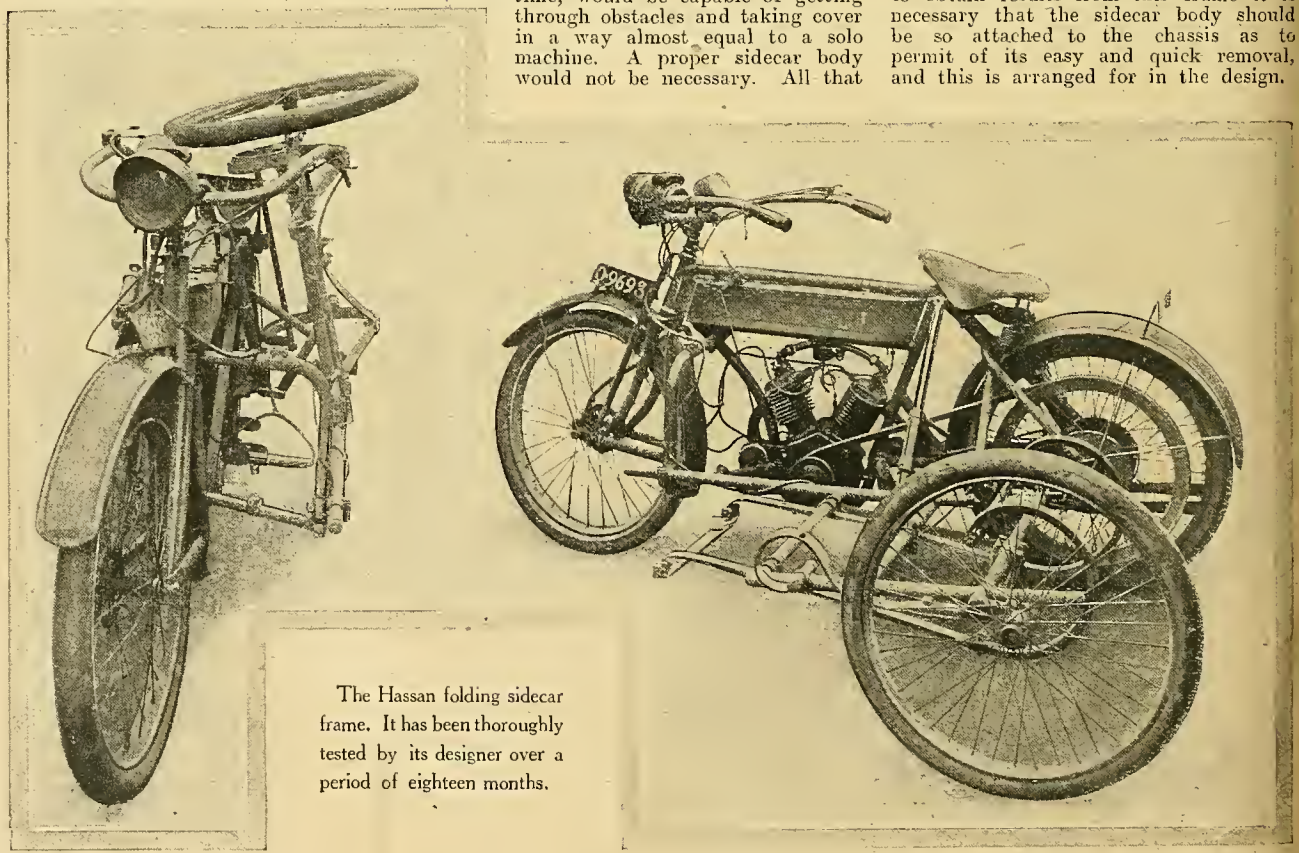
A FOLDING SIDECAR FRAME.

OUR recent leading article on the use of sidecars by military despatch riders induced Mr. F. G. Hassan, 44, Digbeth, Birmingham, to call our attention to his folding sidecar frame. It would get over skidding difficulties, and, at the same time, would be capable of getting through obstacles and taking cover in a way almost equal to a solo machine. A proper sidecar body would not be necessary. All that would be required would be a box in which spare petrol, oil, and tools could be carried; such an arrangement would give adhesion, and the box could easily be removed when required.



The new Walbro windscreen which has been "provisionally protected." It is made entirely of celluloid.

Sidecar users, too, who are very cramped for garage space will be interested in this sidecar frame. The chassis frame is made with a long longitudinal tube or bar capable of turning freely in forward and rear bearings attached to and projecting from the cycle frame, the rear bearings being carried by a horizontal and inclined stay. A folding inclined tube, on which there is a sliding sleeve incorporating a locking device, runs from the saddle tube to the centre cross member of the sidecar frame. The operation can be performed in a few seconds single-handed. Of course, to obtain results from this frame it is necessary that the sidecar body should be so attached to the chassis as to permit of its easy and quick removal, and this is arranged for in the design.



The Hassan folding sidecar frame. It has been thoroughly tested by its designer over a period of eighteen months.

"I Resolve

To specify Dunlops for my 1915 mount,

or

To replace my present tyres by Dunlops as soon as worn out."

These two alternative resolutions mark the first step in a successful motor-cycling season, since the user of Dunlop tyres enjoys greater immunity from side-slip, and less risk of puncture.

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AN EXCELLENT LEAD.

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REMEMBER: Every Dunlop tyre bought helps to support the workpeople and tax-payers of your own country, and every foreign tyre bought—European or American—is a blow aimed at the industries of your own country.

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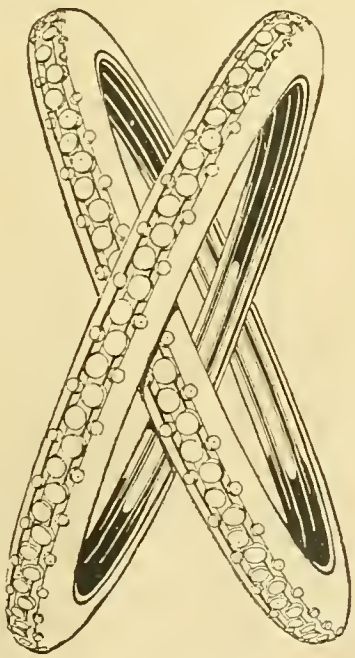

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Do not just hope for a puncture-free season,

Get a pair of

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GOLD MEDAL TYRES

and secure it!

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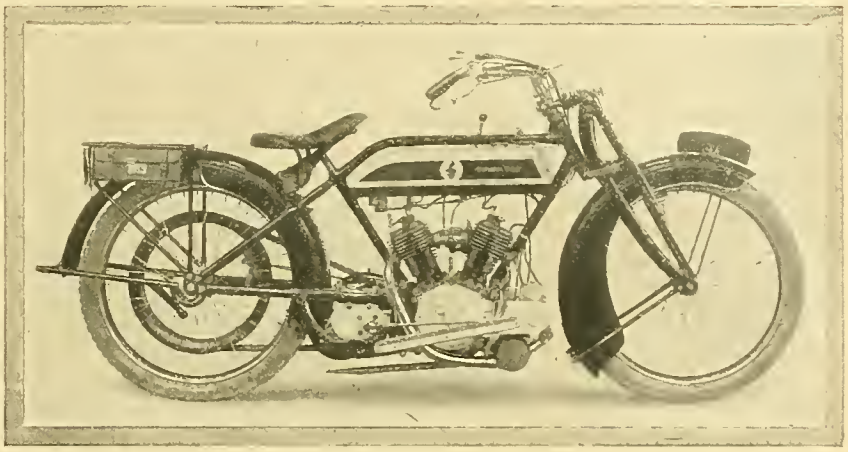
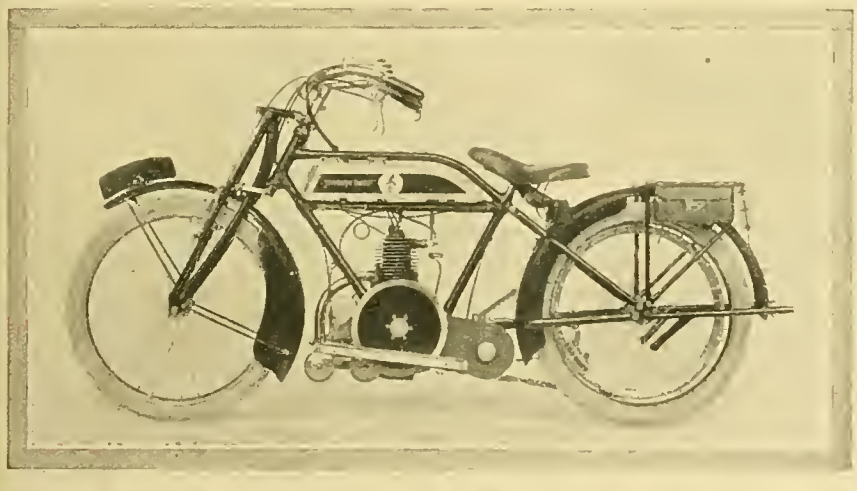
The Latest Coventry Eagle Machines.

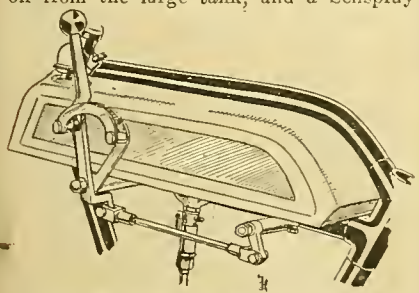
THE 5-6 h.p. twin-cylinder Coventry Eagle is a departure from former models built by the Coventry Eagle Cycle and Motor Company. It is a striking looking machine primarily designed for passenger work. At the same time the machine is not clumsy, and can be handled solo with ease and comfort. The engine is the twin Abingdon of 67 mm. × 95 mm. bore and stroke, and is carried in a powerful frame. Behind the engine lies a stoutly constructed three-speed countershaft gear, which is chain driven from the main shaft; both the chain and the kick starter are enclosed in a neat case. The final belt drive is admirably carried out, the front pulley being large and the rear pulley being comparatively small; thus, the belt is well above mud and water. The equipment is of the best, and includes Brampton forks, a large pan saddle, good footboards, and mudguards with deep valances. Both front and rear stand are fully strong enough for their work, and the carrier is fitted with metal covered tool bags. A Benton and Stone sight feed drip lubricator supplies oil from the large tank, and a Senspray or Amac carburetter may be obtained to order. We may safely say that the 5-6 h.p. Coventry Eagle is a most attractive proposition, and with its gear ratios of 4¼, 7¼, and 13½ to 1 and a well designed clutch, it is capable of hard passenger work and also of a good turn of speed.



The 5-6 h.p. twin-cylinder Coventry Eagle.



The Coventry Eagle two-stroke. Drive is by chain to a two-speed gear and thence by belt.

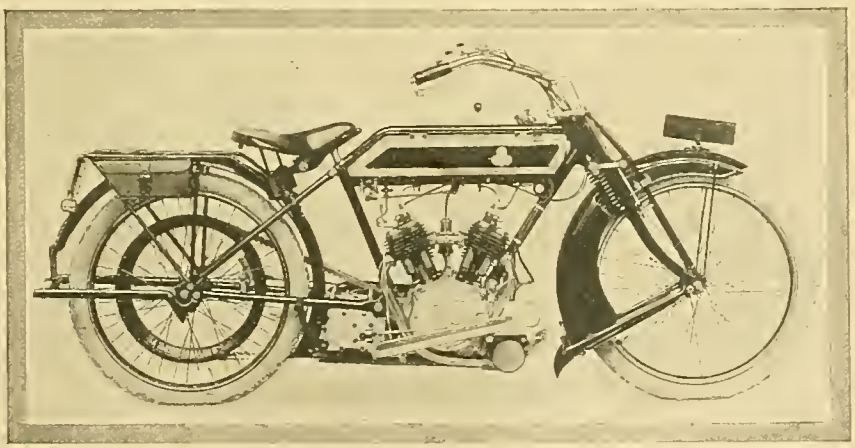


The simple gear quadrant of the Coventry Eagle. A sensible sump and petrol filler are fitted to the tank.

A Two-stroke Model.

In addition to this, a neat little two-stroke has been added to the list. The latest type of Villiers engine supplies the power to a Jardine two-speed gear box, the driving chain being neatly enclosed. The fittings, though on a lighter scale, correspond to those of the larger model. That is to say, that good mudguards, pannier tool bags, a pan saddle, comfortable footboards, and Brampton forks are all included, while a sight feed drip oil lubricator supplies oil to a point in the inlet pipe just short of the cylinder. The two-stroke may be obtained either single-geared or with a two-speed, and in the latter case the gear is controlled by a handle-bar lever.

The 3½ h.p. single has, of course, not been dropped, and forms a sound touring proposition for those who prefer the single-cylinder engine.

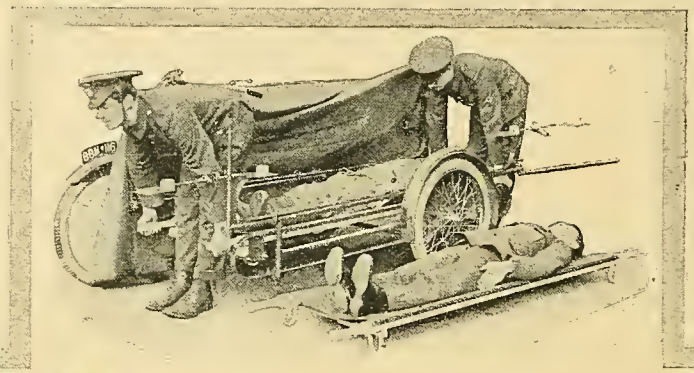


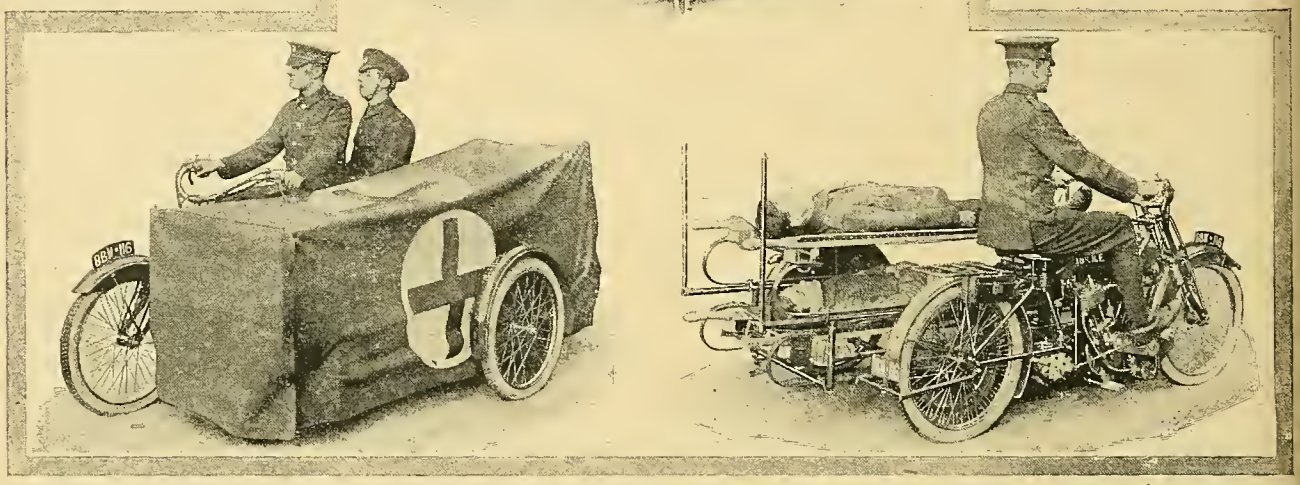
The 1915 model 5-6 h.p. Swift. (The specification of this machine was included in our Buyers' Guide of November 19th.) Its engine has a bore and stroke of 67 x 95 mm., capacity 670 c.c. A three-speed countershaft gear box is fitted and chain and belt transmission.

A Two-stretcher Sidecar Ambulance.

A NORTH-COUNTRY correspondent sends us photographs and particulars of a two-stretcher sidecar ambulance that has been adopted by the British Red Cross Society. This is, we believe, the first ambulance of its type built to convey two wounded men, and that it has been adopted by the Red Cross Society would seem to indicate that numbers will soon be in service on the Continent. The particular machine illustrated has been built at the South Benwell works of the Newcastle-upon-Tyne Motor Co., Ltd., a twin-cylinder 8 h.p. N.U.T. bicycle being utilised. This is fitted with a three-speed countershaft gear, and the tyres are 650 mm. × 75 mm. The ambulance portion, for which patents have been applied, is constructed of tubular framework, and so arranged that comfortable accommodation is found for two recumbent figures upon standard regulation army stretchers. The latter are supported on long springs, which run from end to end. For use in bad weather the stretchers can be all enclosed by a canvas cover.

There would appear to be decided possibilities in an ambulance of this type, and it is evident that it has certain advantages over the car type. For instance, its mobility is such that it can turn in a much shorter circle than a car can, but its great advantage is in its light weight. This applies to winter roads and boggy fields, where a sidecar ambulance would be able to go where a car could not





A two-stretcher sidecar ambulance that has been approved by the British Red Cross Society. The bicycle is an 8 h.p. N.U.T.

Clergymen as Drivers.

SIR FREDERICK TREVES in his report, submitted last week to the Executive Committee of the British Red Cross Society, makes the following statement: "A despatch rider on a motor cycle was pointed out to me. He was working with distinction at the Front, and had just come some sixty miles with a despatch. He was merely a bundle of rags, splashed with mud, and I was surprised to hear that he was a much-respected Church of England curate."

The Rev. E. P. Greenhill, vicar of Walton-on-the-Hill and chairman of the A.C.U. Competitions Committee, is shortly going to the Front as a motor ambulance driver.

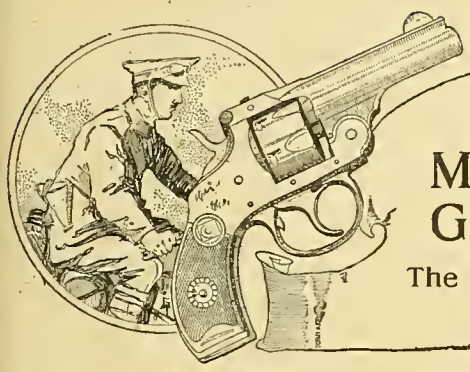
There are so many competition riders at the Front that it is not altogether surprising that many of them in writing home compare the roads met with to the courses of the big trials of the pre-war period. V. Underhill, a gold medal winner in the last A.C.U. Six Days Trial, suggests that the next "Six Days" should be held over what is at present the battle area, "as the roads are in a terrible state owing to our heavy transports, and that Mr. Loughborough works out the schedule at about six miles per hour. Under these conditions about 5% would gets golds."

W. Rope and Lance-Corporal Underhill, who are attached to No. 5 Motor Ambulance Convoy. The former was previously the competition manager of the Dunlop Rubber Co., and the latter was a gold medal winner in the last A.C.U. "Six Days."

A Prolonged and Trying Reliability Trial.

"We are having a prolonged reliability trial, and the way the motor transport, from the 2¾ h.p. bicycles to the 60 h.p. travelling workshops, is behaving on these vile roads is marvellous. . . . It will be necessary for the A.C.U. to find some new courses for its trials when the war is over, as anything which it has had up to the present is child's play. It is really extraordinary how the motor cyclists manage to ride at all; they are meeting with great praise on every hand."—Extracts from a letter received from Ernest Bass, formerly hon. secretary of the Essex Motor Club, and now driving a Wolseley motor ambulance attached to the 24th Field Ambulance, 8th Division.

We learn that F. A. McNab has received a commission in the Royal Naval Reserve, Motor Boat Service, and began his duties last week.



The Future Motor Cycle Machine Gun Battery.

The Possibilities for Further Development.

By H. MORTIMER BATTEN.

WILL the armed motor cyclist supersede the cavalry? Never, for the very obvious reason that cavalry can pass easily and quickly over country where it is impossible to take a self-propelled vehicle on wheels—through forests, over hedges and ditches, across swampy or boulder-strewn land, all of which are common obstacles in the pathway of warfare. But that the armoured motor cycle, whatever form it may take, will in future assist and support the cavalry, and will become an important item in the equipment of warfare, cannot be doubted.

Imagine the great possibilities of a small, fast, and easily handled vehicle mounting a quick-firing gun for short range work! Such an instrument of war, which could be secreted at every bend of the road or undulation of the landscape to pour forth its deadly and unexpected discharge, then rapidly retreat to safety, would be of value not only in proportion with its death-dealing properties, but on account of the harassing and nerve-shattering effect it would have upon hostile troops.

The machine gun is not readily mounted on the back of a horse, yet its value to a scouting force, not only for inflicting punishment on the scouts of the foe, but for defensive purposes, is clear at a glance. The cavalry often find themselves in the midst of hostile country, where they are dependent on their wits and the speed of their mounts for the fulfilment of their duties. The support that a quick-firing gun might give them, a gun mounted on a machine as fleet as a horse, capable of negotiating rotten roads, and, withal, infinitely more deadly than a rifle, is real enough to command our attention. Hostile cavalry could not face such a weapon, and, being small and consequently easy to conceal, it would pour forth its annihilating discharge and be away ere the surprised forces had properly grasped its whereabouts.

Urgent Necessity for Trade Action.

All this is granted; the possibilities of the sidecar battery have been forced upon us in this war with startling suddenness. We know that such machines, capable of taking care of themselves against heavy odds, ready for use at a moment's notice and while in rapid motion, would prove invaluable for scouting work, in covering retreats, and for individual sorties upon the enemy. We know also that to carry this war to a quick and successful issue prompt action on the part of all of us is needed. There is no time to hesitate and ponder, and it is fatal to say to ourselves: "We see now what will be required should war occur again. We shall be prepared."

The trade has already responded ably and quickly to the demands of the day, but as yet we are hardly awake. The motor cycle of warfare is still in its infancy. This war is not yet over; Lord Kitchener gives its probable period as three years; and manufacturers must not imagine that it is now too late to make preparations for turning out a new type of machine primarily intended for present conditions in Europe. Every available man is needed, but just as urgent and grave is the call of loyalty to those in a position to help the Army in other ways—to defend their own interests, apart from all natural sense of loyalty. The writer's appeal, then, is to the trade. We realise to-day what is needed, and whether or not the demand is met rests with the manufacturers, not with the Government.

That spirit of leaving all in the hands of the Government, of merely obeying its directions with little or no individual enterprise, is so painfully prominent in other directions that we do well to guard against it. The Government has realised the possibilities of the motor cycle and sidecar gun battery in the present war, and has done much to encourage its manufacture, but the perfecting of this new machine rests with the Trade, its future is in their hands.

I have already inferred that the motor cycle battery is still in its infancy, but let it not be thought that I cast any reflection upon the machines of this type now under course of construction. Their very existence proves that certain members of the Trade are wide awake, and one thinks that they will continue to hold a foremost place in the market they were the first to foresee. Yet it cannot be pretended that their machines, in the first few weeks of existence, have attained that standard of perfection with which the Trade and the War Office will rest content. In all probability the motor cycle battery will, if it receives the attention it deserves, finally assume a form quite different from the sidecar outfits now on the field.

What has already been done was done in a hurry. We were not prepared for this war; we had given not a single thought to the demands that a European struggle would throw upon us. When the guns began to boom, and the demands of the day were forced upon our startled senses, we gave the best we could offer. Our machines, excellent though they were, were not designed for warfare and the freakish conditions which they were suddenly called to face. Had we foreseen the war, we should have produced something quite different. In the same way, when the demand for sidecar batteries arose we had no

The Future Motor Cycle Machine Gun Battery.—

thought but to adapt the guns to ordinary touring machines, a practice which lacked nothing in ingenuity, though it cannot be expected to last. Excellent though these machines are, useful and effective though they will doubtless prove themselves, no one is more keenly aware than their designers that there is yet much to be done.

The situation is so urgent that it calls for further effort on the part of the Trade. The conditions on the field of war are so different from those met in the ordinary course of touring, and the part the motor cycle is to play is one of such importance, that we must consider every little detail of its construction if our machines are to show up to the best advantages possible. The ordinary touring machine leaves little to be desired for despatch work, but the motor cycle battery has opened up quite a new field, hitherto undreamt of, the importance of which we are not likely to over-estimate.

A Silent Machine Necessary.

Such a machine must be light, fast, and quick to handle, capable of accelerating with all possible speed, and of turning in almost its own length; good ground clearance, sufficient mudguard clearance, and silent running are important factors in the making of its efficiency. The latter point, silence of running, is one of the utmost importance. It must be remembered that the sidecar battery will be used for scouting work as well as in the firing line. In the latter case the roar of the exhaust will be sweet music compared with the bellowing discharge of the batteries, but in the former case the effectiveness of the machine and the safety of its riders may depend upon a silent approach. Therefore, if silence must mean loss of power, a cut-out of substantial design should be fitted, the closing of which entirely muffles the exhaust, even at the loss of power.

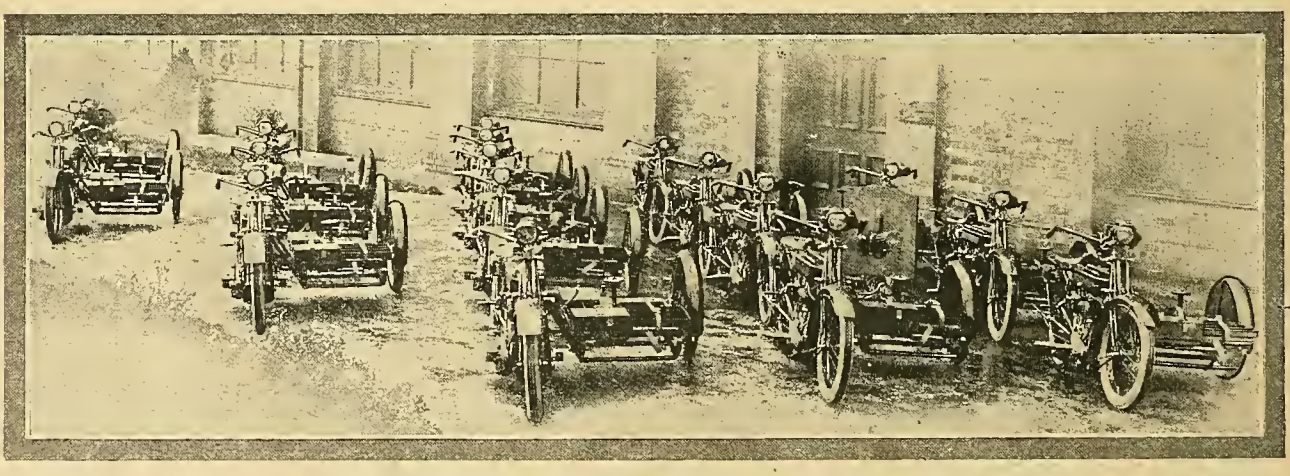
Again, it must be borne in mind that far more valuable than the machine itself are the lives of the men who handle it. Without them it is useless. These men may be exposed to very heavy fire at short range, and not only the gunner but the driver requires protection as he occupies his seat. It is said that a wound in the back is dishonourable, but this will not apply in the case of the motor cycle battery men. They will be there to fight and run away when occasion demands —to sprint into the corners of hell and out again. What would be the fate of the heroic gunner who stayed too long at his place to assure the safety of his comrades, and who, on retreating, was compelled to expose his body to the fire of the foe, cannot be doubted. He would be shot in the back "as safe as houses," and another useful instrument of war would be out of action.

Much of the effectiveness of the sidecar gun battery, then, depends upon its proper armament, and in this direction we are novices. Sheet steel will deflect a bullet that it will not stop, and if these machines are to fulfil all they are capable of fulfilling, they must be proof against rifle bullets. It is necessary that two men go with each machine to haul it in and out of cover, to assure quick handling of the gun, and to keep each other company.

Possibilities of the Tricar.

Personally, I am inclined to think that the old forecar arrangement might profitably be revived for the mounting of a light machine gun. It is low on the road, presents a small mark, and it could be armoured in such a way that the same shields would protect both rider and gunner, thus cutting down weight and wind resistance.

Though it is our main object to encourage a new type of machine specially designed and constructed for mounting a battery, we do not wish to discourage the practice of adapting touring machines for this special work, as such a system has two great points in its favour—cheapness and quickness of production. A trimo attachment for mounting a light machine gun might be made for adaptation to existing heavy-weight models, and such an attachment could be poured on to the market at much shorter notice than the properly equipped machine which it is our main object to encourage. When once the skilled pencil of the designer had overcome the initial difficulties, there would be no scarcity of riders and no scarcity of powerful mounts to meet the new demand. We want them by the hundred, and we want them at once.



SIDECARS FOR THE MACHINE GUN BATTERIES.

The first batch of Royal Enfield sidecar combinations for the new motor machine gun batteries. These machines have been allotted to the 5th Battery, the members of which are mainly Coventry motor cyclists.

MOTOR CYCLE RECORDS IN 1914.

The year 1914 has not been altogether unprolific of motor cycle records, there being considerable activity in the first six months, but naturally a slackening off in record attempts occurred after war began. From the list given below, which is compiled by the A.C.U. senior timekeeper, Mr. A. V. Ebblewhite, it will be noticed that several records were broken in the early part of the year. From April to July nothing very much was attempted, but on Saturday, July 25th, quite a number of records was broken at the B.M.C.R.C. meeting, some indeed which have not hitherto been published. Thereafter, though not at a standstill, Brooklands records have been fairly flat, only one or two racing motor cyclists having attempted record. The epidemic of record breaking, which is usually prevalent just before the Show, was naturally absent as no Show was held.

CLASS A.—For Motor Bicycles of which the Cylinder Capacity does not exceed 250 c.c.

Distance or Duration.	Date.	Rider.	Cyls.	Machine.	Bore and Stroke.	c.c.	Record.	Speed, M.P.H.
Flying km.	27/3/1914	H. Martin	1	Martin-Jap	76 × 54.5	247	44.6s.	50.16
Flying mile	27/3/1914	H. Martin	1	Martin-Jap	76 × 54.5	247	1m. 11.4s.	50.42
Flying 5 miles	27/3/1914	H. Martin	1	Martin-Jap	76 × 54.5	247	6m. 16.4s.	47.82
Standing 10 miles	27/3/1914	H. Martin	1	Martin-Jap	76 × 54.5	247	12m. 51.4s.	46.66
Flying km.	17/4/1914	W. A. Jacobs	1	Singer	65 × 75	249	38.8s.	57.65
Flying mile	17/4/1914	W. A. Jacobs	1	Singer	65 × 75	249	1m. 1.4s.	58.63
Flying 5 miles	17/4/1914	W. A. Jacobs	1	Singer	65 × 75	249	6m. 0.2s.	50.00
Standing 10 miles	17/4/1914	W. A. Jacobs	1	Singer	65 × 75	249	12m. 25.6s.	48.28
Flying 5 miles	25/7/1914	W. A. Jacobs	1	Singer	65 × 75	249	5m. 44.2s.	52.29
Standing 10 miles	25/7/1914	W. A. Jacobs	1	Singer	65 × 75	249	11m. 42s.	51.28

CLASS A[1].—For Motor Bicycles of which the Cylinder Capacity does not exceed 275 c.c.

Standing 10 miles	25/7/1914	W. A. Jacobs	1	Singer	65 × 75	249	11m. 42s.	51.28
Standing 100 miles	28/2/1914	Max Heinzel	1	N.S.U.	66 × 78	267	2h. 6m. 39.8s.	47.37
Standing 150 miles	28/2/1914	Max Heinzel	1	N.S.U.	66 × 78	267	3h. 12m. 49s.	46.67
2 hours	28/2/1914	Max Heinzel	1	N.S.U.	66 × 78	267	94 miles 1,324 yards	47.37
3 hours	28/2/1914	Max Heinzel	1	N.S.U.	66 × 78	267	141 miles 561 yards	47.10

CLASS C.—For Motor Bicycles of which the Cylinder Capacity does not exceed 500 c.c.

Flying km.	6/4/1914	D. R. O'Donovan	1	Norton	79 × 100	490	27.6s.	81.05*
Flying mile	6/4/1914	D. R. O'Donovan	1	Norton	79 × 100	490	45.4s.	78.60*
Flying 5 miles	17/7/1914	D. R. O'Donovan	1	Norton	79 × 100	490	3m. 57.2s.	75.88*
Standing 10 miles	17/7/1914	D. R. O'Donovan	1	Norton	79 × 100	490	8m. 11.2s.	73.29*

CLASS E.—For Motor Bicycles of which the Cylinder Capacity does not exceed 1,000 c.c.

Flying km.	2/5/1914	S. George	2	Indian	82.5 × 93	998	23.93s.	93.48
Standing 10 miles	17/6/1914	C. B. Franklin	2	Indian	82.5 × 93	998	7m. 41.8s.	77.95

CLASS F.—For Motor Bicycles with Sidecar of which the Cylinder Capacity does not exceed 350 c.c.

Flying km.	7/2/1914	A. C. Starace	2	N.S.U.	54.5 × 75	349	43.8s.	51.07
Flying mile	7/2/1914	A. C. Starace	2	N.S.U.	54.5 × 75	349	1m. 12.4s.	49.72
Flying 5 miles	7/2/1914	A. C. Starace	2	N.S.U.	54.5 × 75	349	7m. 2.8s.	42.57
Standing 10 miles	7/2/1914	A. C. Starace	2	N.S.U.	54.5 × 75	349	14m. 20.8s.	41.82
Flying km.	13/8/1914	H. Alan Rhodes	1	A.J.S.	74 × 81	348	42.8s.	52.27
Flying mile	13/8/1914	H. Alan Rhodes	1	A.J.S.	74 × 81	348	1m. 11s.	50.70
Flying 5 miles	13/8/1914	H. Alan Rhodes	1	A.J.S.	74 × 81	348	6m. 26.2s.	46.60
Standing 10 miles	13/8/1914	T. B. Haddock	1	A.J.S.	74 × 81	348	14m. 6.2s.	42.55
1 hour	13/8/1914	T. B. Haddock	1	A.J.S.	74 × 81	348	41 miles 757 yards	41.43
Flying km.	22/9/1914	S. L. Bailey	2	Douglas	60.9 × 59.7	349	42.2s.	53.01
Flying mile	22/9/1914	S. L. Bailey	2	Douglas	60.9 × 59.7	349	1m. 8.2s.	52.79
Flying 5 miles	22/9/1914	S. L. Bailey	2	Douglas	60.9 × 59.7	349	5m. 46s.	52.02
Standing 10 miles	22/9/1914	S. L. Bailey	2	Douglas	60.9 × 59.7	349	12m. 5.2s.	49.64
1 hour	22/9/1914	S. L. Bailey	2	Douglas	60.9 × 59.7	349	43 miles 1,730 yards	43.98

CLASS G.—For Motor Bicycles with Sidecar of which the Cylinder Capacity does not exceed 500 c.c.

Flying km.	6/4/1914	D. R. O'Donovan	1	Norton	79 × 100	490	34.6s.	64.65†
Flying mile	6/4/1914	D. R. O'Donovan	1	Norton	79 × 100	490	58s.	62.07†
Flying 5 miles	25/7/1914	J. Cocker	1	Triumph	85 × 88	499	5m. 10.2s.	58.06
Standing 10 miles	25/7/1914	J. Cocker	1	Triumph	85 × 88	499	10m. 34.8s.	56.71

CLASS I.—For Motor Bicycles with Sidecar of which the Cylinder Capacity does not exceed 1,000 c.c.

Flying 5 miles	25/7/1914	A. V. Sumner	2	Zenith	85.5 × 85	988	5m. 38s.	53.25

CLASS J.—For Cycle Cars of which the Cylinder Capacity does not exceed 750 c.c.

50 miles	28/3/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	1h. 3m. 7.4s.	47.52
1 hour	28/3/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	47 miles 457 yards	47.26
Flying km.	30/4/1914	G. L. Holzapfel	1	Carden	90 × 77.3	498	36.6s.	61.12
Flying mile	30/4/1914	G. L. Holzapfel	1	Carden	90 × 77.3	498	1m. 0.6s.	59.41
Flying 5 miles	30/4/1914	J. V. Carden	1	Carden	90 × 93	592	5m. 10.4s.	57.91
Standing 10 miles	30/4/1914	J. V. Carden	1	Carden	90 × 93	592	10m. 45.6s.	55.78
Flying kilo.	2/5/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	36.1s.	61.95
Flying mile	2/5/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	59.0s.	61.02
Flying km.	25/7/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	34.36s.	65.10
Flying mile	25/7/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	57.06s.	63.09
Flying 5 miles	25/7/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	4m. 53.8s.	61.22
Standing 10 miles	25/7/1914	E. B. Ware	2	Morgan-Jap	76 × 82	740	10m. 5s.	59.50

* Also record in Class D for bicycles of which the cylinder capacity does not exceed 750 c.c.
† Also record in Class H for bicycles with sidecars of which the cylinder capacity does not exceed 750 c.c.

TIMES TO LIGHT LAMPS

Dec.	31	... ...	4.58 p.m.
Jan.	2	... ...	5.0 ,,
,,	4	... ...	5.2 ,,
,,	6	... ...	5.5 ,,

1915.

A Prosperous New Year to all our readers at home and abroad!

Thanks!

We have to acknowledge with thanks many Christmas and New Year cards from readers in all parts.

Police Traps—Burglars Busy.

Concurrent with the resumption of the police traps on the London Road and Bromley Common, the local press refers to a series of burglaries that the police are "investigating." One house, whose occupier is at the Front, was stripped of lead piping.

A Transmission Trouble

An amusing, yet annoying, experience befell S. Crawley, the Triumph rider, whilst driving a Morgan in the suburbs of Birmingham last week. In changing gear, the high gear chain snapped and fell in the roadway. A street urchin, quick as lightning, picked it up and ran up an entry before Crawley could stop his runabout! Despite a long delay, the owner had to give up his search for the miscreant and crawl home on the low gear. Chains are not cheap.

An Irish Club to "Carry On."

The Dublin and District M.C.C. held its annual dinner last week, the new president, Mr. G. A. M. Curtis, being in the chair. The first toasts were "The King" and "Absent Members Serving their Country." It was announced that the club had adopted "Carry On" as a motto, and that it was intended to run off as comprehensive a programme as heretofore. The prizes won in 1914 were presented during the evening.

Carburetter Control

There seems to be a tendency in motor cycle carburetter construction to extended use of the control of the jet opening. In some carburetters the jet is opened with the throttle by means of a tapered needle or a slide uncovering fresh jets; in others it is hand controlled, and again a combination of these two plans is possible. The opinion, however, of a well-known carburetter expert is that the first plan is the best, though his carburetters are made in both the first and last manner, for he says that the carburetter is better able to look after its own automaticity than ninety-nine riders out of every hundred, and that better consumption will be the result.

In Case of a Raid.

A correspondent tells us that all the metal plates on the milestones between Bromley and Sevenoaks were removed last week.

Despatch Rider Killed

The Times for December 23rd contained the following:

GRUBB.—Killed in action, November 15th 1914, whilst leading a charge, Second Lieutenant L. E. P. Grubb, Motor Cyclist Despatch Rider, 2nd Battalion King's Own Yorkshire Light Infantry. Born July 14th, 1892.

A. G. Cocks Released.

Thanks largely to the efforts of Mr. A. A. C. Swinton, president of the British Association Radio Telegraphic Investigation Committee, and Mr. Leverton Harris, M.P. for East Worcester, Archie G. Cocks was released from Hull Gaol on Christmas Eve. He called upon us on Monday, when we were able to congratulate him. It will be recalled that Cocks was sentenced to two months' imprisonment for having wireless apparatus on his premises at Filey, though he had duly advised the authorities and an official had removed the aerial and other parts. The apparatus was used in connection with the Boy Scout movement. Cocks was tuning up motor cycles for the Russian Government at the Clyno works at Wolverhampton at the time of his arrest. His release after two weeks in prison came as a surprise to him, though he had been treated with great consideration and had spent his time reading.

SPECIAL FEATURES

MOTOR CYCLE RECORDS IN 1914.
THE FUTURE MACHINE GUN BATTERY.
A DESPATCH RIDER'S DIFFICULTIES.

E. Kickham Starts a Business

The well-known Douglas expert, E. Kickham, has started a business of his own at 43, Stokes Croft, Bristol. He will make a speciality of supplying specially-tuned motor cycles and cycle cars. Naturally, Kickham's experience in work of this kind will stand him in good stead.

A.A. and M.U. Notes

IMPORTANT BRIDGE WARNING.—Norfolk Bridge, which is used by traffic on the lower road between Worthing and Shoreham, is in a very unsafe condition. Drivers must not exceed a speed of five miles per hour in crossing it, and two vehicles must not pass over the bridge at the same time, either following or passing each other.

Mr. and Mrs A. G. Cocks with 2½ h.p. New Imperial two-speed machines. The open frame machine is one of the first New Imperial ladies' machines to take the road. The photograph was taken on Monday last, a few days after the former's release. (See accompanying paragraph.)

To Manufacturers.

Mr. Philip Grout, secretary of the Motor Cyclist Reserve Committee, South Midland Division, 5, The Avenue, Keynsham, near Bristol, will be obliged if manufacturers of motor cycles will post to him their latest catalogues of motor cycles, together with price lists of spare parts, etc.

A T.T. Rider in France

Mr. Schulte, of the Triumph Cycle Co., has received a letter from Corporal Godfrey Boyton, R.E., who is now riding a Triumph in France. He speaks in glowing terms of the way his machine is running, and the only road stop he has had was when the mud forced the belt off the rim. Boyton may be remembered as the Irish amateur rider who put up such a good showing in the last Tourist Trophy race.

Canadian Statistics.

The official statistics of the provincial secretary of Ontario, relative to the number of motor cycle permits issued in the leading Canadian province, are highly interesting and instructive To November, the number of motor cycles licensed for the year 1914 was 3,806, with the prospect of a number of 1915 models being put into commission before the end of the year, which will add to the 1914 permits. Last year's total of registrations was 2,903. During 1912 the number of motor cycles registered totalled 1,754, while in 1911 less than nine hundred machines were in use in the province.

Rear Lights.

Not long ago we referred to an accident near Wakefield in which two sidecarists lost their lives owing to the absence of rear lights on a waggon. Another accident has occurred in the same neighbourhood; this time a motor car ran into a waggonette. The Coroner expressed the opinion that "all horse-driven or slow-moving vehicles of any description ought to carry a distinct and separate rear light." We agree.

The Inland Revenue Tax.

The advice of the Auto Cycle Union has been sought by a number of members as to the payment of the revenue tax for 1915 on their motor cycles or light cars, having regard to the fact that their machines will not be in use owing to the owners being away on service. So long as a motor vehicle is not used the owner is not liable to pay tax, but, the tax having been paid for this year, it will save troublesome enquiries on the part of the licensing authorities if owners or their responsible representatives will advise the authorities to whom they have previously paid the tax that it is not proposed to use the car or motor cycle. If possible this advice should be sent this year, and the further precaution might be taken of rendering the machine useless by removing the belt or even the tyres. In the event of the machine being used at some later date, the full annual revenue tax must be paid within twenty-one days until October 1st, after which date only half tax is payable.

A DESPATCH RIDER'S DIFFICULTIES

A despatch rider training for Continental road conditions. A recent snapshot taken on Salisbury Plain showing a Canadian motor cyclist charging through a large pool of liquid mud, and at the same time overtaking a heavy transport convoy belonging to the Canadian Contingent.

Canadian Competitions.

We are informed that the Calgary M.C.C. intends to hold a series of competitions during the coming year.

M.C.C. Members at the Front.

We have lately received the 1914 list of members winning awards in the M.C.C. competitions held this year. In this list there are no fewer than twenty-two who are serving with the Colours.

H.S.M. Machine on Police Duty.

We hear that two H.S.M. two-seated sidecars have been in use nightly for the past three months on special police duty in North London. The H.S.M., it may be recalled, has wheel steering, the driver sitting in the sidecar by the side of the passenger.

Hill-climbing in South Australia.

At a hill-climb in South Australia recently an Australian-built Lewis machine, fitted with a 3¾ h.p. overhead valve Precision engine, distinguished itself by doing the best performance both on time and formula. The hill is three miles in length, and the time taken was 5m. 5⅖s

Records in 1914

In this issue will be found a complete list of motor cycle records broken during 1914, compiled for *The Motor Cycle* by Mr. A. V. Ebblewhite, the official timekeeper to the A.C.U Whilst the first six months formed a busy half year, only one or two records have been beaten during the last six months.

Roads not Unrideable.

Lieutenant H. B. C. Pollard, now serving with the Intelligence Corps, writes from the Front: "The roads here are bad but not at all unrideable, except for shell holes. I am having a very sound time, and have met lots of men I sent out—they none of them bear any grudge."

Winter Trial in the West Country.

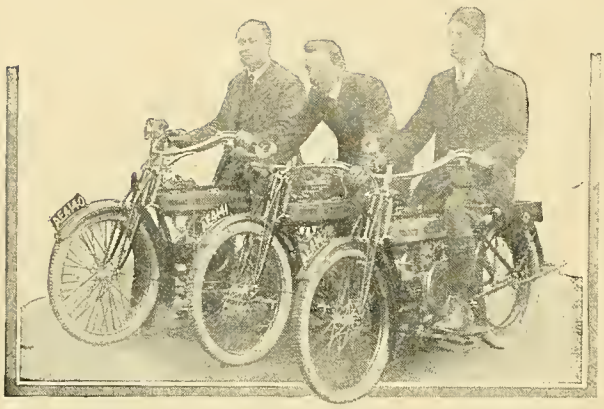
There is quite a good entry for the Bristol M.C.C. open twenty-four hour trial to Land's End and back, which starts to-morrow (Friday) evening. One of the new 4 h.p. Douglas sidecars has been entered; also, among others, two Triumphs, a Burford, A.J.S., Zenith, and Sunbeam; whilst the cycle car entries are also good. There is a team of Morgans, a Douglas, A.C., several G.N.'s, and a Victor.

A New Zealand Sidecar Trial.

The results of the Waikari (New Zealand) sidecar trial held on October 26th, are given below The trial was a most successful event, all the competitors finishing. It will be noticed that, though the only twin machine succeeded in winning, the single cylinders put up a fine performance. Results:

	Marks.
1. A. B. L. Smith (5-6 Clyno sc.) ...	150
2. W. Hollobon (4 Triumph sc.) ...	149.2
3. A. J. Harper (4 Triumph sc.) ...	147.4
4. M. S. Gentles (3½ Triumph sc.)...	143.5
5. C. Bonnington (4 Triumph sc.)...	139.7
6. W. Minson (4 Triumph sc.) ...	139.5
7. J. B. Merrett (3½ Rover sc.) ...	138.8
8. A. Summerfield (4 Triumph sc.)	118.0

CLUB NEWS.



A reminiscence of the last A.C.U. "Six Days." A recent photograph showing P. W. Moffat, W. B. Gibb, and P. Phillips, the Douglas team which won the team prize last July, when 597 marks were gained out of a possible 600. This is the first occasion on which the three successful riders have been photographed together. The trial machines had engines with a bore and stroke of 60 × 60 mm., and three-speed gears. Douglas machines are now distinguishing themselves in the hands of despatch riders at the front, a test which for all round severity puts A.C.U. "Six Days" and other similar events in the shade.

Leven and East Fife M.C.C.

The following is a complete list so far as is known of the members who are serving with the Colours. The hon. sec., Lieut. A. J. Carlow, will be glad to receive the names of any who may be unintentionally omitted:

A. Baird (private)
R. J. Braid (despatch rider)
And. Brown (despatch rider)
B. Bruce (despatch rider)
A. J. Carlow (lieutenant)
Peter Cameron (————)
R. Campbell (despatch rider)
K. Crabbe (volunteer despatch rider)
J. Christie (despatch rider)
W. E. Grosset (lieutenant)
P. Grosset (lieutenant)
T. Johnston (despatch rider)
W. Lawrence (————)
J. A. More (despatch rider)
J. Robertson (sergeant)
W. K. O. Shepherd (major)
J. O. Shepherd (Captain)
S. O. Shepherd (Captain)
W. Turnbull (despatch rider)
A. Wilson (despatch rider)

Bristol M.C.C.

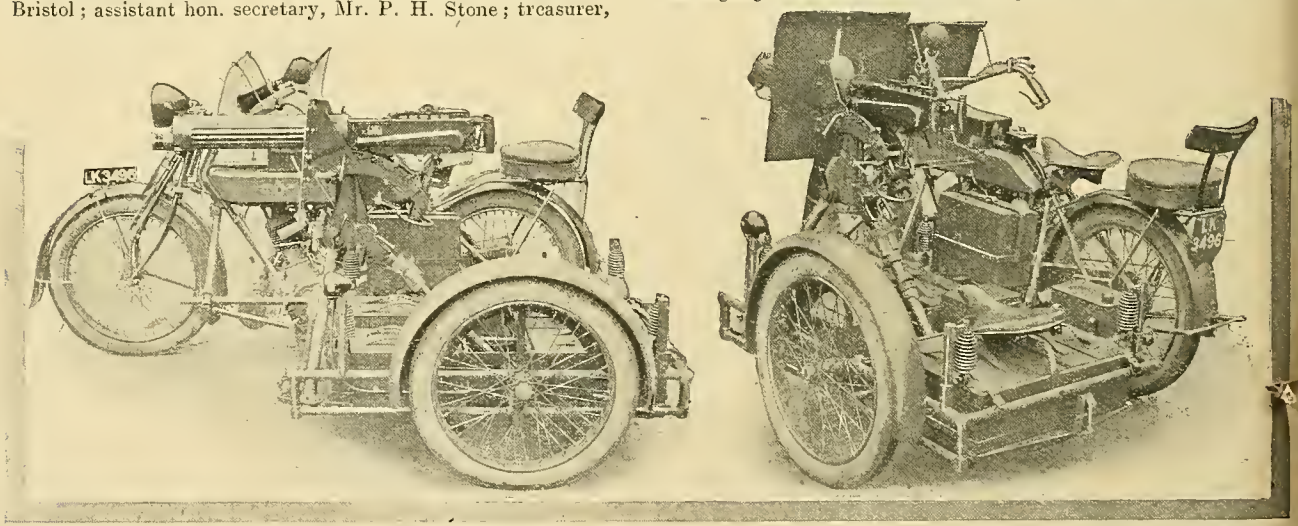
At the annual general meeting, held this month, the following officers were elected: President, Mr. Roderick Fry; captain, Mr. F. C. Wasley; hon. secretary, Mr. F. P. Davies, 8, Park View, Stoke Lane, Westbury-on-Trym, Bristol; assistant hon. secretary, Mr. P. H. Stone; treasurer, Mr. M. S P. King. The balance sheet, which showed a balance in hand of £94 7s. 3d., was presented by the treasurer, Mr. P. Grout.

Dublin and District M.C.C

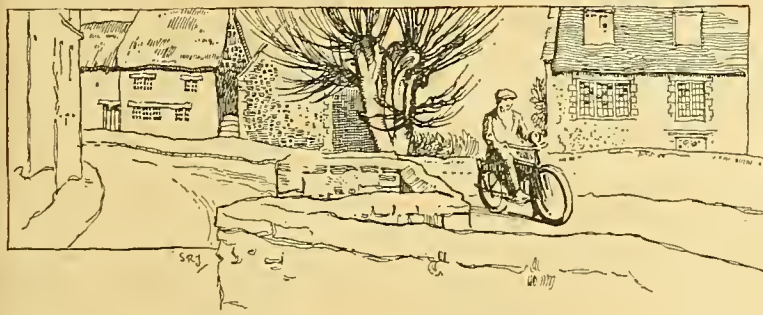
A non-stop reliability trial was held under the customary conditions on St. Stephen's day, the route being to Woodenbridge, Co. Wicklow, and back, a distance of eighty-eight miles. The weather was favourable, and the heavy rains on the previous day had washed the roads clear of mud. The holiday season had an effect on the entry, and still more on the starters, as only sixteen of those who entered put in an appearance at Donnybrook Bridge. Of these, several retired on the outward journey, and only ten checked in at Woodenbridge, of whom eight completed the journey, the following five making non-stop runs and being on time at the checking places:

A. W. Mooney (6 Bradbury sc.)
J. Healy (8 Matchless sc.)
G. Roche (3½ Rover sc.)
A. W. Kirkpatrick (6 Excelsior sc.)
T. E. Greene (3½ Rudge)

Many readers both at home and abroad have sent us seasonable greetings which, needless to say, we much appreciate. Special interest attaches to the card reproduced above, received from Mr. W. Williamson, in that it shows the new Williamson three-wheeler, which has been undergoing road tests for some months past.



The new 8 h.p. Matchless machine gun sidecar, particulars of which appear on page 721 of this issue. Points to be observed are: the protecting plates for driver and gun operator, and the third seat on the chassis of the sidecar; thus, if desired, three men can be carried. The gun and its tripod are mounted in such a way that it is only a matter of a few moments to remove the gun complete ready for action.



LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.
All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Infinitely Variable Gears on Chain-driven Machines.

Sir,—You might find the following of sufficient interest to merit further enquiry. About ten years ago I procured from the Bowden Brake Company the All Speed hub gear for pedal cycles. This worked on the sun and four planet system with an eccentric in the middle, and gave a rise of 50% from normal in infinite gradations. A heavier edition of the above could well be adapted to a motor cycle. No doubt the company can still furnish drawings.

Durban, Natal. C. D. WALES.

Clubs and Affiliation in War Time.

Sir,—With reference to your leader on club affiliation to the A.C.U. and their secretary's reply. Mr. Loughborough says that the A.C.U. is not run for profit but for the benefit of members and especially of clubs.

In my opinion the clubs who affiliate under the 5s. scheme should either get a better allowance than 6d. for new members or put up the subscription to 7s. 6d. to their direct touring members, so that they could allow the old fees (2s. per member). As things are now, clubs do their best to get members, and mention the A.C.U. benefits, etc., and the rider approached thinks about it and sends 5s. direct in a great many cases.

Another item that I have never seen yet is a balance sheet of the A.C.U. This, I consider, should be published each year, so that members may know how the Union stands. If the Union wants support from members and clubs, now is the time to show their standing, then, if the A.C.U. is not a paying concern, the members and clubs would not object to a small levy.

However, let us have the A.C.U. on a business footing and all members as shareholders. As things are at present, the Union is in the dark to all but a select few.

A. WILLIAMS, Secretary,
Leicester and District M.C.C.

A Clyno and sidecar with the British Expeditionary Force. The illustration does not convey a true notion of the amount of French and Belgian mud on both the bicycle and sidecar, but it is somewhat of an "eye-opener" to the road conditions at the Front.

Why an Engine Konks.

Sir,—I am very interested in the arguments brought forward *re* konking, and I look forward to your weekly issue with more interest than usual. I would like a word, although I am afraid I may add perhaps more mystery to the causes of konking.

I had a 3½ h.p. motor cycle that was a chronic konker, and when I approached a hill of any sort it used to strike up the anvil chorus *ff* and eventually stop, even after the ignition was fully retarded.

One day I had a fill up with benzole, and, strange to say, the machine would climb anything, and it was absolutely impossible to make it konk. So I cannot see where the arguments of piston clearance, loose bearings, and carbonisation come in. E. S. CHANDLER.

Sir,—In the correspondence in your paper on the above I have not yet seen any reference to the fact that it is almost unknown for an engine to konk when running on benzole.

Now the boiling point of benzolo is, in the 90% grade, from 80-100° C.; in Pratt's No. 1, for example, about 9% distils off below 53° C. It seems to me that when an engine is "labouring" the high degree of compression and temperature set up pre-ignition in this volatile part of petrol, or else with the spark well advanced this portion ignites with an explosive force. With benzole there is, of course, no light spirit, as it all distils at practically the same temperature, not being a mixture of hydrocarbons like petrol. L.B.H.

Sir,—The recent correspondence on "konking" has been of very great interest to me, as I have been a sufferer from this trouble for a long time. Mr. De Lissa's letter is of particular interest, and I can fully bear out the accuracy of his theory *re* the thinning of the film of oil by heating, and I quite agree with him that a real "konk" is always caused by the piston hitting the side of the cylinder; but my own experience proves that this is possible with a tight-fitting piston.

My engine is an inclined single, 475 c.c., low compression, long stroke, with top gear 5 to 1, used with sidecar and passenger always. Valve timing normal, magneto timing on the slow side, no play in the connecting rod bearings or main bearings, nothing to cause pre-ignition; everything has been most carefully and thoroughly overhauled and checked. At first the engine rarely "konked," and would take full air on hills. Then "konking" commenced on hills, and was stopped by giving less air. Then it began on the level, being audible as a faint rattle like the tappets on some machines; this was stopped by a richer mixture. There was about $\frac{1}{16}$in play between piston and cylinder, and the makers recommended reboring and a new piston. This was done, and the new piston was a tight fit: so much so that it would partially seize at full throttle for the first sixty miles or so. After running about 300 miles it is now quite free, but still a tight fit, and the knock has returned. It will always "konk" loudly on a hill if allowed to labour, and this can be stopped most efficiently by almost closing the extra air; but this causes a considerable loss of power. Retarding the ignition has the same effect, but causes still greater loss of power. As soon as the engine gets a little hot it starts knocking on the level, or even down hill, and this can be stopped until it is just a faint rattle by closing the air. When hot it is difficult entirely to stop this rattle.

I am quite sure the noise is in the cylinder, and am also sure the piston is a tight fit when cold. This brings me to my point: has it been proved that a cylinder, with its greater mass of metal, does not expand to a greater proportion than the piston? Another point is: does an offset cylinder have less tendency to "konk" than a centrally set one? Since the angle of the connecting rod with the piston will be less on the firing point, it seems to me that this should be so. A. MANN.

Artistic Appearance.

Sir,—I was rather surprised to read the remarks of your correspondent "Vulcan" in *The Motor Cycle* of the 17th inst., seemingly tending to advocate the "distorted tube" principle of frame design, more especially in view of the fact that in recent leading open competitions the judges and experts have publicly criticised the standard frame with its distorted tubing, and called for the "triangulating" principle to be more strictly adhered to.

It is fairly common knowledge that the average frame is in reality a push cycle frame altered (almost out of recognition now) to allow an engine, tank, etc., to be added, and that the present day motor cycle frame has become less of an engineering feat than even its forefather, notwithstanding the obvious necessity for a frame correctly designed for its particular purpose.

I believe the makers of the machine quoted by "Vulcan" use a special liner to strengthen their frame; but I would mention that I myself, with quite reasonable riding, have broken, in their "artistic" regions, at least two different makes of frame, the breakage usually occurring through slight elasticity, which eventually results in a fatigue fracture (commonly, though perhaps erroneously, termed "crystallisation").

Space does not permit an explanation here of the unquestionable superiority of a properly designed straight tube frame, but to help convince "Vulcan" of such, I would refer him to the first page or so of the Scott catalogue, and to that machine's successes in leading events. I have no connection with or interest in this firm whatever, but merely quote them as having very successfully departed from the usual practice.

Personally, I think it would have been far nearer the point had "Vulcan" pleaded for "harmonic appearance" rather than "artistic appearance." The latter is perhaps excellent in its place, but it should certainly not be allowed to interfere with an engineering proposition.

F. WILLOUGHBY COTTON.

Sir,—To motor cycle engineers who have for years made the subject of the perfect motor cycle their close and only study, and who *know* what they are doing all the time, having spared neither time nor expense to eradicate faults, improve design, etc., it is extremely disheartening and creates a sense of injustice to find in your columns a letter which is written by one who is palpably ignorant of even the elementary laws of mechanics. Such a letter is that appearing over the pseudonym of "Vulcan" in your issue of December 17th, the reference he makes to the trend of motor cycle design in the adoption of the sloping tube having obvious reference to, amongst other products, the A.J.S. 1915 models.

"Vulcan," in adversely criticising such a departure from a regrettable convention, is evidently quite unable to appreciate the fact that a curved tube cannot, when violently compressed, withstand the same forces which a straight tube will stand up to under similar treatment; consequently he deplores the innovation, and although no reader with a grasp of mechanics will suffer more than passing amusement from the perusal of such, "Vulcan's" letter will doubtless in turn be read by others equally in the dark as to the why and wherefore of frame construction, and, in this way, considerable unintentional harm may be done to those who are straining every nerve to give the best that knowledge can produce.

He also upholds the loop frame, whereas it is common knowledge that the triangular form of construction provides the maximum strength possible. The bottom loop, while inherently weak in design, admittedly enjoys reinforcement in the nature of a truss when the engine is fitted within it, but to uphold the latter method infers at least an equality in strength with that afforded by preserving as closely as possible an unbroken triangle—an entirely erroneous conclusion.

Certain firms still adhere to the loop frame, looking to the support and stay provided by the engine unit to secure sufficient rigidity, but others, and amongst them ourselves, have always striven so to preserve the triangular form that the perfection of design remains as little impaired as possible. Motor cycle design demands that the lower apex in such a frame be removed to provide the necessary room for the engine, and upon the method of building this into the apex depends the whole success or otherwise of the design. The scientific method employed in the A.J.S. machines virtually provides a replacement of this apex by the engine, so attached that any movement or "give" in any direction is impossible, even though the holding bolts at front or rear should be left slack.

In conclusion, however, we would point out to "Vulcan" that, beyond his general and individual bias in favour of curves in frame construction, the matter of straight *v.* curved top tube has otherwise no direct bearing on the question of the looped *v.* triangular frame, the two problems each carrying their own distinct series of considerations.

A. J. STEVENS AND CO. (1914), LTD.

Sir,—With reference to your letter from "Vulcan" in your issue of the 17th inst., I cannot help feeling that he views the subject from altogether the wrong standpoint. Where the lines of beauty diverge from the lines of mechanical efficiency it is clearly the duty of the engineer to follow the latter. In the early days of the last century there existed old beam engines supported on beautiful Corinthian pillars and other examples where the engineer tried to incorporate artistic effect into his designs. These ideas have become obsolete, and no one would wish their reintroduction, but to the engineer anything mechanically sound is beautiful, and it is clearly his duty to educate the public to this viewpoint.

The American curved down tube that "Vulcan" admires owes its existence, I believe, to the endeavour to protect the engine from boulders that are prevalent on outlying roads in those parts, but in England, fortunately, we have not this excuse.

My firm have for the last three shows advocated and shown the straight top tube, and are very pleased to see that fashion is at last adopting this, in all respects, admirable practice. It is my belief that in a few years' time public opinion will look back with wonder and amusement to some of the fantastic top tube designs that are welcomed as perfect practice to-day.

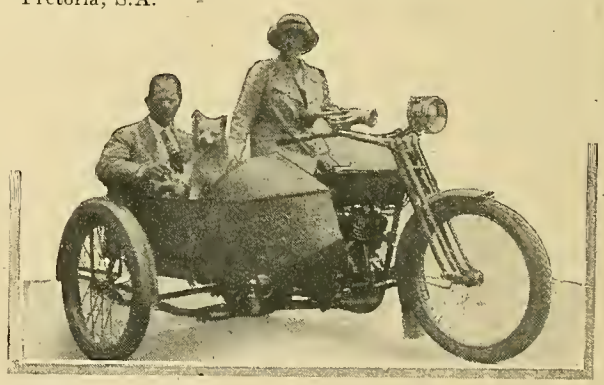
With regard to magnetos, many firms, including ourselves, can claim to satisfy your correspondent in his appeal for their position to be behind the engine.

THE WOOLER ENGINEERING CO., LTD.
JOHN HALL, Managing Director.

A Pretoria Lady Sidecarist.

Sir,—I enclose you a snapshot of two of your regular readers in S.A. The photograph is of my wife, self, and our dog, who will not be left behind on any of our trips. Mrs. Hill is the first lady sidecarist in Pretoria, and handles the outfit quite easily. We have five or six other ladies riding solo, and hope to increase their number in the near future. Wishing you the compliments of the season and every success in the future, SIDNEY L. HILL.

Pretoria, S.A.



Mr. and Mrs. S. L. Hill, of Pretoria, on their Harley-Davidson sidecar.

A DESPATCH RIDER'S DIFFICULTIES.

EXTRACTS FROM LETTERS HOME.

WE have previously published news from the Front sent by the brothers Rice. The following are further extracts from letters written by Bernard Rice during the latter half of November and the beginning of the present month.

"The cyclists are having a pretty rough time of it just now. The roads are fearfully treacherous, and, of course, there is more night riding now the days are so short. It is quite an eerie business that night riding. I had two nights running last week, a twenty-five miles run out each time at about 10 p.m., raining hard, roads inches deep in mud, and *pavé* almost impossible to keep upon. I arrived back about 3 a.m. the following day after being kept over an hour for my reply. (No extra charge for delivery!) It is very difficult to find the way on a strange road after dark, when one's vision is limited to the range of one's lamp. What we generally do is to take stock of the turns and twists of the road and all the junctions, and commit them to memory off the map. It is surprising how soon one learns to get about without being lost. The chief difficulty is that places get re-christened with an 'Englishified' name! The best of these is ——, which is known as —— ——! Very picturesque. [Deletions by censor.—ED.]

A Stubborn Resistance.

"It is very sad to see all the refugees plodding along the wet roads with their little all on their backs seeking friendly shelter, all with tales of woe and the barbarity of the Germans. It is these poor people who are the immediate sufferers of this war. Their houses are burnt down, their crops looted, villages shelled, and their churches despoiled and destroyed. It is, indeed, enough to drive them mad. That the Germans are catching it hot is certain, but they have such seemingly inexhaustible numbers, and such quantities of cannon, that I fear they will prove a very hard nut to crack. However, cracked they will be, and crushed, too, before long. . .

"Two phases of the campaign are over—one the march on Paris, the other the march on Calais. Both have failed, and the next move we may expect to be a defensive one—a stand on the Meuse. After the Meuse comes the Rhine. It is not likely the enemy will give in now, since either our terms must be crushing, or we fight again in, say, twenty years' time. What he is likely to do is to stubbornly resist us, and the Russians, in the hopes of straining us, and making us glad to conclude peace on easier terms. I should think May or June *might* see the end of it. . . .

A False Report.

"The cold started in November, when I was out on a long run, by sleeting hard. It then proceeded to snow, and after that to freeze, with the result that the roads are hard as nails, and riding is a pleasure once more. There are one or two drawbacks, of course. I found my lamp generator frozen solid last night, and, in spite of the new gloves and the new boots issued to me, feet and fingers will get numbed. . .

"We have heard here that the Kaiser has been shot by one of his own officers; whether it is true or not I don't know. All the French have it, and the signallers, too, so there may be something in it. If it is so, the end of the war is near.

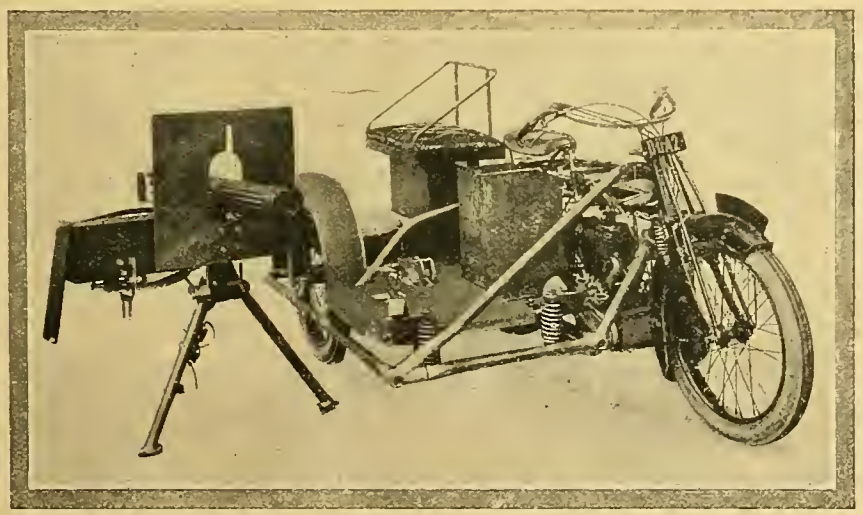
"We are, as you remark, sitting tight here at present. I am quite comfortable in a little grocer's shop, and there is an awfully nice kind little woman who cooks for me, and looks after me well. She owns the shop, has four little girls, and her husband is an infantryman at the Front. When possible, I 'mess' in with the family, and live top notch. Of course, they cook my rations heaps better than I do, so I score all round.

"I was down at the Indian Army Headquarters a few days ago and was much surprised, because every native I spoke to asked me if I had seen the Emperor. Of course, they were referring to the King. They were excited about his visit, too. I think he has done a lot of good out here, and his venturing across the Channel at such a time has impressed the French people very much.

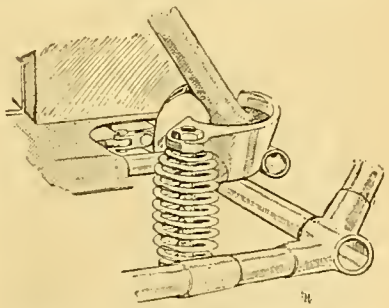
"All the troops that can be are in winter quarters now. That is to say, they are billeted in farms, barns, and villages. Those that are in the trenches are relieved every so often by others from the rear, but, in spite of care, there are many in the 'sick hospital' with chills, frost-bitten feet, etc.

"Our column is doing practically nothing now as regards supplying ammunition. The guns are using very little, and what they do use is taken up by the horse column, a branch corps of ours. It is better not to use heavy transport any more than is absolutely necessary just now while the roads are in this sodden state. We motor cyclists are still out on the brigades, and get several runs each per day, generally of a longer nature than hitherto since we are so scattered. However, we are all very happy and comfortable, some of us in private houses, others in farm buildings, and we meet occasionally.

"I was most interested to see Eddie's letter in *The Motor Cycle* of Nov. 19th. It is very rarely that we get a chance of seeing that most fascinating paper out here, and when it does appear it goes all round the column."



Vickers machine gun dismounted from the Premier sidecar, described in our last issue. It is a matter of less than ten seconds to remove completely the gun from its tripod. This vehicle was inspected by officers commanding the machine gun batteries last week.



Fixing of tripod for machine gun on the new Premier gun carriage.
(See accompanying illustration.)

G. C. Sambidge, hon. secretary of the Midland Light Car Club, is a lieutenant in the Royal Warwicks, which regiment is now in depot at Freshwater, I.O.W., for the winter.

B. Alan Hill, who is driving a car in the 4th Motor Ambulance Convoy, writes that he meets so many competition riders in France that it seems "quite like being at home."

Question & Replies

A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply.

Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy, for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

A German Machine.

I am told by a friend that the N.S.U. motor cycle is made by a German firm; if so, kindly let me know, as I have a good chance of a bargain—a second-hand N.S.U. 6 h.p.—W.J.E.

Your friend is quite right. The machine you refer to is of German manufacture.

A Question of Spares.

I want to take up motor cycling. A local agent has a very good 2½ h.p. 1913 two-speed free engine F.N. Do you think, considering the factory where this machine is made is not working, and will probably be destroyed, that the risk of not getting spares would be too great if I bought the second-hand machine in question? Perhaps you may know what the F.N. Co. are doing, so as to be able to supply their customers with spares.—N.W.B.

There will be no difficulty whatever in obtaining spare parts for this machine, as the F.N. Co. are now busy manufacturing spare parts in this country.

Overhead Valves.

I think of purchasing a motor cycle with a 2¾ h.p. overhead valve J.A.P. engine. What are the advantages and disadvantages of this type of engine? In the case of a valve breaking, would it do any damage to other parts of the engine?—A.F.J.

Only racing engines of this type were built with overhead valves. Such an engine is perhaps slightly more efficient than those fitted with the ordinary type of side-by-side valve, but if a valve breaks the head often falls into the cylinder and smashes the piston.

Driving from the Sidecar.

I took up motor cycling some years ago as the result of a chance copy of your journal, and have had much pleasure from driving a sidecar combination since. Would you favour me with your opinion of tiller steering from the sidecar? It does not seem very popular, possibly because this method is dangerous.—G.W.

Steering by means of a tiller from the sidecar is quite possible, provided sufficient care is taken and the control transferred to the tiller, such as clutch, brake, throttle, etc. There is no danger, in fact, it is safer than riding with an empty sidecar, and it is very much more comfortable when a long journey has to be made solo.

London to Holyhead.

I intend motoring during the next few weeks from London to Holyhead. Owing to the conditions existing at present through war, etc., would I be wise to do this? Will you please give me a route, and mention some interesting places? I might add I have never been over this journey before. I am warned about the weather at this time of the year, by my friends, particularly so, as I intend to bring my sister.—A DUBLINER.

There is no reason why you should not motor from London to Holyhead at the present time, but, of course, one cannot tell what the weather will be like. It is best to start about nine o'clock in the morning, and finish up at lighting up time. Probably the most interesting route would be the following: London, Watford, Tring, Aylesbury, Bicester, Banbury, Stratford-on-Avon, Alcester, Bromsgrove, Kidderminster, Bridgnorth, Much Wenlock, Shrewsbury, Chirk, Llangollen, Corwen, Bettws-y-Coed, Bangor, and Holyhead. The chief places of interest are Banbury, Stratford-on-Avon, Bridgnorth, Shrewsbury, and Llangollen. There is a very pretty drive from the latter place to Bangor. During the last part of the journey you will ascend to a considerable height, and if the weather is frosty, you may possibly meet a certain amount of snow.

B. Alan Hill, a familiar figure in the days of competitions and trials. He is shown by the side of a big Argyll ambulance which he is driving in France. We have published one or two letters from him during the past few weeks.

Erratic Running.

I have a 1914 Clyno and sidecar. I have done 6,000 miles, and lately have found that the carburetter gets so hot after running a few miles that I cannot bear my hand on it, while it works erratically. The engine is clean, and the inlet valves are working freely and accurately. The carburetter is an Amac semi-automatic. I have never been able to run slower than 15 20 m.p.h. on top gear. Could this be improved?—L.W.

There is no harm whatever in the carburetter being warm; in fact, this is generally an advantage. Probably the erratic running is due to too large a jet. It is possible, too, that it may be due to the ignition. You might try increasing the gap of the plug points. If the carburetter is properly adjusted you should be able to do a much slower speed than 15 m.p.h. on top gear. Look out for air leaks in the inlet pipe unions.

An Interesting Record.

Would it be too much to ask you to furnish me with the names of the winning machines and their riders in the Junior T.T. and Senior T.T. races since these were started?—W.O.F.

We give the results of the Tourist Trophy races since they first started in 1907. You will see that in 1907 and 1908 there were two classes—single and twin. In 1909 and 1910 there was only one class; and the Junior and Senior classification did not begin until 1911.

1907.—Singles: C. R. Collier (3½ Matchless).
Twin: H. R. Fowler (5 Norton).
1908.—Singles: J. Marshall (3½ Triumph).
Twin: H. Reed (5 Dot).
1909.—H. A. Collier (6 Matchless).
1910.—C. R. Collier (5 Matchless).
1911.—Junior: P. J. Evans (2¾ Humber)
Senior: O. C. Godfrey (3¾ Indian).
1912.—Junior: W. H. Bashall (2¾ Douglas).
Senior: F. A. Applebee (3½ Scott).
1913.—Junior: Hugh Mason (2¾ N.U.T.).
Senior: T. Wood (3¾ Scott).
1914.—Junior: E. Williams (2¾ A.J.S.).
Senior: C. G. Pullin (3½ Rudge).

The
achievements of
British airmen

in the present war have been so conspicuous as to call for special mention in despatches. In daring expeditions into the enemy's country, in reconnaissance work with the forces, their services have been of immense value. The illustration above depicts a section of the Royal Naval Flying Corps and a supply of

'SHELL'
MOTOR SPIRIT

which is being sent to the front for the exclusive use of the Allies in every branch of military service.

Insist upon having "Shell," the motor spirit the Allies use.

1915 and — the QUADRANT

Bearing in mind our oft-repeated claim—"There's no query about Quadrants"—we have, in the planning of our 1915 programme, cut out every element of doubt—

In short, there shall be "no query about Quadrants"—of that we are determined—let us convince you it is so.

In our extended range of 1915 models you will find—

The Quadrant 4¼ h.p. with B.S.A. Countershaft 3-speed Gear, Senspray Carburetter, Dunlop Tyres, Quadrant Engine, Quadrant Spring Forks, Pan-seat Saddle, and Aluminium Foot-boards—

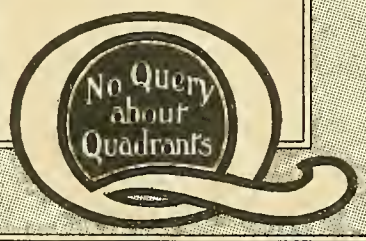
An exceptionally handsome mount supplied with either Chain-cum-belt or wholly chain transmission at the prices following—

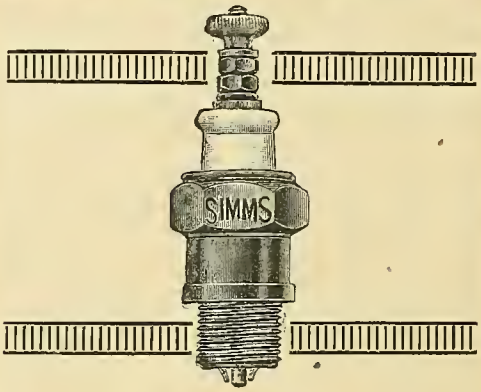
Chain-cum-belt Solo £55
Combination £66 11 0.
Chain transmission
Solo £57. Combination £68 11 0.

Let us send you details of the rest.

QUADRANT WORKS,
Lawley Street,
BIRMINGHAM

London Depot: 78, Gt. Queen Street, Kingsway.





Does your machine develop its full power?

SOME plugs, which to all seeming are quite good, prove to leak at high compression, and if you happen to have this kind on your engine you are not getting the full power out of your machine. If your motor cycle will not take you up every hill smoothly and swiftly, take out the spark plugs and fit the "New" Simms—the non-soot, rustless plugs which are gas-tight and never leak.

NEW SIMMS SPARK PLUGS

fire perfectly at all engine speeds, even at starting. You should give them a trial. Ask for the plug in the blue tin box.

PRICE EVERYWHERE EACH **3/6** TWIN POINTS OR SINGLE CONTACT.

Your magneto made like new.

¶ If your magneto shows signs of wear, or gives any trouble, send it to us and we will guarantee to make it like new. Furthermore, we will despatch it back to you within 24 hours of receipt. We repair all makes. Ask for an estimate, and you will see how reasonable are our charges.

¶ We keep a complete stock of "spare parts" for magnetos of every make, and can supply you per return. Call or write to:—

Simms Motor Units Ltd
191 Wardour St. Oxford St. London W

Makers of Simms 10/6 Vulcanizer.

E I.H.

Lowering the Compression.

I should be greatly obliged if you would answer a few questions that are troubling me. I may say that my machine is a 1911 T.T. Triumph, to which I often attach a sidecar, and, although I have no change-speed gear of any kind, I can get up all ordinary hills with a passenger, but I think I could do better if I reduced my compression. I do not want to fit an aluminium washer below the cylinder, as I like the high compression for solo work; besides it would mean altering the valve stems. Is it safe to fit a domed valve cap for sidecar work?—F.M.S.

The idea of fitting a domed valve cap is quite a good one, and we do not see why it should not be satisfactory and perfectly safe.

Finsbury Park to Exeter.

Would you please give me the best route from Finsbury Park, London, N., to Exeter *vid* Bournemouth, particularly the part through London?—J.F.

Probably the best way would be as follows: Finsbury Park, Seven Sisters Road, Camden Road, Albany Street, Marylebone Road, Oxford and Cambridge Terrace, Bayswater Road, Shepherd's Bush Road, Hammersmith, Hammersmith Bridge, Castelnau, Barnes, Roehampton; in Roehampton village turn right up Alton Road, first to the left, and last on the left again; this brings you on to the Portsmouth Road. The object of this detour is to avoid the police trap in Rochampton village. Continue through Kingston, Esher, Ripley, Guildford, Hog's Back, Farnham, Alton, Winchester, Romsey, Cadnam, Lyndhurst, Christchurch, Bournemouth, then proceeding through Wareham, Dorchester, Bridport, Lyme Regis, Colyford, Clyst St. Mary, to Exeter. The last part of this journey is hilly.

Acetylene Welding.

I have a 2¼ h.p. machine (new December, 1912), which I discovered last May had a tiny crack in the exhaust valve seating. Since then I have run it about 3,000 miles, but lately the engine has lost compression, and has been troubled with overheating. Otherwise, it has remarkable power, and the machine has been one of the best. Now what I want to know is, are the men who advertise the welding of broken valve seats any good? I do not want to go to the expense of a new cylinder for such a tiny flaw, so I wish you would give me your advice, as you may have had a similar repair. There are so many firms who appear to specialise in this particular work that I naturally hesitate before fitting a new cylinder.—E.L.

A skilful welder could probably make a job of your cylinder, but whether or not it would be entirely satisfactory is impossible for us to say, and can only be found out by submitting the actual cylinder to the expert to whom you apply to carry out the repair. The difficulty is not always so much one of carrying out the repair as trimming up the place mended afterwards. It usually leaves a rough joint, which it is very hard to get smooth again.

An Expanding Pulley Gear.

I am thinking of fitting as an emergency gear something after the style of the Gradua or Brampton expanding pulley. Will you let me know how it is that no jockey pulley is required, as I find my belt slips with ordinary pulley if there is much less slack in it than would be required to give anything like a useful range with one of the gears mentioned?—A.H.H.

In the case of the Gradua gear, the rear wheel slides back to take up the slack of the belt as the gear is operated. The Brampton pulley has radial grooves to prevent slipping.

Fixing Transfers.

I have two transfers for fixing on the tank of my motor cycle. Can you give me instructions as to how to do the job?—A.R.C.

The best way to fix transfers is to cover carefully the face of the transfer with a very small amount of gold size. Wait until the varnish is tacky, and then place on the tank. Leave this for a minute or so, and then carefully damp the back of the transfer, afterwards making it quite wet. You will now be able to remove the paper. Now wash off the gum with a sponge or soft rag, using plenty of water; then leave to dry. You can now varnish over the transfer if desired, but this is not always done.

SAUCER TRACK RACING IN CANADA.

A photograph taken during the last summer at the Toronto Motordrome, which is four laps to the mile. The crowd of spectators and the almost horizontal position of the four racing motor cyclists will be observed.

READER'S REPLY.

How to Remove the Cylinder.

In answer to the query of "J.P." in *The Motor Cycle* of December 10th, re the way to take off the cylinder of a 1910 Ariel. The motor cycle I had previous to my present mount was a 1911 Ariel, and when I had occasion to remove the cylinder I proceeded as follows: Remove exhaust pipe, plug, carburetter, and compression tap, and get piston at bottom of stroke; then lift cylinder off as far as possible (which position is just above gudgeon pin). Next carefully "spring" ring, which comes over ends of gudgeon, from slot, and slide it down the piston just sufficient to clear ends of gudgeon. Then gently push gudgeon pin out, when it will be found that piston and cylinder will come off quite easily. When putting it back into position, it is rather difficult to get gudgeon pin through, as the bush in connecting rod has to be in exact line with gudgeon pin bearings in piston. For this purpose I had a steel pin made the exact diameter of gudgeon with a taper end. This pin I placed in first to catch up connecting rod, and then followed through with the gudgeon pin. By the above method there is no occasion to remove engine.—STANLEY BRINTON.

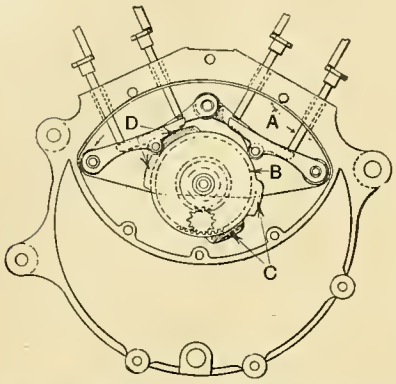
EXPERIENCES WANTED.

Readers desirous of obtaining the experience of others with various motor cycles or accessories must enclose a stamped addressed envelope in which the replies may be forwarded. Answers to the queries should be addressed c/o The Editor.

"J.C.Y." (Manchester).—8 h.p. countershaft Zenith for sidecar work. Durability of belts and general efficiency of gear and transmission.

Valve Operating Mechanism.

The rockers in a single or twin-cylinder engine are mounted on studs, which, instead of being screwed into the crank chamber as usual, are carried on a loose plate A, which is separately attached to the engine. It is proposed that this plate be capable of being moved around the camshaft to vary the timing.

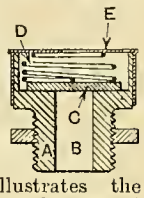


The cam runs at quarter engine speed, consisting of an internally-toothed gear wheel B with two sets of cams C and D arranged diametrically opposite one another, so that the gear wheel B is rotatively balanced.—G. Wray, No. 11,625, 1914.

PATENTS by Eric W. Walford

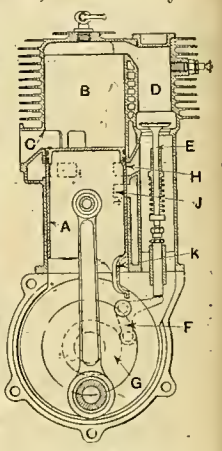
A Crank Case Release Valve.

Attached at any convenient point is the body A, having a central passage B, the end of which is normally closed by a disc C. This disc is retained over the passage by a spring D, and the end of the body is closed by a perforated cover plate E. The pressure in the crank case raises the disc C against the spring D, and the air escapes through the perforated cover plate. The specification also illustrates the application of this device to the end of a drilled crankshaft.—W. C. Urry and H Arthars, No. 21,981, 1913.



A Two-stroke Engine.

The sectional drawing illustrates the piston A at the bottom of its stroke. The cylinder B is formed with an exhaust port C on one side, and on the other has cast integral with it a cylindrical transfer passage D. The lower end of this passage is always open to the crank case, but is cut off from the combustion chamber by a mushroom valve E, which may be automatic, but in the case illustrated is shown as being mechanically operated by a bell crank lever F actuated by a cam G. In the side of the cylinder adjacent to the transfer passage D are found ports H and J. On the piston is formed a wall K, which provides a passage adapted to put the two ports H and J into communication when the piston is at the top of its stroke. The port J is in communication with the atmosphere, so that a supply of pure air reached the underside of the valve E. On this valve opening this air enters the transfer passage D, first scavenging this passage and the cylinder B. The charge of gas in the crank case then follows through the transfer passage. By this time the exhaust port is closed so that economical working results.—J. R. Kemp, No. 23,255, 1913.



Severn Belts for Military Work.

We are informed that the Severn Rubber Co., Ltd., have received a War Office order for belts for despatch riders' machines.

Hazlewoods in Manchester.

Messrs. L. F. Harvey and Co., 227, Deansgate, Manchester, have been appointed local agents for Hazlewood machines. They have new 1915 models on view.

Looking after their Warrior Comrades.

The employees of the Coventry Chain Co. have forwarded to each of their 140 comrades serving with the Colours a package containing one pair of socks, one handkerchief, tobacco, pipe, cigarettes, and chocolate.

A Satisfactory Balance Sheet.

The balance-sheet of the Palmer Tyre, Ltd., shows a profit for the year of £11,436 8s. 5d. Out of this the directors recommend a dividend of 12½% (free of income tax), and that £3,000 be carried to the reserve fund.

A Durable Belt.

A make of motor cycle belt, which has given us great satisfaction on two different machines, is the Pedley. Both these belts behaved in a most exemplary manner, having worn well and never having given trouble through slipping, even in the wettest weather.

Pratt's Spirit.

It is interesting to note that the Anglo-American Oil Co. applied for £200,000 of the War Loan, which amount has been paid for in full.

The retail prices of Pratt's motor spirit for practically the whole of England are: Pratt's Perfection, 1s. 9d. per gallon; Pratt's 2, 1s. 7d.; and Taxibus, 1s. 6d.

SPARKLETS

Palmer Tyres.

The Scott armoured motor cycles and sidecars in the service of H.M. Government are fitted with 2½in. Palmer cord tyres.

Christmas Cards.

Messrs. Raphael Tuck and Sons have sent us a specimen of a Christmas card (price 6d.) sold in aid of the National Relief Fund. This is a most artistic production, and should meet with a ready demand. It is a pity that in the picture, "Defenders of the Empire," the motor cyclist despatch rider, who has done so much for his country, is not represented.

War and the Tyres.

Most of us are finding it very necessary at the moment to effect little economies wherever and whenever possible. Those of our readers who are desirous of keeping the tyre bill down will find the retreading department of the County Chemical Co., Ltd., Bradford Street, Birmingham, a very useful institution just now. There are no doubt very many tyres which, whilst to all appearances worn out, have yet a good solid foundation, which, in the hands of a retreading expert, can be so manipulated as to be good for a few thousand more miles than would be otherwise possible. The Chemico people are prepared to advise tyre owners as to the best course to adopt when tyres are sent to them for inspection, and make no charge for such advice.

A Sensible Christmas Gift.

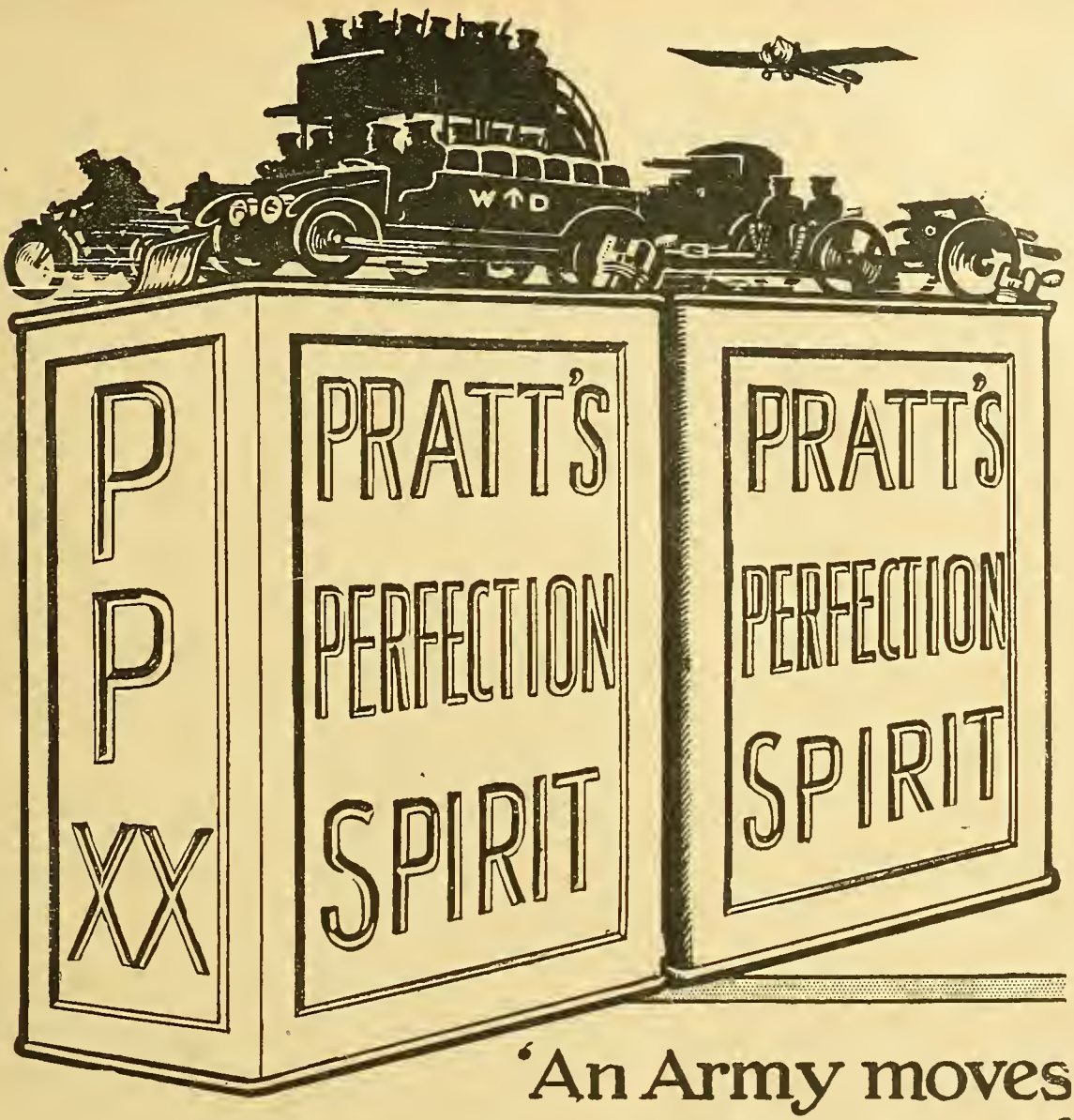
Mr. R. W. Coan, the well-known aluminium founder, does not spend the whole of his time in casting crank cases. For instance, this Christmas he produced a very handsome and artistic aluminium cover for a cigar box, and he will be happy to send one to any regular customer who has not already received one.

F.B. Two-stroke Engines.

The F.B. Two-stroke Co., 32, Coventry Road, Hay Mills, Birmingham, have decided to devote their energies to the manufacture of engines alone. It will be recalled that the F.B. two-stroke is already fitted to one or two different makes of machines, and the 1915 model, having a bore and stroke of 70 × 70 mm., is well spoken of. The firm has also introduced a new model of 63 × 84 mm. dimensions.

A Two-stroke on Active Service.

Sergt. W. F. A. Way, who is with the 2nd East Anglian Field Ambulance, writes: "My Royal Ruby two-stroke has given the utmost satisfaction and has been in constant use since war was declared without giving the slightest trouble in any way, it admirably withstands the exacting demands made upon it on service and runs as well as ever. For reliability it has beaten many higher-priced machines, although it has been valued at as much as fifty pounds, for which I consider all credit is due to the makers for the most excellent finish and appearance." There are a great many of these little Royal Rubys now serving with the army.



By Appointment.

ANGLO-AMERICAN OIL COMPANY, Ltd.,
36-38, QUEEN ANNE'S GATE, WESTMINSTER, S.W.

'An Army moves on its Petrol supply'

(Napoleon revised)

PRATT'S

has been selected by the ALLIES for every conceivable operation at the Front in which Petrol plays a part.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns —First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

☞ DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.B.C.

A.B.C., 3½h.p., 1915 models, 4-speed, gate change gear box, laminated springing fore and aft.—Agents, Alf. Wray and Culshaw, Southport, Lancs. [9627

A.J.S.

FOR 1915 A.J.S. Motor Cycles write Hilton and Son, Foxhall Sq., Blackpool. [X5619

A.J.S., 2¾h.p., 1913, 2-speed, kick-start, new tyres, all spares, accessories; lowest, £28; perfect.—Lieut. Moulds, Victoria Hotel, Blackpool. [9903

2¾h.p. T.T. A.J.S., 3-speed gear, bristling all over with shadows of the Isle of Man, done 500 miles only; £45 complete.—Miss Reid, Head Room, Fraserburgh. [9932

A.J.S.—Early delivery 1915 models. Sole district agents.—The Exeter Motor Cycle and Light Car Co., Ltd., 7, Bath Rd., Exeter, and 28, Tavistock Rd., Plymouth. [0569

A.J.S., 2¾h.p., 2-speed counter-shaft gear, new Kempshall and Clincher heavy tyres, overhauled, new parts added; £26/10, or part exchange with higher power.—Holding, Sandon Rd., Stafford. (D) [X5073

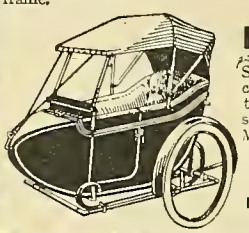
Auto-Wheels.

AUTO-WHEEL, 1915, £8, or with B.S.A. cycle £12.—Auto Mart, 133, Hammersmith Rd., W. [9909

1914 Auto-Wheel, recently overhauled by makers, and new tyre; bargain, £9.—Thos. H. Bartlett, Shipton Gorge, Bridport, Dorset. [9893

CORONET Sidecar Chassis

is slung under its axle, securing wonderful stability. Our special joints make attachment or detachment possible in one minute. Luggage-carrier built into frame.

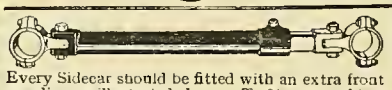


From £6 6s.

Send for illustrated catalogue describing these well-known sidecars. Several Models.

Write for Special War Discount.

Easy Payments or Exchanges.



Every Sidecar should be fitted with an extra front coupling, as illustrated above. To fit any machine. Special design to fit P. & M.'s ..... 7s. 6d. each.

Second-hand Sidecars from 30/-.

A REAL NEW YEAR BARGAIN.

4 Horses | For
3 Speeds | £37 15 0

Brand New 4 h.p. **WOLF-J.A.P.**, 3-speed gear, kick starter, and every improvement, **£37 15s.** DON'T MISS THIS.

BOOTH'S WAR BARGAINS.

4 h.p. **J.A.P.**, new, 3-speed countershaft gear, chain drive, kick starter **£42 15**
4 h.p. **J.A.P.**, new, 1914 model, 3 speeds, with new £12 coach Sidecar **£44 15**
2½ h.p. **WOLF** Lightweight, 1914, new .. **£19 19**
3½ h.p. **REX**, 1911, 2 speeds, £12 Sidecar.. **£25 15**
1914 **SINGER** Light Car, dynamo lighting **£159 10**
3½ h.p. **PRECISION**, 3 speeds, with £10 Sidecar, nice condition **£29 10**
3½ h.p. **PREMIER**, 1912, 2-speed **£26 10**
1911 **HUMBER** Lightw't, grand condition **£16 10**
2 h.p. **MOTO-REVE**, 2-speed gear **£11 15**
3½ h.p. **REX**, magneto, free engine **£11 10**
6 h.p. **EXCELSIOR** Big Single, 2 speeds .. **£35 0**
4 h.p. **TRUMP-J A.P.**, 2 speeds, 1912 .. **£20 0**
3 h.p. **CLEMENT-GARRARD** Twin, less carb. **£5 5**
3½ h.p. **PREMIER**, 1914, 3-sp. model, with new £11 sidecar, only run 100 miles .. **£49 10**
3½ h.p. **QUADRANT**, magneto, h.-b. control **£8 15**
3½ h.p. **PREMIER**, 2-speed, with £11 new coach-built Sidecar **£32 10**
6 h.p. **REX**, 1913, with £18 Sidecar, hood and screen **£42 10**
3½ h.p. **HUMBER**, 1911, 2-speed model .. **£18 10**
3½ h.p. **HUMBER**, with new £11 Sidecar **£26 10**
2½ h.p. **SINGER**, 1912, 3-speed gear **£18 15**
4 h.p. **QUADRANT**, new 1912 model **£20 0**
3½ h.p. **FAFNIR**, magneto, Sensspray **£10 0**
3½ h.p. **REX**, 1909, magneto, low built .. **£13 10**
2½ h.p. **MINERVA**, B. & B. carburettor .. **£4 15**
2¾ h.p. **WERNER**, low built **£4 15**

1914 BINKS JET DAMPING CARBURETTER.
Let us take your carburetter in exchange. Write for quotation. Puts new life into your engine.

MISCELLANEOUS.

Wanted, for Cash, 1914 Calcott or other Light Car.
3 h.p. Triumph Engine, adjustable pulley **£3 0**
F.N. and Motosacoche Carbs., h.-b. control **4/6**
New 10/6 Electric Motor Cycle Head Lamp **4/11**
New Electric Side Lamps; cost 35/-; pair **16/-**
New 21/- Electric Tail Lamp, brass **4/3**
New Coach-built Sidecar Body, side door . **£3 15**
New Armstrong Mark VI. 3-speed Gear . **£5 5**
B. & B. and Amac Carburetters **12/6**
New Tee-Bee Kick-up Stands; usually 10/6 **6/-**
New Understung Sidecar Chassis **48/8**
Shop-soiled £11 Coach Sidecar **£8 0**
N.S.U. Gear.. ..... **£3 0**
Sidecar with coach body **37/6**

BOOTH'S MOTORIES,
PORTLAND PLACE, SKIRCOAT RD., HALIFAX.
'Phone 1062

MOTOR CYCLES FOR SALE.

Auto-Wheels.

AUTO-WHEELS, 1915 models, now ready; immediate delivery; £14/14 and £15/15; trade supplied.—Wilkins, Simpson, and Co., 11, Hammersmith Rd., London. [9819

Bat.

BAT-J.A.P., 8h.p., as new; £35.—Hall, 9, Normandy St., Alton. [9935

Bradbury.

3h.p. Bradbury, good order, accumulators, low machine; £6.—203, Church St., Woking. [9925

3½h.p. 1912 Bradbury, 3-speed, free engine, and sidecar, side entrance; £21; climb anything.—Patrick, Drill Hall, Kirkwall. [X5596

BRADBURY, 3½h.p., hand operated, free engine, new spring forks, good sidecar or solo mount; £23/10, or with sidecar £28.—Colmore Depot, 31, Colmore Row, Birmingham. [X5787

3½h.p. Single-cyl. Bradbury, with 2-speed gear box, kick starter; also twin 3-speed, with kick starter, absolutely new; can be purchased below cost to clear.—Wm. Osborne and Co., Ltd., 66, Rochester Row, Westminster, S.W. Victoria 6945. [9939

BRADBURY, 1914, 5-6h.p., twin-cyl., 3-speed counter shaft gear, hand controlled clutch and kick starter, brand new Montgomery coachbuilt sidecar, all accessories, perfect condition; bargain, £52.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C. [0481

BRADBURY, 1914, 6h.p., 3-speed, chain drive, coachbuilt sidecar, wind screen, 3 lamps, and Lucas horn; £95, turnout for £58 cash.—Eastwood, 111, Brewerton Rd., Oldham, late with Bradbury and Co., now works manager for the J.H. Motor Engineering Works, Oldham. [X5671

Brough.

BROUGH, marvellous motor cycle, nothing else like it.—Tweedale Armstead Motors, Ltd., Magdalen St., Oxford. [0581

B.S.A.

B.S.A., 1913, 4¼h.p., model K, for immediate delivery.—B.S.A. Agents, The Morris Garages, Oxford. [8746

1914 B.S.A., 3½h.p., 3-speed, chain-cum-belt, like new, lamp, horn, etc.; £45.—Hilton and Son, Foxhall Sq., Blackpool. [X5622

1912 3½h.p. 3-speed B.S.A. with Sidecar, in good order; price £35; cash or easy terms.—R. E. Jones (Garages), Swansea; also at Cardiff. [0622

B.S.A., 1913 and 1914, 2 and 3 speeds, coachbuilt sidecars; £43 and £50; cash and deferred payments.—Colmore Depot, 49, John Bright St., Birmingham. [X5776

3½h.p. B.S.A. 1914 Combination, as new, chain drive, coachbuilt sidecar, absolutely perfect order; bargain, £60, or accept solo machine and cash.—F., 32, Sunny Bank, South Norwood. [9922

Clyno.

CLYNO 1914 2-stroke Lightweight, new; £36.—Jones, 108, Lothian Rd., Edinburgh. [9817

CLYNO and Chater-Lea sidecar, 1912, 2-speed, free engine, new gears, tyres in good condition, engine thoroughly overhauled; a bargain, £38/10.—31, New Rd., Driffield. [9942

1913 3-speed Clyno, kick start, Xl'all saddle, Pedley 3in. cover back, 26×2½in. heavy non-skid Kempshall front, spare wheel fitted with Pedley cover, Lucas King of the Road lamp, also Lucas rear lamp, Stewart speedometer, Lucas £1/1 horn, complete with Gloria model 4 art cane sidecar with luggage grid and petrol tin holder, fitted with 2¾in. studded Clincher cover, £55.—Robinson's, Green St., Cambridge. [0613

Connaught.

1914 Connaught 2-stroke, cost £33/10, in every respect as new, fitted with Michelin tyres, horn, etc.; 19 gns.—Julian, Broad St., Reading. 43 years' reputation. [X5767

Douglas.

DOUGLAS, 1915 models, for almost immediate delivery.—The Morris Garages, Oxford. [0617

1913 2¾h.p. Douglas, lamp, horn, speedometer, tools; £29.—King, Stapleford, Cambs. [X5616

2¾h.p. Douglas (late 1911), a.i.v., lamp, running order; £16, or offer.—331, Kingston Rd., Wimbledon. [X5781

1912 Douglas, 2-speed, kick, done 100 since fitting 1915 pistons, 1914 forks; £25.—Deacon, Avondale Rd., Chorley. [9818

DOUGLAS.—All models for immediate delivery; trade supplied.—Rey, 378-384, Euston Rd., and 173, Gt. Portland St., London, W. [9419

DOUGLAS, T.T., 1912¾, 2 speeds, accessories spares; £28, or nearest offer.—Tunbridge, 111, St. John's Rd., Walthamstow. [X5313

1914 Model U Douglas, had thorough overhaul by Douglas expert, guaranteed condition, all accessories; £38.—Colmore Depot, 31, Colmore Row, Birmingham. [X5786

PAY • A • VISIT

to our new premises and inspect the best value and most varied assortment of Motor Cycles, Sidecars, and Light Cars outside London. The new showrooms and workshops cover 9,000 square feet.

BARGAINS IN BRAND NEW REXES.

Fully guaranteed by Makers.	Makers' Price.	Our Price.
6 h.p. 2-speed Twin	£62 10	£53 2 6
4 h.p. 2-speed REX, chain drive	£61 5	£49 10 0

Liberal Exchanges. Cash Offers wanted.

LIGHT CARS.

1915 8 h.p. **G.W.K.**, just new from works.. **150 Gns.**
New 11 h.p. **LAGONDA**, hood, screen, etc. **£145 0**
New **VICTOR-PRECISION**, 8 h.p., W.C. .. **£100 0**
1914 8 h.p. 3-speed **J.A.P.** **£68 10**
SABELLA-J.A.P., 8 h.p. **£49 10**
A.C. Sociable, 2-sp., F.E., hood, screen, etc. **£42 0**
BEDELIA, 8-10 h.p., twin, 2-seater **£39 10**

SHOP-SOILED 1914's. 10 per cent. Cash Discount.

1914 8 h.p. 2-speed **REX-J.A.P.** ..... **74 Gns.**
1914 **REX-J.A.P.**, 8 h.p., Combination **£94 10**
1914 **WILLIAMSON**, w.-c., Combination .. **£98 10**
1914 **SUN-VILLIERS**, 2-stroke **£28 15**
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1912 3½ h.p. 2-speed **JAMES**, chain drive .. **£33 10**
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REX, 1909, 2-speed, twin, and Sidecar **£24 10**
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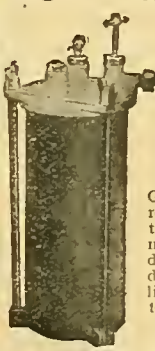

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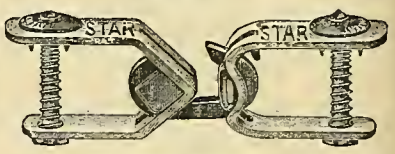

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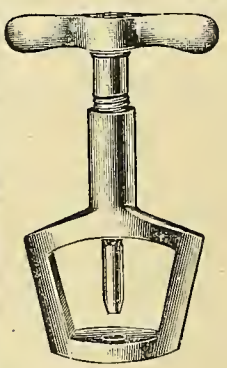

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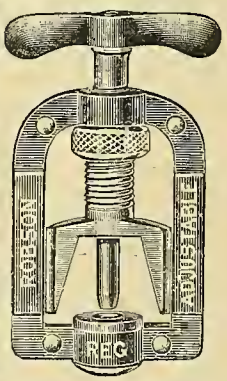

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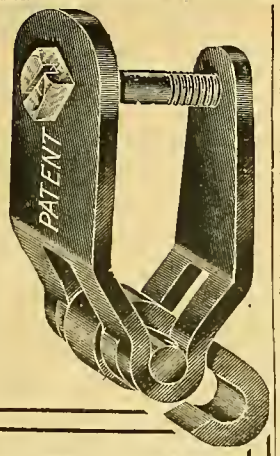

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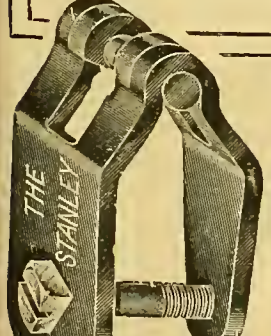

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All goods sent on 7 days' approval against remittance.

SPECIAL CLEARANCE LINES.

	Our Price.	Usual Price.
DUNLOP 1913 Pattern—		
26 × 2¼ heavy studded	17/6	32/6
26 × 2⅜ extra heavy	25/-	41/9
650 × 65 Pillion	21/-	50/-
HUTCHINSON—		
26 × 2¼ Passenger	30/-	40/-
26 × 2½ Passenger	28/-	41/3
26 × 3 for 2¼in. Passenger	26/-	44/-
26 × 2¼ T.T.	15/-	33/-
24 × 2¼ Brooklands	15/-	23/-
24 × 2½ "	18/-	24/6
26 × 2 T.T. wired-on	18/-	29/3
26 × 2½ " "	16/6	31/-
CLINCHER—		
26 × 2¼ Dreadnought	32/6	47/3
26 × 2½ for 2¼in. Dreadnought	32/6	47/3
26 × 2¼ Dreadnought	38/6	50/10
26 × 2¼ A Won	23/-	34/-
26 × 2⅜ for 2¼in. De Luxe	27/6	41/-
26 × 2¼ De Luxe, rubber-studded (Junior)	18/6	
26 × 2 B grade	12/6	25/
700 × 80 small car } 700 × 80 tubes } for 650 × 65 rims	21/6 6/6	
26 × 2¼ extra heavy tubes	5/9	7/9
MICHELIN—		
26 × 2¼ heavy trident	25/-	32/6
26 × 2¼ standard heavy	18/-	35/-
ENGLEBERT—		
26 × 2¼ wired-on for F.N. machines	15/-	28/6
26 × 2 " " "	12/6	25/-
COLLIER—		
650 × 65 square	22/-	
WOOD-MILNE—		
28 × 3 Grip rib patt. for Indians.	28/-	
KEMPSHALL—		
28 × 3 Heavy Non-skid	47/6	70/-
28 × 3 Heavy Anti-skid	39/6	57/6
PIRELLI—		
26 × 2¼ Heavy Non-skid	22/6	35/-
28 × 2½ " Rubber studded	18/6	32/6

We guarantee the above goods to be new and in perfect condition.

All makes of tyres stocked.

SECOND-HAND COVERS, all sizes, 3/6 each.

ELITE—Best Quality Tubes (Guaranteed).

26 × 2	5/-
26 × 2¼	6/6
26 × 2½	6/-
26 × 3	7/6
Butted extra	1/3

BELTS.

CONTINENTAL—			
1in. section	foot	1/6	2/2
⅞in. "	"	1/3	1/11
¾in. "	"	1/1	1/7
⅝in. "	"	11d.	1/5
Clearance Line. Best English made Belting, Rubber and Canvas. (Cannot advertise name.)			
⅞in. section	foot	1/-	1/9½
1in. "	"	1/3	2/1
LEATHER BELTING—Service Pattern.			
⅞in. section	foot	1/-	
1in. " with fastener	"	1/3	

RETREADING.

Special heavy	15/-
Heavy	12/6
Medium	10/-

Sections on application.

ELITE offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

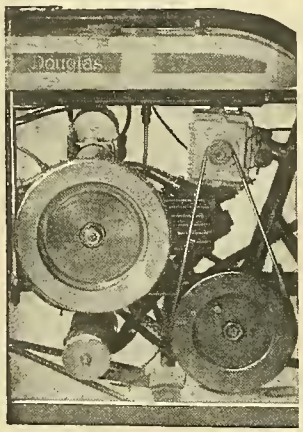
ELITE RUBBER Co.,

264, VAUXHALL BRIDGE ROAD, VICTORIA, S.W.
'Phone: Victoria 6553

And at **260, Coldharbour Lane, Brixton, S.W.**

Your Engine-

GIVES YOU LIGHT.



DYNAMO SPEED
TWICE ENGINE SPEED

WHEN you are considering your lighting problem—with a maze of catalogues about you—it is hard to decide. Let brother Motor Cyclists help you. F.R.S. Lamps are the outcome of the enterprise and experience of practical motor cyclists. The latest triumph is the

F.R.S. Dynamo Light.

LAMP—accumulator—case—brackets—wiring—plugs—driving gear—£5 10 0 with 6in. Lamp; or £6 6 0 with 7in. Lamp.
Installed in 5 minutes. Lights up to a total candle-power of 24. BEAM 2,000 FEET.

NO EXTRAS!

F.R.S. Lamps, Pershore Street, BIRMINGHAM.

London Address & Depot—57, Hatton Garden. Special Agents—Service Co., High Holborn, W.C.; Taylor and Co., Store Street, Tottenham Court Road, W.C.; Manchester Agents—Messrs. Feay and Co., 12, Jackson's Row, Manchester; Coventry Agent—J. Robert Reid, 1, Chester St.

ECONOMY.

BRITISH MADE Red Tubes and Valve.

-GUARANTEED-

26 x 2	26 x 2¼	26 x 2½ or 650 x 65
4/9	5/3	6/-

Perfectly new goods - NOT clearance lines.

Car Tubes at equally low prices.

THE PATCHO CO.,
26, PARK ROAD, BRADFORD.

TYRES.

7/6 Allowance Guaranteed for old tyre towards nearly all new motor cycle covers.—Particulars to Taylors', Tyre Stockists, Store St., London, W.C. [0626

CONDITION as New, Ligar plain tread cover, 26×2¼, only ridden 60 miles; will accept 15/-.—Box No. L6,155, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0589

FOR Sale, two Hutchinson T.T. rubber-studded new covers, 26×2½, fit 26×2¼ rims, 20/- each; also two ditto passenger, 24/- each.—Rossiter, Draper, Kingswood, Bristol. [X1848

SITUATIONS WANTED.

SITUATION wanted, in works or garage, efficient in assembling, overhauling, etc.; good references.—7,057, *The Motor Cycle* Offices, Coventry. [X5580

BUSINESSES AND PROPERTY FOR SALE, TO BE LET, OR WANTED.

PROPRIETOR of old-established motor business, building fine sidecar combination, and sole concessionnaire for 4-cyl. cycle car, retailing under £100, through lack of time and capital, would let same favourably to substantial man. Part down, or would entertain good securities, which cannot be realised through war. Any reasonable proposition considered.—Box L6,680, *The Motor Cycle* Offices, 20, Tudor St., E.C. [9891

PATENT AGENTS.

FLETCHER WILSON, Chartered Patent Agent; nineteen years' experience in motor patents, Coventry. [9470

G. T. MILLARD, 28, Martineau St., Birmingham, specialists in automobile patents. Low charges. Enquiries invited. [5684

HENRY SKERRETT, Chartered Patent Agent, 24, Temple Row, Birmingham.—Patents, trade marks, and designs. Motor patents a speciality. [0636

WANTED.

SPARES.—Morgan and Maxwell, Streatham. [X7877

WANTED, D.A. cylinder complete.—Tripp, South Leigh Rd., Emsworth, Hants. [X5614

2-SPEED Gear, belt drive, suit 4½h.p. Minerva twin.—Jones, 59, Temple Rd., Birkenhead. [9936

DOUGLAS, 1913 and 1914 models, also Morgans; spot cash paid.—Maude's, 136, Gt. Portland St., London, W. [0627

WANTED, motor cycles, spot cash.—Wandsworth Motor Exchange, Ebner St., Wandsworth. Town Station. [9860

MOTOR Cycle, 3½h.p. or more, variable gear essential, not earlier 1913.—Moss, Smallshaw, Ashton-under-Lyne. [X5591

I WILL Pay Cash for the best offer of a 1912 or 1913 Scott; no dealers.—Clifton, 18, Montague St., Rushden, Northants. [X5761

MAGNETOS wanted, second-hand, any condition, for cash; best prices given.—Parrie, 13, Hardwick Rd., Chiswick Park, London, W. [9949

WANTED, copy of *The Autocar*, March 28th, 1914; will pay full price and postage.—Box 7,052, *The Motor Cycle* Offices, Coventry. [X5509

TRIUMPH, 1914, 4h.p., type C., 3-speed, roadster; must be perfect; cash waiting; approval, deposit.—13, Abbey Drive E., Grimsby. [9920

WANTED, magnetos, car or cycle, any condition, carburetters, lamps, tools, speedometers, any quantity; spot cash.—Grove, 224, Fore St., Upper Edmonton, London. [9916

WANTED, motor cycles, second-hand (Rex-Jap, Douglas, Triumph preferred); state full particulars; rock bottom cash price.—Write, Box L6,500, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0624

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell, London Motor Salerooms, 80, High Rd., Streatham, London. [X5065

EXCHANGE.

MORGAN and Maxwell, Streatham, for advantageous exchanges. [X5788

STEWART Speedometer; £1, or exchange Klaxon.—Hartland, 56, Henwick Rd., Worcester. [X5583

INDIAN, 7h.p., and sidecar, new last May, and cash, for Humberette.—337, Euston Rd., London, N.W. [X5611

EXCHANGE or Sell, Levis, 2½h.p., late 1913, for higher power.—H. Williams, Hoath, Edenbridge. [9951

5Ft. Plain Engineer's Lathe, 60/-; exchange car or cycle magneto.—Grove, 224, Fore St., Upper Edmonton, London. [9919

YAWL-RIGGED Motor Boat, 15ft., running order, value £27, for motor cycle.—Motor Cyclist, H.M.S. Vulcan, c/o G.P.O. [9796

2h.p. Werner Lightweight, absolutely perfect; would exchange more power machine, or sell offers.—N., 32, Sunny Bank, South Norwood. [9921

1915

1915	**A.J.S.,** 2¾ h.p., detachable wheels	£50 gns.
1915	**A.J.S.,** 6 h.p., detachable wheels	72 gns.
1915	**A.J.S.,** 4 h.p., detachable wheels	64 gns.
1915	**INDIAN,** 3-speed	£70 0
	With or without Sidecar.	
1915	**INDIAN** Road Racer	£56 0
1915	5 h.p. **INDIAN,** 3-speed	£60 0
1915	**ENFIELD,** electric lighting set	£100 0
1915	**NEW IMPERIAL-J.A.P.,** 2-speed	31 gns.
1915	**B.S.A.,** 4 h.p., 3-speed, chain drive	60 gns.
1915	**LEVIS,** Popular model	£25 10
1915	**IVY,** 2-stroke, 2-speed	£33 10
1914	**TRIUMPH,** 4 h.p., 3-speed	£60 0
1914	**TRIUMPH** Junior	40 gns.
1914	**A.J.S.** and Sidecar, with hood, screen, detachable wheels; original price, £94 17s. 6d.; shop-soiled	80 gns.
1914	**CONNAUGHT;** cost £33 10s.	19 gns.
1913	Big 3½ h.p. **JAMES,** 3-speed, and 1914 Ivy Sidecar, in excellent condition. Wonderful bargain	42 gns.

LIGHT CARS.

1915	**SINGER**	195 gns.
1915	**STANDARD,** electric lighting, self-starter	£231 0
1915	**OVERLAND,** self-starter, electric light	£198 0
1915	**A.C.**	£175 0
1915	**MORGAN** Sporting	£104 0
	FORD, English body, etc.	78 gns.

Send for full details.

EXCHANGES! EASY TERMS!

JULIAN,
Broad St., READING.

Biggest dealer in the South. 43 years' reputation.
'Phone: 1024.

"EVANS"

—of John Bright St.,
BIRMINGHAM—

is a name to bear in mind when in need of the BEST in Motor Cycles. All the leading and most efficient machines of the day, including the **INDIAN** (for which I am the Sole Midland Agent), **A.J.S., JAMES, ENFIELD, TRIUMPH, ROVER, CLYNO, CALTHORPE,** etc., are stocked in all the newest

1915 MODELS

Before you buy elsewhere, call and inspect my stock. I guarantee to satisfy you in every direction—in selection, in quality, in price, and—in Payments. Will you call and "fix up" for Trial trip?

I still have a few Bargains in Second-hand and Shop-soiled Machines—ask for details.

P. J. EVANS

87, 89 & 91,
John Bright St., BIRMINGHAM

'Phone: Mid. 662. Wires: "Lytcar, B'ham."

In view of the excellent moral it is hoped that literary shortcomings will be overlooked.

I remember, I remember
(Thinking *all* adverts were "right"),
One fine morning in September,
Buying my first motor bike.

I remember being elated
At the seller's kindly mood—
Sorrowing, as he related
How his health was far from good.

Otherwise (he told me plainly)
I had failed to gain his prize;
So I paid my cash—insanely
Seeing truth in all his lies.

I remember, I remember
(For the motive power was "Me")
Running miles that hot September
With an engine ever free.

I remember endless troubles
(Once a truant gudgeon pin),
Crank-case leaking oily bubbles,
And—all sorts of funny things.

I remember asking sadly
How could I exchange my prize,
And the answer, given gladly,
"Go to Godfrey's, if you're wise."

Now I've got a lovely "Indian"
(And it romps up every "rise")
I shall buy a Godfrey's sidecar.
See what comes of being wise!

NEW 1914 MODELS IN STOCK.

£80 **HENDEE SPECIAL,** equipped with electric starter, electric head light, electric tail light, electric horn, Corbin-Brown rear drive speedometer, and magneto ignition.
£70 7 h.p. **INDIAN,** 2-speed, spring frame Tourist Standard Model, kick starter, electric head and rear light and electric horn, Corbin-Brown speedometer.
£59 7 h.p. **INDIAN,** rigid frame Road Racing Model, fitted with Corbin-Brown speedometer, but no lighting equipment.
£60 3½ h.p. **INDIAN,** 2-speed, spring frame Tourist Model, kick starter, electric head and rear light, and electric horn, Corbin-Brown speedometer.
£135 1914 Model T 5-seater **FORD Car,** complete with hood, screen, lamps, horn, speedometer.
31 Gns. 1914 2½ h.p. **NEW IMPERIAL-J.A.P.,** light tourist, 2-speed.
65 Grs. 1914 3¾ h.p. **SCOTT,** 2-speed, kick starter.
£42 1914 2¾ h.p. Model T **DOUGLAS.**
£48 1914 2¾ h.p. Model U **DOUGLAS,** 2-speed gear.
£48 1914 2¾ h.p. Model V **DOUGLAS,** 2-speed gear.
£52 1914 2¾ h.p. Model W **DOUGLAS,** 2-speed gear, free engine, kick starter.
£60 1914 4 h.p. **TRIUMPH** Roadster, 3-speed gear.
£76 13 1914 8 h.p. Clutch **ZENITH,** Model H.

SECOND-HAND GUARANTEED MACHINES.

Under £20

1851 £16 1909 3½ h.p. **BROWN,** free engine.
890 £16 1906 5-6 h.p. **PEUGEOT.**
1887 £18 1911 3½ h.p. **BROWN.**
1539 £18 1909 2¾ h.p. **DOUGLAS.**

£20 to £30

1272 £22 1910 2¾ h.p. **DOUGLAS,** lamp, generator, and horn.
1077 £24 1911 3½ h.p. **KERRY-ABINGDON.**
1568 £25 1910 3½ h.p. **HUMBER,** 2-speed.
912 £25 1912 3 h.p. **LINCOLN-ELK.**
1454 £25 1911 2¾ h.p. **DOUGLAS,** fitted with 1913 Amac carb.
1119 £25 1912 2 h.p. **HUMBER,** 3-speed.
1167 £27 1909 3½ h.p. Clutch **TRIUMPH.**
1834 £29 1911 3½ h.p. **HUMBER,** 2-speed, free engine.
1664 £29 1913 3½ h.p. **LINCOLN-ELK.**

£30 to £40

1054 £30 1911 3½ h.p. **SINGER,** F.E., completely re-enamelled.
1734 £32 *1911 3½ h.p. **HUMBER,** 2-speed, and Sidecar.
1238 £32 1912 3½ h.p. **CAMPION-J.A.P.,** free engine, 3-speed.
1221 £32 1913 2¾ h.p. Clutch **SINGER.**
1643 £32 1912 2¾ h.p. T.T. **DOUGLAS.**
610 £33 1911 7 h.p. Clutch **INDIAN.**
1156 £33 1912 3½ h.p. **RUDGE,** clutch model.
937 £35 1912 3½ h.p. **BRADBURY,** Phillipson pulley, complete with lamp, generator, and speedometer.
1918 £35 1911 3½ h.p. **SCOTT.**
1534 £35 1912 3½ h.p. **ZENITH,** Gradua gear.
1748 £35 1912 3½ h.p. T.T. **TRIUMPH.**
1470 £36 1912 3½ h.p. **RUDGE,** T.T. bars, 2-speed.
G.A. £36 1912 3½ h.p. **SCOTT,** 2-speed, kick starter.
1354/55 £36 *1910 3½ h.p. **TRIUMPH,** free engine, and Phœnix S'car.
1217 £36 1913 2¼ h.p. 2-speed **VELOCE.**
1888 £38 1912 3½ h.p. Clutch **TRIUMPH.**
1855 £38 1912 3½ h.p. Clutch **TRIUMPH.**
1056 £39 *1911 3½ h.p. **TRIUMPH,** free engine, and Sidecar.
1539 £39 1913 2¾ h.p. **A.J.S.,** 2-speed, kick starter.

£40 to £50

1531 £42 1913 3½ h.p. **PREMIER,** 2-speed.
1719 £43 1913 7 h.p. Road Racing **INDIAN.**
1275 £43 1913 3½ h.p. **HUMBER,** 3-speed, free engine.
1856 £43 1912 3¼ h.p. **SCOTT,** 2-speed, kick starter.
1917 £45 1913 3½ h.p. **TRIUMPH,** 3-speed.
1053 £47 1912 7 h.p. **INDIAN,** 2-speed, kick starter.
1056/7 £48 *1912 3½ h.p. **SCOTT,** 2-speed, kick starter, 1914 Binks carburetter, 1914 type lubricator, and Middleton Sc.

GODFREY'S is the Best House for New or Second-hand Machines and Specialise in **EXCHANGES AND EASY TERMS.** Special Coach-built Sidecars for Indian Motor Cycles from 15 gns.

GODFREY'S LTD., LONDON, 208, Great Portland St., W.

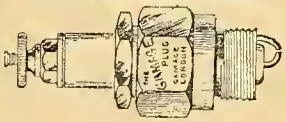
Phones—4464 4350 Mayfair.

GAMAGES

The "Liqall" Petrol Pourer.

Type C, Motor Cycle size. Carriage paid. **4/6**

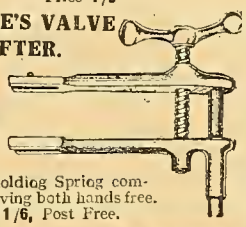
THE "GAMAGE" PLUG.



Look for the name "Gamage," Holborn, on the package. Extra strong electrodes, and the best porcelain. Every plug is guaranteed Price **1/9**

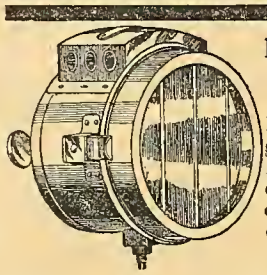
GAMAGE'S VALVE LIFTER.

1/6



Remains holding Spring compressed, leaving both hands free. Price **1/6**, Post Free.

THE WORLD-FAMED MOTOR CYCLE OUTFITTERS. GAMAGE ACCESSORIES SPELL SATISFACTION FOR ALL THEIR USERS



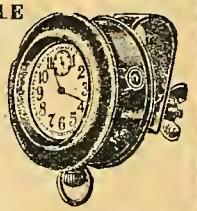
Motor Cycle or Tricar Lamp.

Lamp only **12/9**, fitted with genuine **Mangin** Lens Mirror Reflector and Roni Burner, yet cheaper than other lamps with ordinary lens and burner. Generator suitable for these lamps, **8/6**

ENGLISH DUNLOP MOTOR CYCLE TYRES.

Description.	Size.	Special Reduced Price.	List Price.
		s. d.	s. d.
BEADED EDGE, RUBBER STUDDED, HEAVY PATTERN	26 x 2½	28 6	38 0

MOTOR CYCLE WATCH.



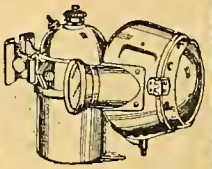
30-hour Movement. Lock-up Case. Nickel Finish. Size 2½ in. For ⅞in. and 1in. baodle-bars.

Price..**10/-**

Superior quality movement .. **15/-**

Best quality, thoroughly reliable .. **25/-**

SELF-CONTAINED ACETYLENE REAR LAMP.



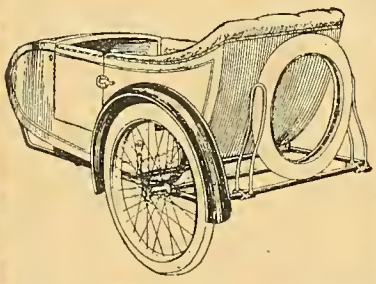
Light and stroog. Combining large red light at rear and white light to shine on number plate.

Price **8/9.**

Postage 3d.

Lamp only, to work off nsual Generator **3/6**

THE G.W. CARRIER FOR SIDECARS.



Will fit on tubing of any Standard Sidecar Chassis. The only snitable method of carrying Spare Parts on Sidecars. Light, unbreakable, and easily fitted.

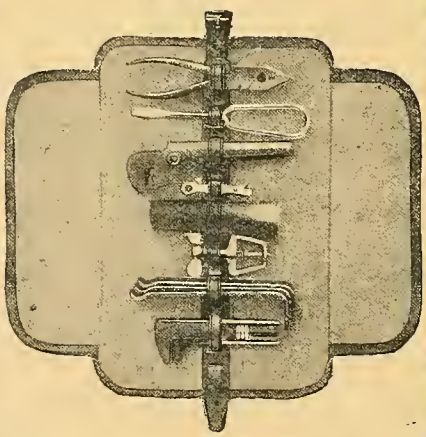
Price **7/6**, Carriage Paid.

"ROM" Motor Cycle Tyres.

The latest pattern "Rom" hard-wearing and non-slipping tyres, combination rubber and steel.

"ROM" Tyres.	
24 x 2½ ..	47/6
26 x 2 ..	46/9
26 x 2¼ ..	49/6
26 x 2½ ..	51/-

The Motor Cyclist's 'Practical' Tool Roll.



Consists of 8 best quality tools specially selected by a well-known racing motor cyclist, fitted in strong leather roll, small, neat and light Price **10/6** Carriage paid.

ANY MAKE OF MOTOR CYCLE SUPPLIED BY EASY PAYMENTS.

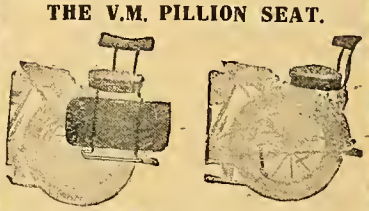
Collapsible Goggles for Motor Cyclists.

Dustproof, comfortable, light, ideal for motor cyclists.

Price per pair .. .. **1/-** Postage
As sold elsewhere at 4/9 2d.

Superior quality, with unbreakable triplex lenses. Price **10/6**

THE V.M. PILLION SEAT.



No. 1 .. **29/6** No. 2 .. **21/-**

This seat is handsomely upholstered and padded with horsehair and has a special combination of springs which obviates jolting.

No. 1. Complete with Backrest and Dressguard, price **29/6**

No. 2. Seat with Backrest, price .. **21/-**; Seat, only **16/-**

SEND FOR COMPLETE DEPARTMENTAL CATALOGUE—GRATIS AND POST FREE.

A. W. GAMAGE, Ltd., HOLBORN, LONDON, E.C.

The Bradbury

THE IDEAL SIDECAR MACHINE.

MORE EVIDENCE OF BRADBURY RELIABILITY.

MERSEY M.C. TRIAL LIVERPOOL-EDINBURGH.

The Timson Challenge Cup, won for the second successive year. Four Medals also won.

CORK M.C. 20 HRS. TRIAL

First Place. First Prize and Three Special Prizes won by the only Bradbury entrant.

M.C.C. LONDON-EDINBURGH.

Eleven Gold Medals. No Failures.

M.C.C. INTER-TEAM TRIAL.

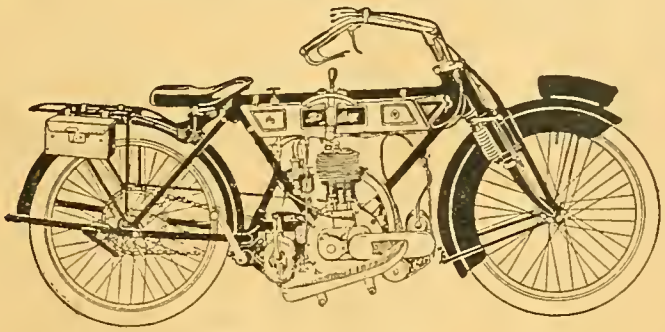
Three Bradbury Non-stop runs

RETFORD M.C. HILL CLMB

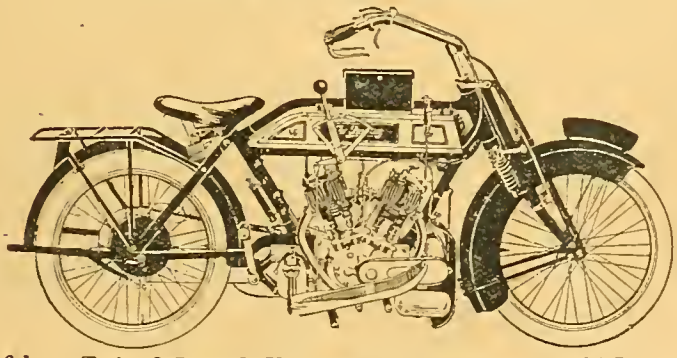
First and Third (Sidecar Class)

SCOTTISH SIX DAYS TRIAL.

Mr. S. Tharp, 4 h.p. Bradbury, Gold Medal.



NEW 1914 MODEL.
4 h.p. Single-cylinder Motor Cycle, fitted with Three-speed Countershaft Gear.
Price 59 Guineas.



6 h.p. Twin 3-Speed V type, 74·5 x 86 mm., 749 75 c.c.
Price £75.

Special Notice.—We can now supply from stock our Two-speed Gear and Free Engine Pulley for belt driven motor cycles to fit our 1909, 1910, 1911 and 1912 machines, and also to machines of other leading makers. They can be easily fitted by detaching the ordinary pulley, and fitting the variable gear with adjustable pulley in its place, the rod for working the gear being attached to the top tube by means of a clip. .. .. **Price £7**

PLEASE WRITE FOR CATALOGUE.

RIDE A BRADBURY—A PRIZE-WINNING MOUNT ALWAYS.

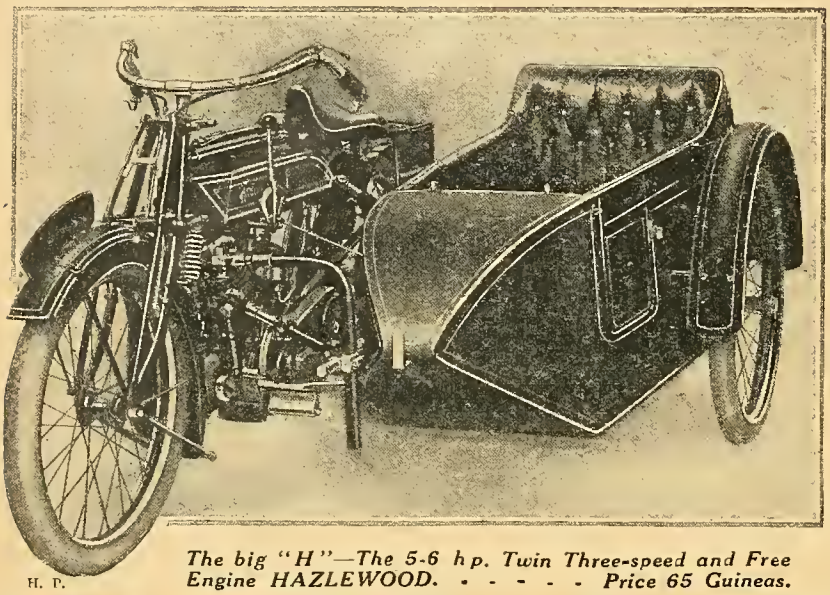
BRADBURY & CO., LTD., WELLINGTON WORKS, OLDHAM.

1st in Appearance!
1st in Reliability !!
1st in Speed ! ! ! !

ℂ Special Open Prize

awarded to the 5-6 HAZLEWOOD combination for the best equipped Motor Cycle and Sidecar combination at the Thorne Show, against every known make of Motor Cycle and Sidecar.

M.C.C. London-Edinburgh return.
"The BIGGEST TRIAL EVER HELD."—*vide* "Motor Cycling."
100 % HIGHEST AWARDS MAINTAINED BY THE BIG "H"
in this and every other Trial.
Write now for handsome illustrated 1914 Catalogue



H. P.

The big "H"—The 5-6 h.p. Twin Three-speed and Free Engine HAZLEWOOD. - - - - - Price 65 Guineas.

Hazlewoods
LTD COVENTRY.

LONDON SHOWROOMS:
Omnium Motor Co., Ltd., 200, Great Portland Street, W.
FRODSHAM SHOWROOMS:
Tom Booth, Main Street.
OXFORD SHOWROOMS:
Tweedale Armstead Motors, Limited, 4a, Magdalen Street.

SCOTTISH SPEED CHAMPIONSHIPS,

JUNE 13th, 1914.

Mr. A. B. Watson, riding a $2\frac{3}{4}$ h.p. N.U.T., fitted with

SPENCER MOULTON TYRES

Expert barred class - - - - - 1st.
Open class - - - - - - 2nd.

Name of local stockist and illustrated list sent post free on request.

GEORGE SPENCER, MOULTON & CO., LTD.,
77-79, CANNON STREET, LONDON, E.C

GLASGOW: 65-67, Bothwell Street.
MANCHESTER: Leo. Swain & Co., Managing Agents, 237-239, Deansgate.
LEEDS: 68, Albion Street
DUBLIN: C. E. JACOB, 184, Gt. Brunswick Street
BELFAST: 38a, Queen Street.
CORK: King Street.
WORKS: Bradford-on-Avon, Wilts.

P.C.B. 28.

WITH A CONSUMPTION OF

OVER 200 MILES TO THE GALLON

A STANDARD 1912

3¾ H.P. SCOTT

RIDDEN BY MR. L. S. PARKER, OF KENDAL

WAS **FIRST** ON FORMULA

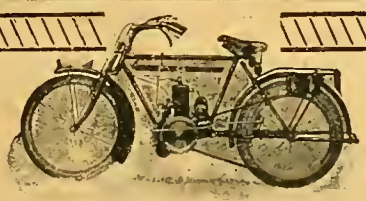
IN

THE WESTMORLAND M.C.C. PETROL CONSUMPTION TRIAL

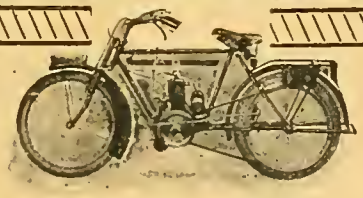
(JUNE 11th).

AGENTS FOR LONDON AND THE SOUTH:
GODFREY & APPLEBEE,
87, GREAT PORTLAND STREET, W.

THE SCOTT ENGINEERING CO., LTD.,
Saltaire, Shipley.



Marvellous



SUCCESS OF THE "RADCO"

A UNIQUE RECORD.

Recent Success.

B'ham.—Land's End—B'ham.: Special Medal Awarded.

One only (Standard model) entered and the smallest h.p. machine to compete.

PREVIOUS AWARDS:

West Flemish and The Littoral, Reliability Trial	Silver Cup and Gold Medal.
Paris-Rouen-Paris, Reliability Trial	1st, 2nd, and 3rd.
Paris-Rouen-Paris, Hill Climb	1st, 2nd, and 3rd.
North Birmingham M.C.C. Reliability Trial	Gold Medal.
Wolverhampton M.C.C., Open Hill Climb	Third.
Middlesborough and District. Hill Climb	1st on Time.

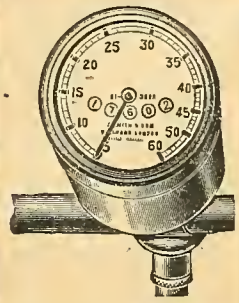
23 GUINEAS. Write for Art Booklet.

E. A. RADNALL & Co., Birmingham.

London Agents: A. W. Gamage, Ltd., Holborn.
T. Baxter, 36, Gt. Eastern St.
J. Grose, Ltd., 4, Old Jewry.

SMITH'S PERFECT SPEEDOMETERS

Cycle Speedometer



No. A1. £3 3 0

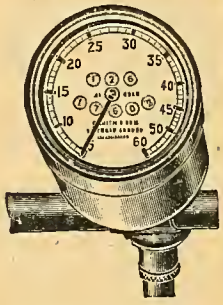
NEW

£3.3.0

ROCK STEADY MODEL

Rock steady under any vibration, yet accurate and unaffected by temperatures

Cycle Speedometer



No. A2. £4 4 0

THE BEST VALUE IN THE WORLD. Made entirely at Speedometer House, Gt. Portland St., London.

S. SMITH & SON, LTD., Speedometer House,

179-185, Gt. Portland Street, London, W., Trafalgar Square, and 68, Piccadilly. HOLDERS OF SIX ROYAL WARRANTS.

Agents for France—KIRBY BEARD & Co., Ltd., 5, Rue Auber, Paris. Agent for Ireland—C. E. JACOB, 134, Gt. Brunswick St., Dublin.

About

that Belt.

A wire received from Mr. F. C. North, and dated 22/6/14, reads—

"Leicester Rubber Co., Ltd., Leicester. Full marks and GOLD MEDAL in

Scottish Six Days

on same JOHN BULL as used in T.T. Ariel, North."

Mark you—the same belt used throughout in the two severest tests of the 1914 season, and in both an entire absence of transmission trouble.

Could you have better proof of the merit and efficiency of the

JOHN BULL HEXAGON.

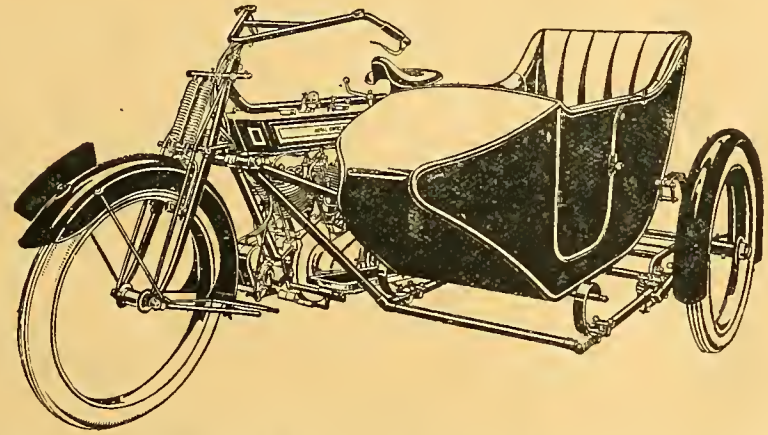
And the same belt was used by four other riders in the Scottish Trial—result, 3 Gold and 1 Silver Medals.

You should ask us for prices.

LEICESTER RUBBER Co., Ltd.,
LEICESTER.

ROYAL ENFIELD

MADE LIKE A GUN



THE CAPE PENINSULA (South Africa) M.C.C. CUP COMPETITION GIVES FURTHER AND REMARKABLE PROOF OF ROYAL ENFIELD RELIABILITY.

In the Cape Peninsula Trial—where the rough roads and strenuous conditions disabled many competitors' machines — Royal Enfield reliability stood out supreme To finish first, second, and third is a performance worthy of the Royal Enfield name.

1st, 2nd, 3rd,

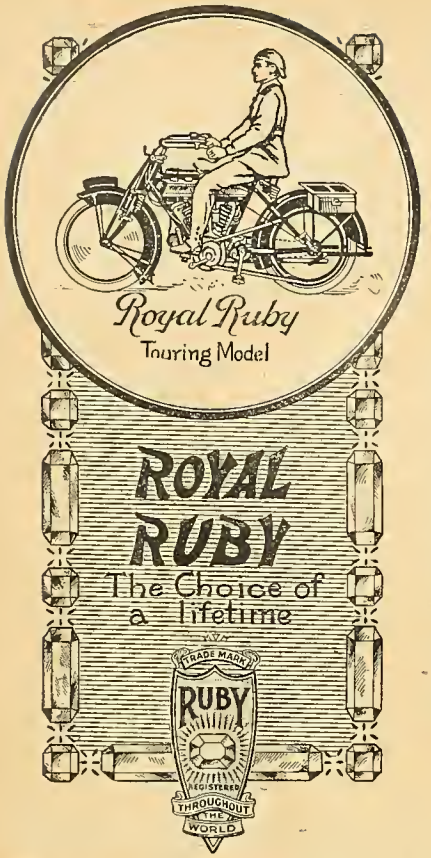
ALL ROYAL ENFIELDS

Standard 6 h.p. Royal Enfield Sidecar Combinations—all three—and each fitted with the Reliable Royal Enfield Gear, Patent Cush Drive Hub, and Chain Transmission. You can buy the same reliability in the standard 6 h.p. Royal Enfield at 80 guineas, complete as illustrated above.

Complete 32-page Royal Enfield motor cycle catalogue sent on request. Please mention "The Motor Cycle."

The ENFIELD CYCLE Co., Ltd., REDDITCH,

and 48, Holborn Viaduct, London, E.C. **Agents everywhere.**



ONE OF MANY REASONS WHY YOU SHOULD RIDE A ROYAL RUBY

Some people seem to think that all motor cyclists are of the same height and reach. We don't. The footrests on the Royal Ruby are adjustable in any direction, either as regards width of spread or height; they are quickly altered to suit the reach of any rider, and at the same time are perfectly secure. The Royal Ruby being built by practical motor cyclists is full of these little points—details perhaps small in themselves but which all go to make the perfect machine.

Model D. 3½-4 h.p., Single-cylinder	44 guineas.
Model E. 3½-4 h.p. Single-cylinder	47 guineas.
Model F. 3½-4 h.p., Tourist Trophy model	49 guineas.
Model G. 3 or 4 h.p., Twin-cylinder	52 guineas.
Model H. 6 or 8 h.p., Twin-cylinder	60 guineas.
Model I. 6 or 8 h.p., Twin-cylinder	80 guineas.

The Royal Ruby is fitted with: J.A.P. Engine, Druid or Saxon Spring Forks, Bowden Control, Chater Lea Hubs, B. & B. Carburettor, Brooks Saddle and Tool Bag, Dunlop, Hutchinson, or Palmer Tyres, Sturmey-Archer 3-speed Gear, Dunlop or Lyso Belts.

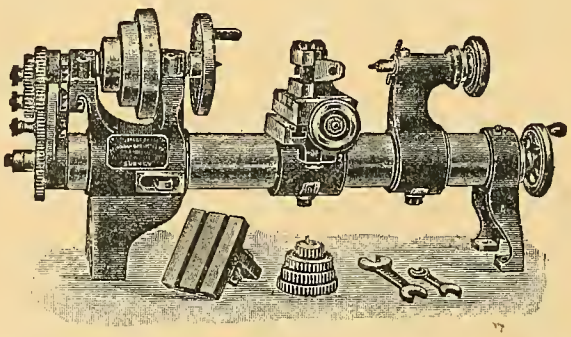
Write to-day for full specifications of the above magnificent touring models and also of the Royal Ruby Lightweight at 25 gns., or 2-speed model 31 gns.

THE ROYAL RUBY CYCLE CO.,

Ruby Works, Cannel St., Ancoats, Manchester.

Telegrams: "Machines, Manchester" *Telephones: 3818 City, 1570 Central*

THIS lathe will not only solve the repair question for you, but will enable you to carry out any small alterations, etc., you may wish to do to increase the power, efficiency, or ease of handling of your engine.



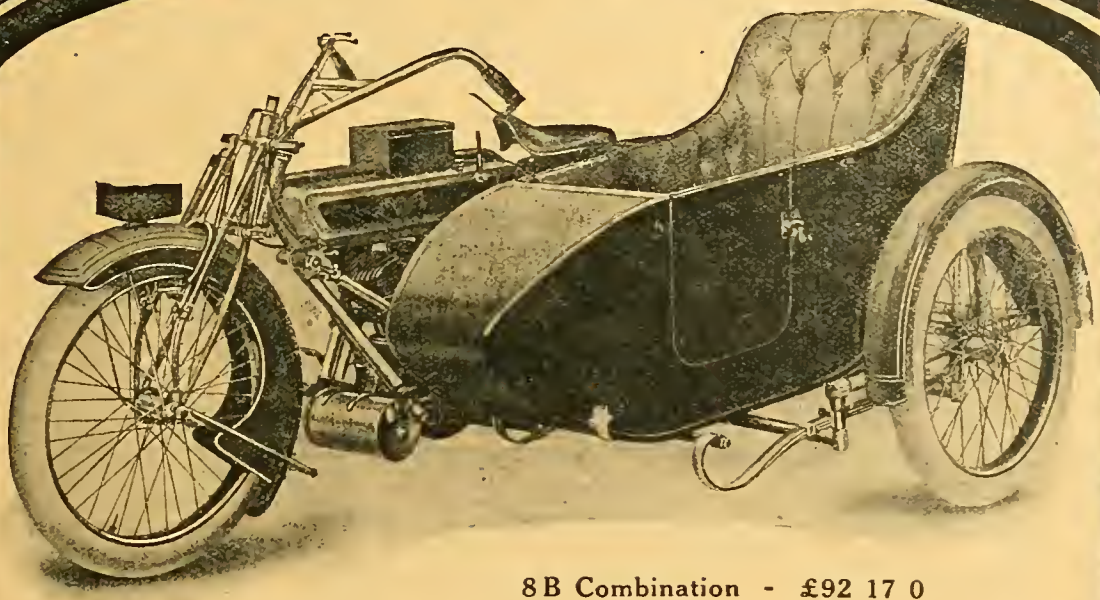
Under our new system of deferred payments this lathe can be obtained for £1 down and nine monthly instalments of 10/6, so that you will be able to place in your garage, at once, the means of attending to repairs, replacements, adjustments, etc., throughout the motoring season, and you will be able to save the cost of the lathe, perhaps in the first two or three jobs done on it.

Cash Price - - £5 10 0

DRUMMOND BROS., Ltd., Reed Hill, GUILDFORD, SURREY.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MATCHLESS



8 B Combination - £92 17 0

Always Successful Everywhere.

Following up successes in every open Competition during this season, The following cable has just arrived from Toronto, Canada, to Matchless, Woolwich.

Hamilton Hill Climb, Open Sidecar Class, Matchless FIRST. Open Solo, SECOND.

Toronto Motor Races, June 20th, 5-mile Sidecar Handicap, Matchless FIRST & THIRD. Canadian Record.

W. Porter, Agent, Gt. Brunswick St., Toronto.

See Press Reports for Home successes.

H·COLLIER & SONS, LTD PLUMSTEAD·S·E·

STOMACH & BOWEL INDIGESTION

CAUSES

THAT BURNING SPOT BEHIND THE SHOULDER BLADE

With ACIDITY & DEPRESSION

COMPLETELY CURED

BY

CICFA

K. E., of Lewisham, writes: "I have intended writing you, but have been waiting to make sure I am cured. It is weeks now since I finished my second tube of Cicfa. I have taken none since, and I have had no return of the Indigestion in either Stomach or Bowel, so I can safely say I am cured. I shall always bless the day I wrote for your free sample. The second day of taking Cicfa I felt a trifle better, and now I feel ten years younger. Previous to taking Cicfa I was in such a bad state of depression and misery I used to wish I had courage enough to poison myself. I could not eat or drink anything and keep it down for long. I used to hate going out anywhere, as I had such an INTENSE BURNING PAIN BEHIND MY LEFT SHOULDER BLADE, and the acid would suddenly rise into my mouth and I would vomit. I often turned so giddy, too, that I would have to clutch anything near me, and in the morning getting out of bed I have fallen many times. I tried all sorts of things and all kinds of treatment, but I got into such a low state that nothing did me any good until I took Cicfa. I tell everyone I hear of having Indigestion how Cicfa cured me, and my advice to all Indigestion sufferers is: 'Don't wait and put it off, but get Cicfa at once and try for yourself.'

"Believe me, gratefully yours, K. E."

Read carefully, and you will understand why K.E., of Lewisham, feels so grateful. When death seems preferable to sufferings caused by Indigestion they must be hard to bear. That burning pain behind the left shoulder blade, that burning acid frequently rising in the throat, that giddiness so severe as to cause stumbling and even falling, and that profound depression and feeling of unutterable misery were all directly caused by Indigestion in Stomach and Bowel.

Nothing brought relief till Cicfa was taken, because there is no remedy except Cicfa which contains what Nature requires to ensure digestion of the food in both Stomach and Bowel. But Cicfa brought immediate relief, and very soon a complete cure. The reason is simple. It is this: Cicfa contains exactly what is needed to start digestion of all the Albuminous food such as eggs, meat, etc., in the Stomach, and also what is needed to immediately start digestion of all the Starchy food like bread, potatoes, beans, bananas, etc., in the Bowel, and also to cause digestion to continue till all the food is completely digested in both Stomach and Bowel.

The fact that over 7,500 British doctors have used Cicfa, and nearly 700 of them have written us of the splendid results they had obtained by either taking Cicfa themselves or prescribing it, is proof that Cicfa does not belong to the class of patent medicines, and is indeed a wonderful combination of digestive ferments.

READ WHAT DOCTORS SAY ABOUT CICFA

Dr. ——, M.R.C.S., L.R.C.P., Lond., writes: "I received the Cicfa tablets and as I am desirous of further proving their effect, I would be glad if you would send me a dozen glass tubes—containing 21—and if you will send account with same, I will forward cheque per return."

Dr. ——, B.A., M.D., writes: "I have found Cicfa so satisfactory that I have requested the local chemist to keep them in stock."

NOW READ WHAT THE PUBLIC SAY.

H.E., of Durham, writes: "I am delighted to say your wonderful Cicfa has cured me of indigestion. I have not known anything like it. I will certainly recommend it to all I know who suffer in the same way."

S.L., of Hull, writes: "I have found Cicfa all that you claim it to be, it not only relieves, but really cures indigestion."

Holidays are a Joy when Cicfa is taken BECAUSE travelling, visiting, or eating away from home causes Constipation. That is not the Liver, it is Bowel Indigestion. Cicfa is the only cure. Take Cicfa from the first meal, and enjoy your food and your trip.

Cicfa is sold everywhere price 1/1½ & 2/9.

If you suffer from Indigestion get Cicfa NOW, or TEST IT.

ABSOLUTELY FREE

Send your Name and Address with this Coupon (or mention this paper) and one penny stamp for postage, and receive a liberal sample of this wonderful CICFA. Only one sample to each family. No person given a second sample.

CURES INDIGESTION CONSTIPATION FLATULENCE ACIDITY

DEPT. 2 Jy. M.C., CAPSULOIDS (1909), Ltd., 79, Duke St., Grosvenor Sq., London, W.

The Motor Cycle, 2/7/14.

The result of

Judicious Advertising

in

THE MOTOR CYCLE

A prominent motor cycle trader gives striking evidence of the business creating power of this Journal.

May 4th, 1914.

Advertising Manager,
"THE MOTOR CYCLE."

Dear Sir,

As an advertiser in "The Motor Cycle" for over six years, it may be of interest for you to hear what results have been obtained.

For an expenditure of £230 per annum on advertisements in "The Motor Cycle," a working capital of £400 was made to produce a gross turnover of some £12,000 per annum, the original capital being turned over some thirty times in the year. These figures are facts should you care to make use of this letter, as it is always of interest to intending advertisers to learn what results can be obtained through judicious advertising in "The Motor Cycle."

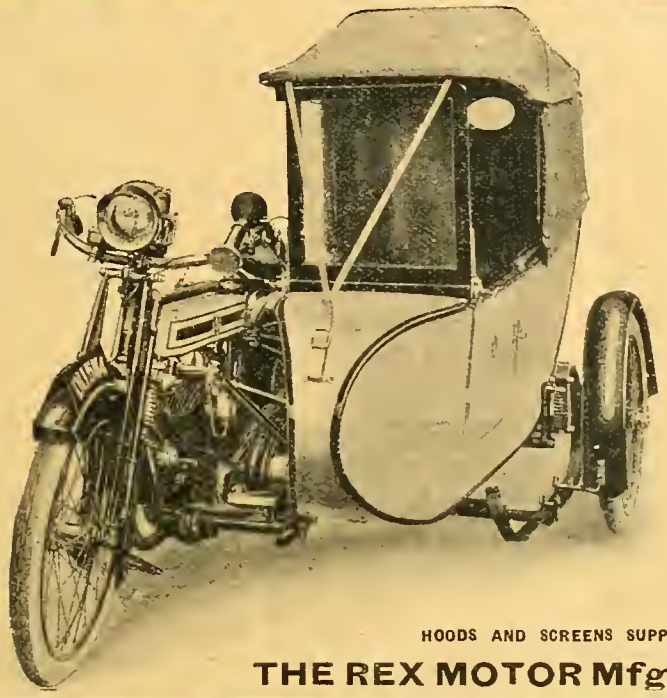
Yours faithfully,

The name and address of the writer is being withheld by special request.

REX-REX

Belt Drive
Sidette
2-Speed.

£77 - 10 - 0



Chain Drive
Sidette
3-Speed.

£85

HOODS AND SCREENS SUPPLIED TO FIT ANY REX SIDECAR

THE REX MOTOR Mfg. Co., COVENTRY

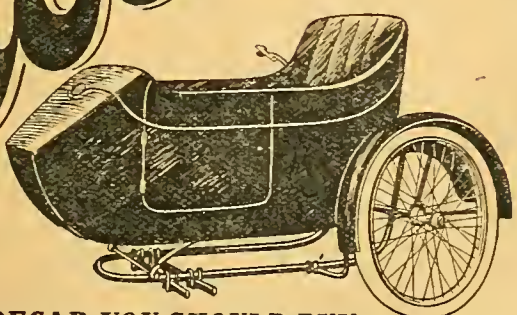
MOTOR CYCLING WORDS AND THEIR MEANINGS.

LUXURY.

THE WORD THAT TELLS WHAT THE PASSENGER GETS IN

THE

Canoelet



THE SIDECAR YOU SHOULD BUY.

The MOST LUXURIOUS SIDECAR ——— AND THE BEST VALUE.

The Sidecar scientifically designed for comfort—mounted on a chassis mechanically perfect for safety, with springs that ensure the greatest possible immunity from vibration.

THE PIONEER SIDECAR IN WHICH ALL THE MOST SATISFACTORY SIDECAR IMPROVEMENTS HAVE BEEN FIRST INTRODUCED, THE LEADER FOR RELIABILITY, PERFECT CONSTRUCTION, AND FOR VALUE.

PRICES :

£10 : 10 to £16 : 16

CATALOGUES SENT FREE.

MEAD & DEAKIN,
Rushey Lane, Tyseley,
BIRMINGHAM.

For Traffic or Hills

the Brampton Variable Gear is ideal. Its advantages are best appreciated when dense traffic makes it essential to throttle down, or when long hills necessitate a lower gear. Fits practically all engines where boss does not require pulley flange of more than $\frac{7}{16}$ inch deep—and for all riders who require complete satisfaction and lasting efficiency.

GIVES SEVEN SPEEDS AND A FREE ENGINE AND MAKES A '3½' RUN LIKE A '4.'

BRAMPTON BROS., LTD.,
OLIVER STREET WORKS, BIRMINGHAM

SHOWING GEAR AT :· FREE ENGINE. ·:

BRAMPTON VARIABLE GEAR

THE MOTOR CYCLE Insurance . . Department

EVERY motor cyclist should protect himself by Insurance against loss or damage and Third party claims.

¶ Each of the undermentioned policies can be obtained through "The Motor Cycle" Insurance Department.

¶ In every case the policy is issued by a sound and reliable company, which can be relied upon for prompt and equitable settlement of all claims.

The A.A. & M.U. Policy
issued by The Motor Union Insurance Co., Ltd.

The A.C.U. Policy
issued by the Law Accident Insurance Socicty.

The Provident Clerks and General
Guarantee and Accident Company's Motor Cycle Policy.

Particulars of all or either of these policies will be sent on application to

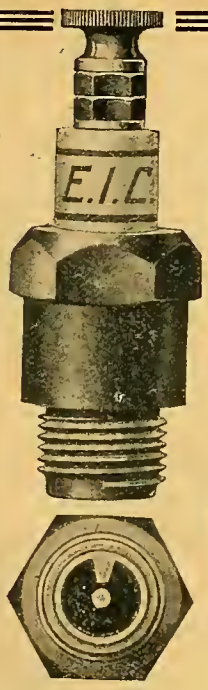
The Manager, Insurance Department,
"THE MOTOR CYCLE" Offices COVENTRY.

SPECIAL . NOTE .

All full policies issued through "The Motor Cycle" Insurance Department include a Copy of "The Motor Cycle" each week.

A12

In answering these advertisements it is desirable to mention "The Motor Cycle."



THE

E.I.C. 02 PLUG

ABSOLUTELY OIL PROOF.

NO PLUG has ever leaped into favour in so short a time as the now famous E.I.C. type 02.

For a few weeks we offered these Plugs at a special price to enable the public to test for themselves and prove to their own satisfaction that all our claims were sound and justifiable. The appreciation has been such that the demand has been far in excess of our most sanguine anticipations. We have literally received hundreds of letters of appreciation of their quality.

Every machine in T.T. Race fitted with these Plugs went through without Plug trouble. Every Plug carries with it our guarantee.

We have the right article and intend to place it on the market at the right price. Therefore, it will now be possible for the motoring public to purchase a really high-class plug of exceptional qualities at exceptional price - - -

A 4/- PLUG

FOR

POST FREE **2/-** **GREAT BRITAIN.**

Obtainable from The

Electric Ignition Co., 1913, Ltd.,
Sampson Road North, Birmingham.

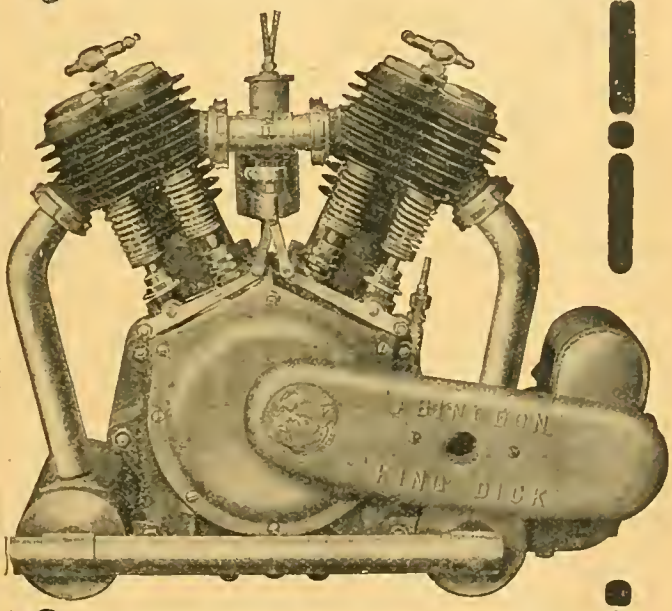
Established 1898. On Admiralty List.

TRADE MARK "KING DICK"

ABINGDON "KING DICK"

GAINS ANOTHER

2 Gold Medals.



BROOKDALE M.C.C. HILL CLIMB, June, 1914.

Mr. Bob Croucher, riding 3½ King Dick.

500 c.c. Class - - FIRST.
1,000 c.c Class - - FIRST.

SEND AT ONCE FOR DETAILS

Specify a "King Dick."

Abingdon-Ecco, Ltd.,
TYSELEY, BIRMINGHAM.

Makers of the King Dick Spanner.

CLIPPER

MOTOR CYCLE TYRES

EVERY MOTOR CYCLIST

should see the new Reflex-Clipper "IDEAL" M.C. Tyre—just out. Specially adapted to both Lightweight and high-power machines, its quality and wearing capabilities are of the highest order. The tread provides the most effective non-skid obtainable.

SIZES.

B.E. only	
26 x 2¼in.	3-ply for solo work.
26 x 2⅜in. for 2¼in. rims	3-ply " " "
26 x 2½in.	4-ply " passenger work.
26 x 2⅜in. for 2¼in. rims	4-ply " " "
650 x 65 for round base rims	4-ply " " "

WOOD RIMS.

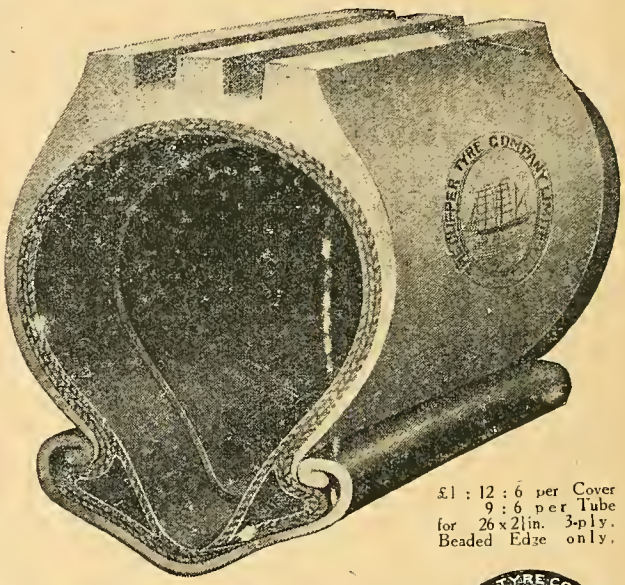
As sole agents for the American Wood Rim Company, and the Compagnie Franco Americaine des Jantes en Bois, Paris, we carry big stocks of highest class Wood Rims for all types of tyres. SEE SPECIAL WOOD RIM FOR MOTOR CYCLES

CLIPPER BRAND ACCESSORIES

supply every requisite for motor cycle upkeep. We hold large stocks of Motor Suitings, Overalls, and everything for all-weather service.

WRITE FOR 1914 ILLUSTRATED BOOKLET— All about Clipper Tyres and Accessories.

THE REFLEX CLIPPER IDEAL TYRE (new Pattern).



£1 : 12 : 6 per Cover
9 : 6 per Tube
for 26 x 2¼in. 3-ply.
Beaded Edge only.

THE CLIPPER TYRE CO., LTD.,

52-60, STEELHOUSE LANE, BIRMINGHAM.

LONDON: 102, Leonard Street, E.C. COVENTRY: Alma Street.

THE

"MARTIN" MOTORCYCLETTE

A sound, clean, well-built motor cycle, fitted with **a specially tuned up 2 h.p. overhead valve engine, 2-speed gear, U.H. magneto** with enclosed chain drive, 26 x 2 **Michelin Tyres, Druid spring forks, Pedley belt.** Complete and ready for the road—

25 Guineas.

Made under the direct supervision of the well-known Brooklands rider, Mr. Harry Martin.

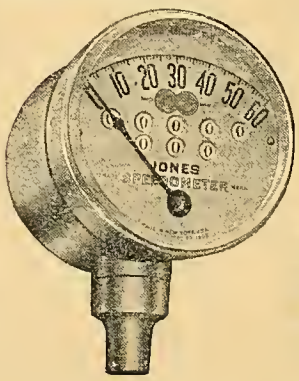
Send for Catalogue.

CARS AND MOTOR SUNDRIES, LIMITED,
175-177, Shaftesbury Avenue, London, W.C.
'Phone: Regent 1432.

The JONES SPEEDOMETER

THE MOST DEPENDABLE— THE MOST ACCURATE— SPEEDOMETER IN THE WORLD

Jones Speedometers are constructed on the centrifugal gyroscopic principle, entirely unaffected by temperature changes or the proximity of magnetic or electrical devices. Its principle is that of a natural law, as unalterable as the law of gravity, and positively constant.



Every single instrument is individually calibrated by expert instrument makers and their accuracy is endorsed by the highest authorities the world over.

Prices from £3 3

Winner of the Highest Award and Gold Medal of the Royal Automobile Club in their ONLY OFFICIAL COMPETITIVE tests of Speedometers ever held in this COUNTRY.

Gold Medal also—Turin Exhibition.

MARKT & CO. (London), Ltd., 98-100, Clerkenwell Road———LONDON, E.C.

It's wonderful—

that in a trial that "conked out" so many motor cycles of twice and thrice its power—a trial where every day the "has beens" made quite a lengthy list—a trial among snow-clad peaks and over gradients and surfaces appalling—in short the

Scottish Six-Days—

that the only two competitors piloting the

CLYNO 2½ h.p. Lightweight

should "come up smiling" day by day, and finish with a record entitling them (provisionally) to the highest possible individual awards—

2 GOLD MEDALS.

It's wonderful—we say it, and if you will study the records of that trial you'll agree, and we think, at least, ask us for the booklet which describes "the Lightweight of Distinction"

Note also that the Clyno 5/6—THE Sidecar Motor Cycle—gained (provisionally) 5 Gold Medals in the same trial.

CLYNO ENGINEERING Co., Pelham St., Wolverhampton

(to whom all wholesale and foreign enquiries should be addressed)

Sole Distributing Agents for London:
The Service Co., Ltd., 292, High Holborn, W.C.

Rudge Multi

Supreme event of the Motor Cycling World.

Senior T.T. Race

Winner—

Rudge Multi

500 c.c., single-cylinder, air-cooled, belt drive,

with the

incomparable Rudge infinitely variable Multi Gear.

See *The Motor Cycle*, page 803, June 11th, 1914.

An Expert on the Rudge Multi.

"A positively superb engine." "An infinitely variable gear almost devoid of friction, easily holding its own in touring practice against designs with three or four arbitrary ratios."

The T.T. Races have given designers something to ponder. Both races were comfortably won by gears approaching the ideal of infinite variability. The Rudge Gear is of standard tourist type; and so far as present knowledge goes, the expanding pulley belt-driving gear are the only practicable designs of infinitely variable gear. Anybody who is well accustomed to the Rudge Gear knows that it is by far the pleasantest to drive in ordinary touring work with or without a sidecar; and also—this is important—the most reliable.

When I drive a three-speeded machine I am perpetually endeavouring to cling to one ratio or another, sometimes to hang on to top up a long slope, sometimes to rush a steep pitch on second; when I drive a Rudge this worry is subtracted from my task. I am able to suit my gearing to the load and gradient with precise accuracy. I am not tempted to let the engine labour; am not prejudiced against a change-down by the fact that such a change will import extra noise and friction, compel me to race my engine, and also to reduce my road speed beyond what is inevitable. The infinitely variable gear is unquestionably *facile princeps* alike for the pleasantness of driving, the speed of hill-climbing, intrinsic reliability, absence of friction, and its conquest of all temptation to man-handle the long-suffering engine.

In the past, infinitely variable gears have suffered from a severe handicap in that their emergency ratio was absurdly high, and that the belt was oppressed by the minimum of contract area in hill-climbing, when technical considerations demanded that it should have as large an engine pulley as possible. The Rudge-Multi has grappled with these handicaps ingeniously by devising a lightning belt-adjusting device, and has simultaneously utilised Brooklands to develop a positively superb engine. The Rudge engine is now so sturdy a puller that it does not need as low a gear ratio as some engines. So far back as 1911 I made a clean ascent of all the test hills which figured in the recent Light Car Trial, and also of all the famous Scottish Test Hills on a 500 c.c. Rudge with a bottom gear of 7½, and that a gear which was not infinitely variable, but embodied more friction than most modern hubs and counter-shafts. The 1914 Rudge Engine is at least 50% better, and its gear is now almost devoid of friction, and infinitely variable within wide margins. The chief lesson of the 1914 racers are that these infinitely variable gears are clamouring for more respectful recognition. They should easily hold their own in touring practice against all the designs based on three or four arbitrary ratios.

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Rudge Multi (750 c.c.) £63:15:0

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MOTOR CYCLES FOR SALE.

Zenith.

ZENITH-GRADUA, 3½h.p. twin, clutch model, in stock; 59 gns.—The Exeter Motor Cycle and Light Car Co., Ltd. [0520

1913 6h.p. Zenith and Coachbuilt Sidecar, lamp, horn, etc., in new condition; £65.—Cordingley, Haslingden. Tel.: 102. [X3422

ZENITH, 1914, standard, 4-5h.p., with lamp, horn, Cowey speedometer, perfect condition; £45.—Kirsopp, Reed, Wye, Kent. [X3139

ZENITH.—All 1914 models; best exchange allowances, or easy payments.—Maudes, 136, Gt Portland St., London, W. [8370

ZENITH-GREEN, early 1914, run 750 miles, excellent condition; best over £39/10.—Box 6,257, *The Motor Cycle* Offices, Coventry. [X2018

1914 Zenith Gradua Models in stock for immediate delivery; exchanges, easy payments.—Elce and Co., 15, Bishopsgate Av., Camomile St., E.C [0478

ZENITH-GRADUA, 3½h.p., 1912¾, excellent condition just overhauled, engine as new, accessories; bargain, £26.—Hirsch, 3a, Coleman St., London, E.C [4686

1912 Zenith, 6h.p., complete with coachbuilt sidecar, speedometer, lamps, and spares, splendid condition; £48.—Newnham, 223, Hammersmith Rd., W. [4763

ZENITH-GRADUA, 1911, 3½h.p., decompressor, necessories, perfect condition; genuine bargain, £20; sidecar, £2; exchange considered.—Teague, Old Hill, Staffs. [X3268

1913½ Zenith, 8h.p., clutch, kick starter, etc., Bramble coachbuilt sidecar, condition excellent, all accessories; cost £90, best offer; bought car.—111, Grove Lane, Camberwell. [4587

ZENITH 1912½ Motor Cycle, complete with variable gear, lamp generator, horn, with T.T. and ordinary bars, excellent condition; £30, or best offer.—Massey, Westlode St., Spalding. [4540

ZENITH-GRADUA, 1912¾, 3½h.p. J.A.P., perfect condition, lamp, horn, Stewart's speedometer, Montgomery sidecar, all accessories; £37/10, or nearest; buying car.—Timm, Budock, Summer Rd., East Molesey. [4565

ZENITH, 1911¾, 6h.p., large Lucas, Cowey, Best and Lloyd's, engine overhauled by J.A.P.'s, new Dunlop belt, spare valves, springs, tube, cover, Millford sidecar, child's seat hood; £38.—Allen, Honey Lane, Waltham Abbey. [4551

COMPLETE 6h.p. 1912 Zenith Motor Cycle, fitted with latest Rex 2-speed and free engine, Druid forks, everything except engine set and tyres, £8; or with new heavy 2½in. Avon on back, 2¼in. Skew on front, £10/10; all in perfectly sound order.—Wallis, High St., Saffron Walden, Essex. [X3375

IMMEDIATE Delivery of Zeniths, 1914 Zenith-Gradnas, 6h.p., counter-shaft gear, free engine and kick start, 72 gns.; also 4·5h.p., 1914 models, same specifications, 61 gns.; exchanges, gradual payments, or cash.—Wauchope's, 9, Shoe Lane, London. Also several second-hand Zeniths, for solo and sidecar work, cheap, for cash or extended payments [X3188

Miscellaneous.

TAYLOR'S.—1913 6h.p. A.J.S Combination: £62

TAYLOR'S.—1913 8h.p. Henderson and Sidecar; £65.

TAYLOR'S.—1914 7h.p. Indian Combination, electric lighting, etc., run 300 miles; £75

TAYLOR'S.—1914 8h.p. Williamson, W.C. used short trial; £92.

TAYLOR'S.—1912 5h.p. A.J.S and Sidecar; £44.

TAYLOR'S.—1912 3½h.p. P and M., £37/10

TAYLOR'S.—1911 5h.p. Rex Combination; £25

TAYLOR'S.—3½h.p. Corah-Jap, very fast, £31

TAYLOR'S, Ltd., 21a, Store St., Tottenham Court Rd., W.C. Tel.: Museum 1240 [4636

FOR Bargains, South Eastern Garage, Herne Hill [0465

5h.p. Single-cyl. Mag. Motor Cycle, perfect, £15.—6, Lady Lane, Chelmsford. [4628

3½h.p. Wolf, £5; 1½ h.p. lightweight, £10; bargains.—58, Blaydon Rd., New Maldea. [4654

ONE 3½h.p. Rudge, complete with free engine, 1912 model, shop-soiled; £35 net.

ONE 3½h.p. Lincoln-Elk 1912 model; £20 net.

ONE £14/14 Bramble Sidecar, shop-soiled only; £10/10 net.—Box L5,421, *The Motor Cycle* Offices, 20, Tudor St., E.C. [0537

2¼h.p. Minerva, h.b.c., very low, do 40, new tyre, lamp, accessories; exchange; £10.—Below

2¾h.p. Quadrant, Amac, h.b.c., painted and overhauled, splendid condition; £7; two for £16.—10, Park Rd., Marychurch, Torquay. [X3138

NORTHERN Depot, Ltd., Liverpool.—Sole agents Rex-Jap Ariel, Ivy-Precision, Montgomery sidecars Trade supplied. [X3389

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Miscellaneous.

PALMER'S Garage, Tooting.—3½h.p. Minerva, T.T. type, very low, fast; £12/10.

PALMER'S Garage, Tooting.—4h.p. 1912 Bradbury, F.E. and sidecar, powerful; £26.

PALMER'S Garage, Tooting.—3¾h.p. Scott, late model, nice condition; £32/10.

PALMER'S Garage, Tooting.—8h.p. 1913 Bat-Jap, sidecar, 2 speeds; £37/10.

PALMER'S Garage, Tooting.—6h.p. Twin Minerva and sidecar, powerful combination; £16.

PALMER'S Garage, Tooting.—2h.p. Stevens, £5; 2½h.p. Minerva, £5; 3h.p. Automoto, £5; 2¾ h.p. M.M.C., £7/10.

PALMER'S Garage, Tooting.—5-6h.p. N.S.U. and sidecar, 2 speeds; sacrifice, £15.

PALMER'S Garage, Tooting.—4h.p. Arno, T.T., fast, low comfortable mount; £14/10.

PALMER'S Garage, Tooting.—Write for catalogue of fortnightly auction sale. Ask for illustrated comprehensive catalogue free. Next sale, June at 2 o'clock. [4718

WANDSWORTH Motor Exchange.—Bradbury, 3-3½ h.p., low built, nice condition; £7/15 easy payments.

WANDSWORTH.—Quadrant, 3½h.p., h.b.c., spring forks, good tyres; almost gilt, £6/15; exchanges.

WANDSWORTH.—Humber, 2h.p., good tyres, chain drive, runs well; sacrifice £4/15; exchanges.

WANDSWORTH.—Fafnir, 3-3½h.p., m.o.v., Bosch mag., fine tyres, splendid order; £12/15; exchanges.

WANDSWORTH.—Auto-Motor, T.T. type, 3-3½h.p., new mag., fine machine; £3/10; exchanges.

WANDSWORTH.—N.S.U., 3-3½h.p., m.o.v., mag., good tyres, ready drive away; £10/15; exchanges.

WANDSWORTH.—Excelsior pattern, 3½-4h.p., with sidecar, mag., 2 speeds; bargain, £12/15; exchanges.

WANDSWORTH. — Humber 1911-12 combination, mag., 2 speeds, almost new; 28 gns.; exchanges.

WANDSWORTH. — Easy payments. — Wandsworth Motor Exchange, Ebner St., Wandsworth Town Station. 'Phone: Battersea 327 [X3293

EAGLES.—Alldays Matchless, 3½h.p., late 1912, 2 speeds, free engine, footboards, with coach-built sidecar; £35.

EAGLES.—N.S.U. 6-7h.p. Twin, 1913, new condition, spring frame, latest improvements, 2 speeds, kick-starter, free engine, Millford coach-built sidecar; £51/10.

EAGLES.—Calthorpe-Precision, 3½h.p., N.S.U. 1914 2-speed gear, free engine, with coach-built sidecar, perfect condition; £33/10.

EAGLES.—Radco 1914 2¼h.p. 2-stroke lightweight, very slightly used, as new; £21/10

EAGLES.—Bradbury, 4h.p., 2-speed chain drive model, new October, 1912, counter-shaft gear, kick starter, with foot clutch, excellent condition; £36/10

EAGLES.—N.S.U. 6½h.p. Twin, 1913 model, new last month, ridden 400 miles, latest improvements, spring frame, kick starter 2 speeds, new condition; £49

EAGLES.—N.S.U. 3½h.p. Model de Luxe (85×83), 2-speed gear, free engine, rigid frame, brand new; reduced price £39; fine sidecar machine

EAGLES.—N.S.U. 3h.p. Twin, 1914 model, slightly used, mechanical lubrication, footboards, 2 speeds, free engine, spring frame, accessories; £43.

EAGLES.—Rover, late 1912, T.T. model, very fast, dropped rear frame, semi-T.T. handle-bars, knee grips, Lucas King of Road lamp, etc.; £28/10

EAGLES.—N.S.U., late 1912, 3½h.p., model de luxe, loop frame, with rear spring, 2-speed gear, adjustable pulley, with coach-built sidecar and accessories; £37/10; any trial.

EAGLES.—Douglas, 2¾h.p., model D, in good order, all accessories; £20.

EAGLES.—L.M.C., 3½h.p. model, new condition, Arnoux varia pulley, Bosch mag.; £18/10

EAGLES.—Motosacoche, 2½h.p., late 1912, variable gear, free engine, fine condition; £19/10

EAGLES.—Lincoln Elk, 3h.p., 1912, Bosch, Druid forks, dropped rear frame, accessories; £15/10.

EAGLES.—Bradbury, 4h.p., chain drive, 2-speed counter-shaft gear, kick starter and hand-operated clutch, with Millford coach-built latest pattern sidecar, any trial; £43.

EAGLES.—Any of the above can be had on approval, "The Motor Cycle" deposit system, or deferred payments arranged.—Eagles and Co., High St., Acton, W. Tel.: 556 Chiswick. [X3293

8h.p. Twin Combination, 3 speeds, kick starter, Bosch, Saxon forks, spares, accessories, reliable; £40.—Coombes, 28, St. James's Rd., Croydon. [X3156

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's (cash or easy terms), 9, Shoe Lane, Fleet St., London. [X9705

MOTOR CYCLES FOR SALE.

Miscellaneous.

KING'S.—1914 Water-cooled Williamson, ready for delivery, fitted with special speed sidecar; exchanges.—Below.

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KING'S.—Will sell your motor cycle or light car for you in a very short time. Only 7½% commission. If you do not see what you want, write, call, or 'phone, we can soon fix you up. 'Phone: Chiswick 621.—King's, 2, King's Parade, Acton Hill, W. [4645

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GENTLEMAN must sell smart racy mount, 3½h.p., T.T bars, etc., pretty grey; any trial; £15, or offer; money urgently needed.—73, Kent House Rd., Beckenham. [4769

INDIAN, 1914, lighting set, just soiled; Rover, 1914, 3½h.p., 3-speed gear; Norton 1914 big 4, 3-speed gear. Write for list of clearance new and second-hand machines.—Tweedale Armstead Ltd., Oxford. [4500

MOTOR Cycles.—New 1914 models in stock for immediate delivery: 4h.p. Triumph, 3½h.p. P. and M., 4h.p. B.S.A., 3½h.p. Rover, 3½h.p. B.S.A., 3½h.p. Humber, 6h.p. Enfield combination, 2¼h.p. Calthorpe lightweight, and 5-6h.p. Hazlewood.

THE Above are all the latest new models, just delivered from the makers. We also have the latest sidecars, suitable for any of the above motor cycles.—Write, wire, or 'phone for catalogues and particulars to Turvey and Co., The Motor House, Sunderland. 'Phone: 626. [X4086

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PROMPTEST Delivery of any make of motor cycle on our easiest deferred payment system. Exchanges entertained. Our experience at your disposal. Tuition free. Please favour us with a postcard.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [0533

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NORTON, 4½h.p., 1913, 3-speed, kick starter, run 2,000, £38; Bradbury and sidecar, 1911, speedometer, etc., £26; Rover, 3-speed, coachbuilt sidecar, almost new, £45; Douglas, 1914, V, in stock, £48; Quadrant, 3h.p., £7; Triumph, 1910, clutch, £24; Bat-Jap, 1911, 8h.p., 2-speed, with handsome sidecar, £35.—Longman Bros., 46, Hillcrest Rd., Acton. Tel.: 54 Chiswick. [4433

THE South-Eastern Garage (late Palmer and Kitson), Herne Hill Station, London, S.E., offer the following bargains, which are all guaranteed to be in perfect running order: 1910 6h.p. 2-speed N.S.U. and sidecar, £25; 2½h.p. 1911 Motosacoche, £15; 1912 Kerry-Abingdon, 2-speed, and sidecar, £35; 4½h.p. Roc, 2-speed, sidecar, £22; 3½h.p. 1913 Ariel, 3-speed, sidecar, £47; 3½h.p. 1913 Zenith-Gradua, £38; 4h.p. Roc, 2-speed, sidecar, £22; 3½h.p. Antoine, coil, £12; 1914 2½h.p. Wolf, £20; 3h.p. Quadrant, £8; 2h.p. 1914 Calthorpe, 2-speed, £22; 2¾h.p. 1914 Douglas, 2-speed, £43; 1913 Kendall cycle car, 8h.p. J.A.P., hood, screen, £75. Sidecars from 60/-. Accessories—New Mabon clutch, suit lightweight, £2; Triumph pattern bars, all 5 controls, 25/-; Xl'all back rest, 5/6; 5-6h.p. w.c. engine, U.H. magneto, Stewart-Precision carburetter, suit cycle car, £9; carburetters, horns, inner tubes, covers, belts, etc. Write for lists.—South-Eastern Garage, as above. [8451

TRICARS FOR SALE.

4h.p. Wolf Tricar, 2 speeds, free engine, W.C. in good order; £7/10.—Cordingley, Hasliogden. [X3424

A.C. Tandem Tricar, transformable to monocar or tradesman's carrier, thoroughly reliable; £25.—Vanvestrant, Kettering. [X3366

RALEIGHETTE Tricar, 6½h.p., water-cooled, in perfect condition; cheap for cash.—Rigby, 391, Blackburn Rd., Oswaldtwistle, Accrington. [X3273

ARIEL Tricycle, 3½h.p., water-cooled, B. and B., Bosch, decompressor, tyres excellent, mechanically perfect, also not fitted 2-speed gear, clutch, spring forks; lot £12/10.—B., 16, Beaufort Rd., Edgbaston, Birmingham. [X3046

SIDECARS AND FORECARS.

13 Gn. Underslung Cane Canoe Sidecar, little used; £5/15.—108, Manor Rd., Brockley. [4553

CANOELET (1913), wind screen, storm apron, good condition; £9/9.—Gilley, St. Denis, Torquay. [4502

SIDECAR, Chater-Lea chassis, quick detachable, wicker body; 50/-.—45, South Croxted Rd., Dulwich. [4775

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COMFORT Sidecar, large, roomy, and light.—Makers, Midland Automobile Co., Stony Stratford. [X2272

SAVE 20%.—Sidecars, direct from the manufacturers.—Garrard-Maxfield's, Aston Rd., Birmingham. [4202

SIDECAR, wicker canoe, front, side door, wind screen, Dunlop tyre; £4/10.—Apply, 219, Glyn Rd., Clapton. [X3041

SIDECAR, Monarch, 1914, coachbuilt, new; 12 gn. car, sell £8/15.—Brown's, 12, Bull Ring, Birmingham. [X3254

BARGAIN, Gloria spring wheel sidecar, art cane, done 500 miles; £8 cash.—21, Tindal St., Chelmsford. [4626

BASTONES for Sidecars.—Latest 1914 torpedo models from £5/15; torpedo bodies, wicker and rush, 36/-.

BASTONES.—Coachbuilt bodies, latest design (splendidly finished); £3/17/6.

BASTONES.—Latest all cane cigar pattern sidecar, complete with Michelin tyre, £7/17/6; cigar pattern body, only £3/17/6.—228, Pentonville Rd., King's Cross, London, N. [4158

PERFECTION Sidecars from £5/5; few £6/6 soiled sidecars to clear at £4/14. — Collier's, Westgate, Halifax. [0489

FORECAR, 4½h.p. V. engine, complete, less tyres, coil, accumulator; clear £4/18.—Presswell and Co., Stafford Rd., Wallington. [X3081

COACHBUILT Sidecar, almost new, side entrance door, 1914 model; £6/10, bargain.—A. Holland, Clarendon St., Coventry. [X3399

ALUMINIUM Sidecar, torpedo type, underslung frame, new condition; £7/10.—Ashburnham, Litchfield Rd., Sutton. [4668

FITSU Sidecar, coachbuilt, grey, luggage grid, delivered May; cost £14/4/6, bargain, £9.—Jeweller, 51, West Ham Lane, Stratford. [4531

TRADESMAN'S Carrier, strong, coachbuilt, four connections, complete; bargain, £7.—Box L5,386, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4519

PILLION Car, new condition, roomy basket, cushion, spring wheel, 26×2¼ tyres, complete; cost £7, sacrifice £2/5.—57, Kingston Rd., Coventry. [X3400

PURCELLS' Art Catalogue of welded sidecars is the most detailed list issued; 30 models; trade quoted.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [5760

1914 Millford, Montgomery, Fitsu, Watsonian, Ivy, and other makes in stock to fit any machine.—Elec and Co., 15, Bishopsgate Av., Camomile St., E.C. [0536

SIDECAR, Turner, coachbuilt, brand new, cost 13 gns.; will sacrifice £9; carriage and packing free.—Box L5,338, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4485

CANOELET, Swan, mod Middleton record breaking sidecar; trade supplied.—Sole wholesale agent London, Rey, 378-384, Euston Rd., and 173, Gt. Portland St., W. [2629

SIDECAR, £21/10 Gloria coachbuilt, for 7h.p. 1914 spring frame Indian, only used 800 miles; owner must sell at once; what offers?—Beaton, 55, Craiglea Drive, Edinburgh. [X3098

GROSVENOR Sidecars, lightweight coachbuilt model, underslung chassis, with apron and 4-point attachments; £11/10; several exclusive designs; catalogue free.—Grosvenor Motor Co., Bolton. [X1471

SIDECAR, brand new 1913 Indian, Millford, best quality wicker body, suit 1913 or 1914 spring frame Indian; list price 19 gns., bargain, £12.—Alexander's, 115, Lothian Rd., Edinburgh. [4753

ALL those attending club runs and picnics, hill-climbs, etc., can have special terms for our lighter than cane coachbuilt Oakleigh Windcutter sidecar. Registered throughout. Price £9. Any sidecar taken in part exchange.—Oakleigh Sidecar Co., 65a, Rosendale Rd., West Dulwich. [4671

SIDECARS AND FORECARS.

P.M.C. Sidecars from £5/17/6 to £10/10; write for catalogue fully illustrating the various models and patent P.M.C. quick fit conplings.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0154

PHŒNIX Sidecars, highest grade, from £4/15 complete with tyres; immediate delivery. Send for illustrated list of different design chassis and bodies Sidecars on hire. Second-hand sidecars always in stock —Phœnix Motors, Ltd. (Motor Cycle Depot), 736, Holloway Rd., London, N. Tel.: Hornsey 449. [0135

ROYAL Leicester Sidecars are admitted by all to be first-class finish and remarkable value; best racing designs on the market; light bodies for low power machines a speciality; make no purchase without seeing ours; several shop-soiled sidecars offered cheap.—Stokes, and Holt, Ltd., Belgrave Rd., Leicester. [0190

CYCLE CARS.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Bedelia Torpedo, complete, mag., twin; £55.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Duo Cycle Car, sociable body, J.A.P.; £85.

PALMER'S Garage, Tooting.—4½h.p. Bedelia, 1913 type, touring body; bargain, £40.

PALMER'S Garage, Tooting.—8-10h.p. 1913 Warne Cycle Car, J.A.P.; £75, or offer.

PALMER'S Garage, Tooting.—10h.p. 1914 Deemster, brand new, 4 cyls.; cost £185, sell £145.

PALMER'S Garage, Tooting.—8-10h.p. G.N., 1912, sociable, J.A.P., very sporty; £65.

PALMER'S Garage, Tooting.—8-10h.p. Rollo, 1912, fast machine; clearance, £32/10.

PALMER'S Garage, Tooting.—8-10h.p. G.W.K., 1913, as new; £110, or offer.

PALMER'S Garage and Motor Auction Rooms, Tooting. Write for auction catalogues. Next sale July 8, at 2, and fortnightly thenceforward. [4459

MORGAN Runabout, sporting model, in stock.—The Exeter Motor Cycle and Light Car Co., Ltd. [0506

A.C. Light Car, slightly shop-soiled; list £175, sell £150.—Cordingley, Haslingden. Tel.: 102. [X3406

G.W.K., £150; Calthorpe, £168; Victor, £115. We quote keen exchanges.—Motorics, Westgate, Halifax. [0488

HUMBERETTE, 1913, 8h.p., air-cooled, complete, accessories; £78.—P. J. Evans, John Bright St., Birmingham. [X3151

G.W.K., 1913, 8h.p. twin, hood, screen, lamps; £95, cost £150.—P. J. Evans, John Bright St., Birmingham. [X3153

MORGAN Runabouts.—New 1914 Grand Prix and sporting models actually in stock, no waiting.—Moss, Wem. [X3265

1913 Humberette, late, just thoroughly overhauled and fitted with new gears and cylinders; £80.—Plastow, Grimsby. [X3176

ROLLO Sociable, 1913, 8h.p., hood, screen, lamps etc., belt drive; £42.—P. J. Evans, John Bright St., Birmingham. [X3154

PILOT, 1912, 6h.p., dual ignition, 2-seat., Stepney hood, screen, perfect order; £45.—Peacock, 274, High Rd., Balham. [4012

SWIFT, 1913½, 8h.p., all accessories, just overhauled, excellent condition; £95.—P. J. Evans, John Bright St., Birmingham. [X3155

ALLDAYS Midget, 1913, 8h.p., lamps, horn, hood, screen, excellent order; £95.—P. J. Evans, John Bright St., Birmingham. [X3152

CYCLE Car, Phœnix chassis, 2-speed, reverse, epicyclic gear, body, tyres complete, wants engine only; £12.—Stebbings, Attleborough, Norfolk. [4693

MOTORETTE, 7h.p., 1912, 2 speeds, new condition, excellent running order, hood, lamps, etc.; £42.—Sheriff, Cranleigh, near Guildford. [X3114

MOTORETTE, 6-7h.p., water-cooled, 2 speeds, free engine, hood and screen, good condition; £40.—The Premier Motor Co., Ltd., Aston Rd., Birmingham. [0527

G.W.K., late 1912, in perfect order, electric lamps, hood, screen, etc., recently overhauled by makers, owner going abroad; bargain, £90.—Firth, Cromer House, Gravesend. [4508

1913 8h.p. Kendall, 4-wheeler, hood, screen, lamps; run 200 miles; £75; exchange first-class combination.—Purcells, 78, Charlotte St., Tottenham Court Rd., W. [4713

3-WHEELER. Morgan type cycle car, 8h.p. J.A.P. engine, 2-speed, spur gear drive, clutch, good throughout; trial; sacrifice £38.—Thomson, 502a, High Rd., Streatham. [X1671

A.C. Sociable, 1914 model, run about 200 miles, complete with tools, lamps, etc.; £60, or nearest offer.—Alexander and Co., 38, Gt. Western Rd., Glasgow. [X3284

DELIVERY from stock, A.C., 10h.p., 4-cyl., £175; other models 7 days; Swift, 7h.p., £140; exchanges; special cash terms.—Cordingley, sole North Lancashire agent, Haslingden. Tel.: 102. [X3425

CROUCH Carette, 1914 model, complete with hood screen, all lamps, horn, dickey seat, tools; £138/15; tuition and delivery free to purchaser's house; easiest of easy terms or exchanges entertained.—Wauchope's, 9, Shoe Lane, Fleet St., London. [X320.

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FOR Sale, 9h.p. Riley, detachable wheels; £40.—G. H. Spicer, Leamington. [X6308

SIZAIRE, 2-seat., 8h.p., scuttle dash, must sell; £18/18.—1, Ebner St., Wandsworth. [X3292

SINGER Light Car, 10h.p., 1914, for immediate delivery; trade supplied.—Rey, 378, Euston Rd. [4009

15-20h.p. 7-seat. Jar, good condition; £70, or exchange two good motor cycles.—Buckle, Polesworth. [4534

CORDINGLEY, Hasliogden, has always Ford cars in stock; £125 and £135 exchange with pleasure. [X3425

ADLER, 1909, 12h.p., 4-seat., full equipment, perfect order; £75.—Peacock, 274, High Rd., Balham. [4779

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TWO Cars, 9h.p. and 16h.p., good running order; offers; exchange.—W. P. Edwards, Taunton. [4652

8h.p. De Dion-Regal, 2-seat., mag., hood, screen, Stepney, and lamps, good order; £25.—Usher, Fornham. [4722

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PALMER'S Garage, Tooting.—7-9h.p. Star, 3-seat., runs very well; £12/10.

PALMER'S Garage, Tooting.—18h.p. Daimler, live axle, flush-sided 5-seat.; £140.

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PALMER'S Garage, Tooting.—12-14h.p. F.I.A.T., 2-seat., sporting type, very fast and reliable; £140. [4719

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SINGER, 12-14h.p., 4 cyls., gate change, mag., side entrance body, good running order; great bargain, £45, or little cash and good modern motor cycle; make fine hire or touring car.—Smith, Motor Cycle Agent, Wherstead Rd., Ipswich. [X3229

6½h.p. Regal, De Dion engine, 2-seat., good order, clear £12/10; 20h.p. Beeston car, 4 cyls., 4 speeds, gate change, mag., hood, screen, etc., good order, £45 or near offer, make grand van or light lorry; exchanges.—Cordingley, Haslingden. Tel.: 102. [X3405

UNIC Taxi, 10-12h.p., 2-cyl., £65; Darracq taxi, 14-16h.p., £65; Darracq taxi, 10-12h.p., £40; Darracq 2-seat., £35; Vinot char-a-banc, £50; Panhard lorry, 10-12h.p.; £35; Panhard van, 8-11h.p., £45; solid tyres for sale, any size; all above cars seen running any time.—Star and Garter Garage, Kew Bridge, Brentford. Tel.: 1031 Chiswick. [0512

FLANDERS (Studebaker), 1912, 15-24h.p., 4-seat., painted grey, hood and curtains, screen, speedometer, exhaust whistle, Stepney, complete; £100; this car is perfect, and will stand any examination; part exchange 1913 cycle car or motor cycle combination.—Flanders, 75, Tower Ramparts, Ipswich. [X3228

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NEW 3½h.p. Humber Engine; £9.—Amery, 10, Berners Mews, London, W.C. [4744

BASTONE'S.—Brand new Rex 1913 6h.p. twin engines with Bosch mag.; £18.

BASTONE'S.—Brand New 3½h.p. Engine, less mag.; £9.—228, Pentonville Rd., King's Cross, London, N. [4161

FEW 90×120 Stag Engines to clear, suitable for cycle or cycle car.—Stag Co., Ltd., Sherwood, Nottingham. [4318

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7h.p. 2-cyl. Water-cooled Fafnir Cycle Car Engine, perfect; £10; exchange for 8h.p. twin, air-cooled.—12, Spring Rd., Wrexham. [X3272

3½h.p. Humber, 1912, pulley, carburetter, mag., silencer, decompressor, good condition; £10.—6, Spondon Rd., South Tottenham, London, N. [4582

10-12h.p. Twin-cylinder Car Engine, in good condition, can be seen working; photo; £6.—Walter Powell, Langtree, Kirkby, near Liverpool. [X3322

ENGINES.—5-6h.p., twin-cyl., new 1913, complete with silencers and mag. platform; cost 18 gns., sell £12/15.—Brown's, 12, Bull Ring, Birmingham. [X3256

HUMBER Engine, 3h.p., ground, new piston and rings, bushed, fitted with magneto sprocket, good working order; £3/3; exchange frame.—41, Park Lane, Kidderminster. [X3249

4½h.p. Goodwin Water-cooled Engine, complete with Bosch mag., B. and B. carburetter, water tank and radiator; £9/10; seen running any time.—Thomson, 502a, High Rd., Streatham. [X3372

2½h.p. Twin Moto-Reve Engine, mag., carburetter, silencer, complete, just cost over £4 to overhaul, not used since; exchange good quarter-plate camera or sell.—Fox, Barracks Golf Club, Lichfield. [X3313

6h.p. Twin J.A.P., side by side valves, unit fitted complete with Bosch mag., Brown and Barlow carburetter, plugs, adjustable pulley, long exhaust pipes, lifters, in perfectly sound order; £15 the lot.—Wallis, High St., Saffron Walden, Essex. [X3374

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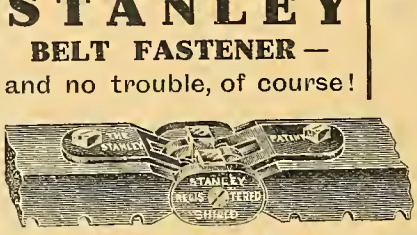

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24 Hours Magneto Repair Service.—All makes of magnetos, coils, or accumulators repaired by experienced mechanics, and returned within 24 hours as efficient as new. Spares for all makes stocked.—Simms Motor Units, Ltd., 191, Wardour St., London, W. [0539

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ELITE.—Special clearance line of Lyso belts, fully guaranteed by the manufacturers (Avon India Rubber Co.), 7ft. 6in.×⅞in., 7/- each; 7ft. 4½in., to suit Triumphs, 6/9; only a few left.

ELITE.—Continental belts, rubber and canvas, 1in. 1/6 per ft. (list price 2/2), ⅞in. 1/2 (list price 1/11), ¾in. 1/- (list price 1/7), ⅝in. 10d. per ft. (list price 1/5).

ELITE.—New 1914 John Bull belts, ¾in. 1/6, ⅞in. 1/9½, 1in. 2/1, 1⅛in. 2/7; allowance up to 3/- for old belts.

ELITE.—Service pattern leather belting, ⅞in. 10½d. ft., 1in. 1/- ft. [9069

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WHITTLE Belt, 9ft. 9in.×1in., good condition; 17/-, or offer.—Hills, 26, Denmark Rd., Ashford. [4548

WHITTLE Belts Wanted, however worn; 10/6 allowed any size, according to condition, in exchange for new belts, any make, rubber or leather.—Write us, Thompson Bros., 32, Nicholas St., Scarborough. [9660

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SIDECAR Bodies, touring, racing, also 2-seater models; prices right.—Write actual manufacturer, F. J. Cooper, 227, Belgrave Rd., Balsall Heath, Birmingham. [X1390

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JOHN Bull, brand new, 26×2¼, standard, 30/8; ditto, 2½, 34/2; approval.—144, Dalling Rd., Hammersmith. [4584

MURRAY'S.—New heavy Peter-Union covers, 24×2in. 12/-, 2¼in. 14/-, 2½in. 17/6; 28×2in. 15/-, 2½in. 17/6.—Below.

MURRAY'S.—New Hutchinson covers, 24×2¼in., T.T., 17/6; 26×2in. Brooklands 12/-, 2¼ 15/-; 26×2¼ T.T. 21/-, 2½in. 21/-; 26×2¼in. passenger, 25/-, 2½in. 27/6, 3in. 30/-.—Murray's 37a, Charles St., Hatton Garden, Holborn. [X3223

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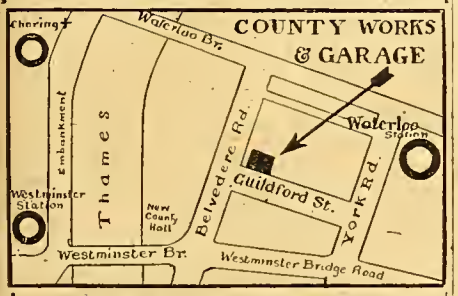

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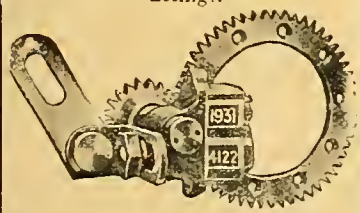

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LEGGATE, Edinburgh.—For great reductions and genuine value in brand new clearance Cinchers, the tyre that is made by the largest indiarubber manufacturers in the British Empire, and famous the world over for quality, resiliency, durability, and non-skidding properties. Make the Clincher your safeguard.—See below for approval terms. Be assured of prompt despatch.

LEGGATE, Edinburgh. — Clearance.—1914 Clincher Dreadnought, very heavy, rubber studded, beaded covers, 26×2 30/-, list £2/4/6: 26×2¼ 32/6, list £2/7/3: 26×2½, to fit 2¼ rims, 32/6, list £2/7/3; 26×2½ 35/6, list £2/10/10. The Dreadnought is specially designed for passenger machines, is built of 6-ply fabric, and has a tread half an inch thick. An experienced sidecarist says: "Dreadnought is undoubtedly IT."

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LEGGATE, Edinburgh.—Clearance.—1914 Clincher sidecar covers, rubber studded, beaded edge, 26×2¼ and 26×2½. 16/-.

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LEGGATE, Edinburgh.—Above goods are all fresh stock, and sent anywhere on 7 days' approval against cash, which will be refunded in full if goods not approved of.

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BASTONE'S.—Continental 1913 T.T. rubber non-skid, 26×2 14/6, 26×2¼ 18/6, 26×2½ 23/-.

BASTONE'S.—Continental heavy rubber non-skid covers, 650×75, 45/-.

BASTONE'S.—Hutchinson 1913 T.T. covers, 26×2½, 22/-.

BASTONE'S.—Hutchinson 1913 Passenger covers, 26×2¼ 28/-, 26×2½ 29/-.

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BASTONE'S.—New Michelin 1914 covers, B.E., 26×1¾ 12/6, 26×2 14/9, 26×2¼ 16/-, 26×2½ 18/6, 28×2 16/6, 28×2¼ 16/9.

BASTONE'S.—New Michelin 1914 covers, wired edge, 26×1¾ 11/6, 26×2 13/9, 26×2¼ 15/-, 26×2½ 16/-, 28×2 14/9.

BASTONE'S.—Michelin clearance covers, B.E., 26×2 10/-, 26×2½ 13/-, 28×2 W.E. 11/6; Trident, 26×2¼ B.E. 22/-, 26×2½ 24/-; Standard, heavy, 26×2¼ 22/6 26×2½ 24/6, 28×2½ 23/-; Semelle, 26×2¼ W.E. 28/-, 28×2½ B.E. 30/-.

BASTONE'S.—Best guaranteed red tubes, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 28×2 6/-, 28×2¼ 6/6

BASTONE'S.—New Michelin 1914 tubes, 26×1¾ 5/6, 26×2 9/6, 26×2¼ 9/9, 26×2½ 10/-, 28×2 10/-, 28×2¼ 10/6; butted in stock.

BASTONE'S, 228, Pentonville Rd., King's Cross, London, N. [4163

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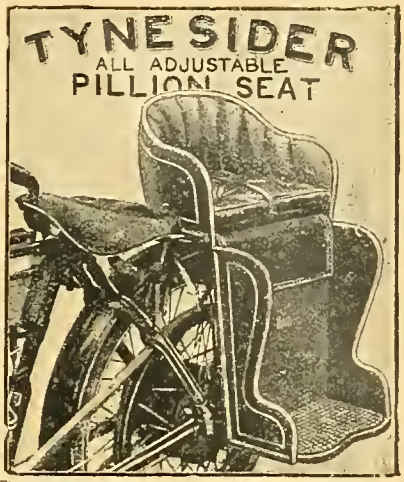
7/6 Allowance Guaranteed for old tyres for best quality 2¼ and 2½in. Avon, Continental, Kempshall, Hutchinson; liberal allowance for others. All makes supplied.—Taylor's Tyre Stockists, 21a, Store St., W.C. [0132

TYRE Bargains.—Excellent line of brand new; 7 days' approval; satisfaction guaranteed; 26×2 13/6, 2¼in. 15/-. Heavy tyres, suitable for 5h.p. machines; special value; 26×2 15/6, 2¼in 17/6, 2½in. 21/-. Clearance tyres: Dunlop, 26×2½ or 650×65 33/6; Hutchinson Tourist Trophy, 26×2½, 20/9; ditto Passenger, 25/6. Tubes: Heavy red, 26×2 5/6, 2¼in. 6/-, 2½in. 6/9; butt-ended, 2in. 6/9, 2¼in. 7/7, 2½in. 8/8. Lamp Bargains.—Head lights, plated and oxidised, 10/6 each, cost 3 times as much; hundreds of other bargains.—Armstrong and Co., 17, Goldhawk Rd., Shepherd's Bush, London. [4150

TYNESIDER ALL ADJUSTABLE PILLION SEAT



The **TYNESIDER** can be used as above illustration (on either side) also passenger facing back. The heel and foot board can be detached in two minutes and used tandem fashion or in four other positions. It can be swivelled any way user likes in a few minutes.

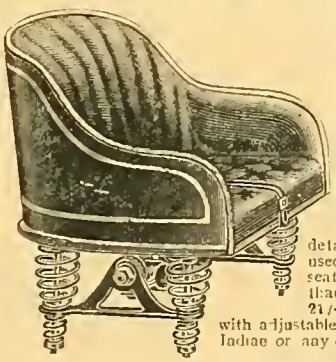
TYNESIDER SEAT is **COACHBUILT**, painted and lined as on a motor car, weighs about 11 lbs. We give you strength with lightness.

Can be used with sidecar combination, as extra seats for Two Seaters, Cycle Cars, etc. An ideal seat for lightweights.

Prices: **19/6, 25/6, 30/-** and **35/6**
Seat portion only, without heelboard, **15/6,**

complete with couplings, reversible cushion, strap, etc. The new patent **SPRING ATTACHMENT, 7/6** extra makes the seat self-balancing, absorbs the road shocks, and adds greatly to the safety of cantilever riding while the spring rods work in guides on the principle of a piston—thus preventing side-sway. Children's seats **14/6**, same as adults in miniature.

THE LAST WORD in MOTOR CYCLE SEATS.



The essence of comfort is the **Tynesider Bucket Seat.** Low position, surpasses pan seats, beautifully sprung, no sideways. Can be detached and used as a Pillion seat. Costs less than a saddle. **21/-** complete, with adjustable clip to fit ladies or any other cycle.

Without springs, **15/6.** Better quality, **27/6.** Superior quality, **36/6** complete.
Send for Catalogue and Testimonials.

HENDERSON'S SEAT WORKS, 25, Albion Road, NORTH SHIELDS, Eng.

THE "GRADO" MULTI-PULLEY WITH FREE ENGINE.

Gives gears 4—1 to 8—1. Lightweights 10—1
No Jockey Pulley.
No Belt Slip
Fitted in 2 hours to Triumphs, Precisions, Bradburys, etc.

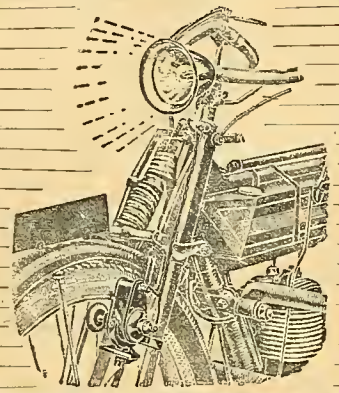
Price for machines up to 6 h.p., **£3 3s.** Lightweights, **£2 10**

Write us to-day.

THE "GRADO" MANUFACTURING CO., Stratford Road, Camp Hill, BIRMINGHAM.

"Voltalite"

BRITISH MADE SELF-GENERATING ELECTRIC CYCLE & MOTOR CYCLE LAMP.



GENERATES ITS OWN ELECTRICITY BY THE MOVEMENT OF THE MACHINE. Illuminates Brilliantly the 8 Volt Metal Filament Bulb Supplied. British Made Throughout.

The Generator is of strong construction fitted with ball bearings and an important feature is that the generator pulley runs from rim of wheel NOT ON THE TYRE.

Motor Cycle Voltalite complete including head light and spare bulb, **£2 12s. and £3.**

Pamphlet of Motor Cycle Voltalite giving full particulars, post free on application.

The "FORTAVOX"

MOTOR CYCLE ELECTRIC HORN.

Complete Outfit, comprising: Electric Horn with push button, waterproof cord, Dry Battery ready for use. Can be fitted to motor cycle in a few minutes, gives a loud, clear, penetrating signal. Most convenient horn for a motor cyclist. Price **11/8** post free.

Leather Satchel, with straps, to hold "Fortavox" Horn Battery. Price **2/-**, post free.

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(Box 17), Sampson Works,

SALFORD, MANCHESTER.

TELEPHONE: 7083-4-5-6 Central.
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FITCHS' "GRIMEWASH"

A boon to MOTORISTS, CYCLISTS, & ENGINEERS.

"GRIMEWASH" ROOTS OUT THE DIRT DEMON.

"GRIMEWASH" FOR CLEANSING GRIMY HANDS WITHOUT WATER

Ask your Trader for Grimewash.

Traders invited to send for Free Sample and Prices to the Manufacturers:

FITCH, LIMITED, TAMWORTH.

TYRES.

18/-. —Dunlops, heavy rubber studded covers, brand new; list 24/6; approval, cash.—Bradley, 100, Oldham Rd., Miles Platting, Manchester. [4759

ELITE Rubber Co., 260, Coldharbour Lane, Brixton, S.W. 'Phone: Brixton 2042.—We have the following special clearance lines in motor cycle belts, covers, tubes, etc., and are offering same at prices equal to 33⅓% to 50% off the manufacturers' retail lists; all goods willingly sent on 7 days' approval against cash.

ELITE Offer 3/- Patchquick Outfit free of charge to all purchasers of goods to the value of £1 and over.

ELITE.—Our price list is now ready. Send for copy, together with free sample of Elite Sticktight patches, sent post free.

ELITE.—Kempshall clearance heavy grooved covers, 750×75 or 28×3, to suit 1914 Indians, perfectly new and fully guaranteed; 45/-.

ELITE.—Kempshall clearance covers, heavy non-skid 26×2¼ 37/6 (list price 45/-), 26×2½ 40/- (list price 50/-), 28×3 45/- (list price 77/6).

ELITE.—Kempshall clearance covers, heavy anti-skid 26×2¼, 26/- (list price 32/6); 28×3 at 35/- (list price 57/6).

ELITE.—Henley oversize covers, 700×80, to fit 650×65 rims, heavy plain tread; 27/-.

ELITE.—Special clearance line in Avon ribbed covers, latest pattern, 650×65, 22/6, steel-studded, 39/-.

ELITE.—Heavy moulded Three Spires covers, 26×2¼ 25/- (list price 42/-), heavy Three Spires 17/6 (list price 30/-).

ELITE.—Midland heavy ribbed and studded covers, special clearance line guaranteed for 3,000 miles, 26×2¼ 25/- (list price 37/6), 26×2½ 27/6 (list price 40/-).

ELITE.—Hutchinson Brooklands, 1913 stock, 26×2 12/6, T.T. 26×2½ 19/6 (list price 33/6).

ELITE.—Hutchinson Passenger covers, 1913 stock, 26×2¼ 29/- (list price 40/-), 26×2½ 29/- (list price 41/3), 26×3 for 2½in. rims 32/6 (list price 44/-).

ELITE.—Hutchinson wired on Passenger covers, 1913 stock, 26×2 22/6 (list price 37/-), 26×2¼ 25/- (list price 39/-).

ELITE.—Continental T.T. covers, 26×2¼ 19/6 (list price 28/-).

ELITE.—Michelin clearance covers, beaded edge 26×2 light 8/9, 26×2½ 13/9; Trident, 26×2¼ 22/-, 26×2½ 24/-; Standard, 26×2¼ 22/6, 26×2½ 24/6; Semelle, 26×2½ 33/-.

ELITE.—Clearance Michelin covers, wired on, Semelle 26×2½ 32/-, Standard 26×2½ 26/-, 26×2¼ 24/6

ELITE.—Clincher extra heavy tubes, best quality, 26×2¼ 6/6.

ELITE.—Best quality tubes, fully guaranteed, 26×2 5/-, 26×2¼ 5/6, 26×2½ 6/-, 26×3 7/6, butted, 1/3 extra.

ELITE offer 15% allowance off retail list price for old covers (above clearance lines excepted); all makes in stock.

ELITE.—Motor cycle covers re-treaded by special process; treads guaranteed not to come loose; special heavy 15/-, heavy 12/6, medium 10/-; sections on application.

ELITE.—It is impossible for us to advertise all the special lines which we have in stock; therefore, if there is anything you require which is not mentioned in our advertisement, we shall be pleased to quote you upon receipt of a postcard.

ELITE Rubber Co., 260, Coldharbour Lane, Lough borough Junction, Brixton, S.W. 'Phone: Brixton 2042. [9072

PERSONAL.

RIDER of 3h.p. Enfield wants companion for fortnight's tour in France, July.—F. C. Jones, West Dyke, Redcar. [4533

AGENCIES.

SPARE Time Travellers wanted. Keen riders can earn pounds.—Kumfurt Accessories, Cookham, Berks. [4523

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MONEY Advanced on good motor cycles; garage and interest charges low.—269 to 275, Rye Lane Peckham. [1870

PARTNER Wanted for 2-stroke engine manufacture; exceptional opportunity for small capital; immediate application is necessary.—Box L5,415, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4741

INSURANCE.

FOR Motor Cycle and Cycle Car Insurances apply Bass, Insurance Broker, Bishop's Stortford. [0004

AUTO Cycle Union.—Insurance and free membership.—Adams, Insurance Broker, 38, Church St., Sheffield. [2196

INSURANCES.—Particulars of Motor Union, A.C.U., and others sent on receipt of postcard, stating horse-power and value with or without sidecar.—Gerald Andrewes Incorporated Insurance Broker, Temple Courts, Birmingham [3229

WHAT OFFERS?

1914 **VICTORIA-PRECISION,** 2 h.p., 2-speed, brand new; list price 25 guineas.

VICTORIA-PRECISION, 1914, as above, not run 100 miles, with lamp and horn.

1914 MODELS ACTUALLY IN STOCK.

DOUGLAS, 2¾ h.p., 2-speed, Model U	£48	0
DOUGLAS, 2¾ h.p., 2-speed, T.T., Model V	£48	0
DOUGLAS, 2¾ h.p., 2-speed, F.E., Model W	£52	0
DOUGLAS, 3½ h.p., 2-speed, T.T., Model A	£58	0
DOUGLAS, 3½ h.p., 2-speed, F.E., Model B	£62	0
INDIAN, 7 h.p., road racer model	£59	0
INDIAN, 7 h.p., standard model	£70	0
INDIAN, 7 h.p., special model	£80	0
CANOELET Sidecars for Indians	£14	0
CLYNO, 2¾ h.p., 2-stroke	£30	0
CLYNO, 2¾ h.p., 2-stroke, 2-speed	£40	0
CLYNO, 6 h.p., and Sidecar	£91	0
ENFIELD, 3 h.p., 2-speed	£52	10
ENFIELD, 6 h.p., and Sidecar	£84	0
JAMES, 3½ h.p., twin, 3-speed, chain	£63	0
JAMES, 4½ h.p., 3-speed, and Sidecar	£76	13
TRIUMPH, 2¾ h.p., 2-stroke, 2-speed	£42	0
TRIUMPH, 4 h.p., 3-speed	£60	0
IVY, 2¼ h.p., 2-stroke	£26	5
NEW IMPERIAL-J.A.P., 2½ h.p., 2-speed	£32	11
RUDGE Multi, 5-6 h.p., and Sidecar	£80	11
PHELON & MOORE, 3½ h.p., and Sidecar	£80	15
NEW HUDSON, 6 h.p. countershaft, & Sidecar	£88	4
WILLIAMSON, 8 h.p., and tandem Sidecar	£105	0
HUMBERETTE, water-cooled, complete	£135	0
MORRIS-OXFORD Light Car de luxe	195 Gns.	
SINGER Light Car, dynamo, dickey seat	£210	0

SECOND-HAND.

1914 **WILLIAMSON,** 8 h.p., water-cooled, and 2-seated Sidecar, run 100 miles	£95	0
1913 **ENFIELD,** 6 h.p., and Sidecar, as new, new tyres, little used	£65	0
1913 **DOUGLAS,** 2¾ h.p., lady's, as new	£42	0
1912 **ENFIELD,** 6 h.p., and Sidecar	£50	0
1912 **ALLDAYS,** 3½ h.p., 2-sp., and Sidecar	£33	0
1911 **REX,** 3½ h.p., new tyres	£19	0
1911 **MOTOSACOCHE,** 2½ h.p., in good order	£17	0
1909 **N.S.U.,** 4 h.p., 2-speed, and Sidecar	£18	0
1909 **REX,** 5-6 h.p., and Sidecar	£18	0

Second-hand complete with Lamp, Horn, etc.

HEBDEN'S MOTOR MART,

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You will be

MORE THAN SATISFIED

with these

Motor Cycling Suits.

The

"Dreadnought,"

made of Superior Bronze-Proofed Twillette, Rainproof and Dustproof, entirely free from rubber, very durable. Jackets, 22/6; Seatless Trousers, 15/-; Thigh Overalls, 12/6.

The

"Teean-Cee,"

made of Double-Texture Rubber-Proofed Material, guaranteed absolutely Waterproof and Windproof. The suit for all weathers. Jackets, 22/6; Seatless Trousers, 15/-.

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Post to-day for Patterns and Full Specification to

Turner & Charlesworth,

MOTOR CLOTHIERS,

— BARNSLEY. —

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STARTING UP MADE EASY

Trouble with the plug is invariably the reason for difficult starting up—the terminals have either become damaged and the space between them will not allow of an instant spark, or they have accumulated a deposit of carbon.

To obviate this very general fault you must fit the RUNBAKEN VARIABLE GAP PLUG. The terminals are variable and can be set close together to ensure quick starting, and then adjusted when the engine is still firing by turning cap. The RUNBAKEN never misfires, can be easily cleaned by simply turning electrode. Ignition can be shorted instantly. Ignition efficiency guaranteed.

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Runbaken Plug WITH VARIABLE SPARK GAP

GET SATISFACTION

BY PLACING YOUR ORDER WITH US, WE GUARANTEE TO SATISFY YOU WHETHER YOU REQUIRE A NEW OR SECOND-HAND MACHINE.

MAY WE SEND YOU OUR LIST OF SECOND-HAND MACHINES?

RUDGE MULTI, 1913, 3½ h.p. ... ... **£32.**
BRADBURY, 1912, 3½ h.p., 2-speed, free engine, lamp, horn, etc. ... ... **£26.**
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ENFIELD, 1912, 2¾ h.p., 2-speed, light-weight, lamp, horn, tools, etc. ... **£27.**
MATCHLESS, 1913, 6 h.p., 2-speed, make excellent passenger machine ... **£50.**
ENFIELD, 1912, 6 h.p., passenger combination, very fast ... ... **£45.**

1914

DOUGLASES, P. & M.'s, and SUNBEAMS in stock for immediate delivery.

THE MORRIS GARAGES,
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J. E. S. LOCKWOOD, Patent Agent, 3, New St., Birmingham.—Guide and price book free. [1312

G. T. MILLARD, 28, Martineau St., Birmingham, specialists in automobile patents. Low charges. Enquiries invited [5684

HOW to Patent Inventions.—Particulars and advice free.—King, Registered Patent Agent, 165, Queen Victoria St., London. [5818

BIRMINGHAM.—Harold J. C. Forrester, Chartered Patent Agent, automobile and motor cycle specialist.—Central House 75, New St. Tel.: Central 6484 Pamphlet post free. [2455

CONSULTING ENGINEERS.

EXPERT Reports.—Parcells send experts to examine machines 10/6, plus fares.—78, Charlotte St., Fitzroy Sq., W. (See advertisement.) [3473

SITUATIONS VACANT.

FRAME Builders.—Several wanted at once, capable of building a frame throughout; only first-class workmen need apply.—Write or call, P. V. Works, Forest Hill, S.E. [0518

SITUATIONS WANTED.

PRACTICAL Engineer desires situation as trade rider for a good firm.—Box No. L5,408, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4590

GENTLEMAN desires position, cycle car, motorcycle manufacturers, or garage, with a view to investing capital in a few months.—Full particulars, Box 6,303, *The Motor Cycle* Offices, Coventry. [X3101

MOTOR CYCLES, ETC., FOR HIRE.

FOR Hire, sidecars, 7/6 per day, £1 per week.—Rey, 378, Euston Rd., and 173, Gt. Portland St., W. [4975

MOTOR Cars and Cycle for hire, day or week; terms on application.—Rey, 378, Euston Rd., and 173, Gt. Portland St., W. [4974

BUSINESSES AND PROPERTY FOR SALE, TO BE LET, OR WANTED.

EXCEPTIONALLY Good Motor Cycle Business for sale in S.E. district, established 9 years, good shop and residence, with large garage, splendid connection; turnover £1,800, increasing; stock, plant, goodwill, etc., £500; every investigation; owner would assist purchaser for a few weeks.—Box 6,210, *The Motor Cycle* Offices, Coventry. [X1148

WANTED.

SPARES.—Morgan and Maxwell, Streatham. [7877

WANTED, good second-hand Rex sidecar chassis.—17, High St., Huddersfield. [X3157

J.E.S. Model, half price or thereabout.—Treasure, Vicarage, Hartington Rd., Liverpool. [X3321

WANTED, late B.S.A., or other good make, for fast little car and cash.—Dyson, Docks, Boston. [3795

WANTED, free engine pulley, complete, for 3½h.p. Kerry-Abingdon.—Postmaster, Fontwell, Arundel. [X3242

SIDECAR Wanted, exchange lady's 2-speed Sunbeam cycle.—70, High St., Lye, Stourbridge. [X3143

WANTED, 1913 3½h.p. Rudge Multi.—Lowest offers to C. B. Ford, Bondgate St., Alnwick. [4772

CRANK Case, timing side, 5-6h.p. V.S. Peugeot.—Langston, 119, Sumatra Rd., West Hampstead. [4662

2½h.p., mag., reliable, for mag. Motosacoche, perfect, and £5.—Write, M tor, 28, Glebe Rd., Hornsey. [4660

SILENCER, with mag. platform attached, new or second-hand.—Plowman, Marnhull, Blandford, Dorset. [4568

WANTED, Triumph, 3½h.p., F.E., not earlier than 1910, or exceed £20.—18, Foster Hill Rd., Bedford. [X3180

WANTED, 3½ to 4h.p. twin engine, m.o.v., good condition; cheap.—W., 9, Nicholas Rd., St. George's, Bristol. [4564

SPEEDOMETER wanted; exchange young bulldog grand specimen.—Gee, 32, Sneinton Boulevard, Nottingham. [X2648

WANTED carburetter, h.b.c., mag., and 2½h.p. unit, none later 1912, perfect.—Tucker, 44, Park St., Plymouth. [X3361

FRAME, sound condition, suitable for 1911 Rex engine and magneto.—Particulars, Teesbridge Brickworks, Stockton. [X3271

WANTED, carburetter, speedometer, speed gear, lamp, clutch; cheap.—Blencathra, Higbfield Rd., Walton-on-Thames. [X3328

WANTED, 7h.p. Indian, sidecar, late model; exchange 6h.p. 3-speed Matchless, solo mount, cash adjustment.—176, Mitcham Rd., Tooting. [4586

WANTED, 1913 Douglas, 2-speed, part exchange for 1910 Sizaire, 2-seat., first-class condition.—Higgins, South Rd., Stourbridge. [X3250

2-SPEED T.T. Douglas, for late 1911 3½h.p. Zenith-Gradua, perfect condition, all accessories; sell £26.—Goode, Whiston Hall, Northampton. [X3085

IMPORTANT IMPROVEMENTS AT UNIMPORTANT PRICES FILL

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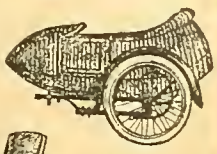
SIDECAR CATALOGUE.

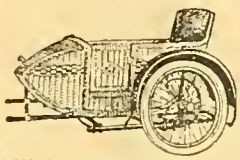
Copies sent free. 30 Models. Every type mounted on our widely approved UNBREAKABLE WELDED CHASSIS, **FITTING ANY MAKE MACHINE.**

Unequalled for strength and safety.
Chassis alone for Canoe bodies with Tyre and Valanced Mudguard.

As Sketch **£7 5 0**

MODEL 22.
New Motor Boat type of Body, as sketch, on B2 Chassis.
£11 10 0





MODEL 6.
New Canoe type Body, as sketch, on B2 Chassis.
£11 10 0

ASK FOR SPECIAL VALUE LIST OF SECOND-HAND MOTOR CYCLE BARGAINS.

SPECIAL OFFER
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July Delivery.

LONDON STOCK
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From all accessory dealers. Heavy untearable twill. Seatless overalls. The most durable and smartest suit procurable.

Reg. Design, 591,203.

PRICE 50/-

The following is an unsolicited letter of appreciation from a Motor Cycle Traveller.

Messrs. The Deluge Rainproof Clothing Co.

Dear Sirs—Re the Deluge Suit I had from you last winter, I write to say it's the best thing in Motor Cyclists' clothing I have ever had. Have used it in all weathers, practically every day, following my occupation as a Commercial Traveller, and have never had cause to grumble. Its neat appearance is one good point. Yours truly, (Signed) L. H. Hitching.

Makers
The Deluge Rainproof Clothing Co.,
52, Cannon Street, Manchester.

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TRY ONE

to introduce this new Challenge Plug. Send your old plug together with **1/3** and we will send you **one** post free. Only **one** will be sent to each rider. Others can be obtained from your local agent at **2/6** each.

Challenge Fasteners have larger bearings than any other make, therefore longer life.

6d. black; **8d.** plated; adjustable, **3d.** extra.
If it's a Challenge—then it's a cert.

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NO OVERHEATING.

INCREASED EFFICIENCY.

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Motor Cycles: Singles, **15/-**; Twins, **18/-**
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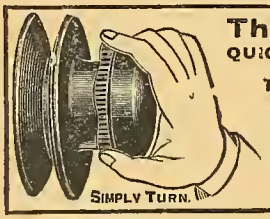
(State make, power, and year of engine.)

WYLIE & LOCHHEAD, LTD.,
Byers Road, GLASGOW.



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QUICK ADJUSTABLE PULLEY.
The World's Best.

Price **12/6**. Bored to fit your Engine.

Lindum Engineering Co., 67, Stratford Rd., Birmingham.

WANTED.

WANTED, cheap for cash, 1913 Triumph, also 6-8 h.p. machine, Matchless or Indian preferred.—Watson's Motor Depot, Ripley, Derby. [X3240

WANTED, 1913 6-8h.p. twin and underslung sidecar, well-known make, perfect condition essential: £40 highest.—256, Mitcham Rd., Tooting. [4675

CASH Waiting.—Wanted, magneto motor cycles, cycle cars, any condition; lowest price.—Box No. L5 417 *The Motor Cycle* Offices, 20, Tudor St., E.C. [4732

MOTOR Cycle wanted, about 2h.p., twin-cyl., free-wheel, late pattern; give full particulars, date, mileage, etc.—M.R., Chiltley Place, Liphook, Hants. [4591

WANTED, motor cycle, about 3½h.p., magneto; exchange for ¼ size billiard table and all accessories, or sell £8/10.—J.B., 218, Kingston Rd., Merton Park. [4571

RUDGE Multi (3½h.p.), and accessories wanted; cash; deposit for approval; good experience Rudges.—Beasant, c/o Robertson, 42, Montgomery St., Edinburgh. [X3137

WANTED, a light sidecar, coachbuilt, quick detachable joints, in good order; price moderate.—Reply, W. Paradine, 3, Albert Terrace, Bridge, Canterbury. [X3066

WANTED, 1913 Studebaker 2 or 4-seat., also Morris-Oxford, Singer, and G.W.K.; cash deal.—Particulars, Box 6,307, *The Motor Cycle* Offices, Coventry. [X3230

WANTED, Henderson, 1914, 2-speed, and sidecar, 2-seat, preferred; state mileage and list accessories; private, not trade; Kent.—Box L5,418, *The Motor Cycle* Offices, 20, Tudor St., E.C. [4740

DOUGLASES.—All 1914 models, 2¾h.p. and 3½h.p. best prices, prompt cash; also a few second-hand 1912 and 1913 models for cash.—Maudes' Motor Mart 136, Gt. Portland St., London, W. [1366

WANTED, your present machine in part exchange for a 1914 model; delivery from stock of best makes; splendid allowance prices.—Elce and Co., 15 Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0461

ORDERS for New and Second-hand Machines. Also a few Douglases and 3-speed Triumphs in part payment of 1914 motor bicycles.—Excellent prices allowed by Newsome and Fletcher, Ealing Broadway, London, W. [4738

WANTED, your motor cycle, to sell. Only 7½% commission. No extra charges of any description. I have customers actually waiting for machines. 'Phone: Chiswick 621.—King's, 2, King's Parade, Acton Hill, W. [4644

SEND Particulars of your motor cycle, cycle car, or accessories to us. We buy for cash, sell on small commission, or exchange. We are the leading firm in South London in the business, and specialise in motor cycles and cycle cars. We have daily enquiries for machines of almost every make.—South Eastern Garage, Herne Hill Station, London, S.E. [051f

1913 or 1914 Motor Cycle or combination, with all accessories; exchange very smart chestnut pony, car (Lawrence), harness, etc., to match, sell £28/10; also lady-back tandem, Chater-Lea fittings, Armstrong, Carter cases, perfect, cost over £25, and small cash adjustment either way.—Box 6,298, *The Motor Cycle* Offices, Coventry. [X2965

WANTED, any number of motor cycles, combinations, light cars, sidecars, engines, accessories. We buy, sell on commission, or exchange. We have several clients waiting for good machines. Send us particulars. We have the largest clientele, the finest salerooms, and obtain the highest prices; terms, testimonials, etc., on application.—Morgan and Maxwell, London Motor Salerooms, 80, High Rd., Streatham, London. [0526

EXCHANGE.

1911 2-speed Douglas, complete; £25, or exchange: trial.—23, Abbey Walk, Halifax. [X3276

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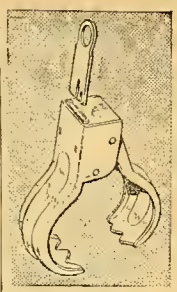

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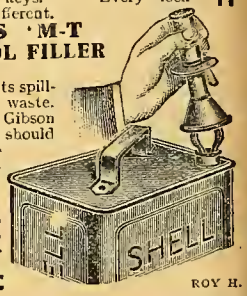

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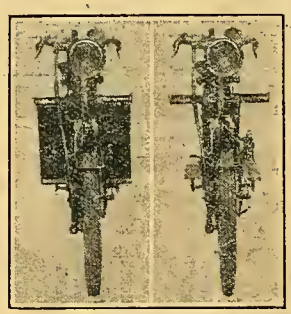

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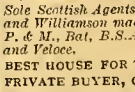

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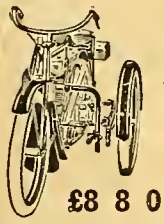

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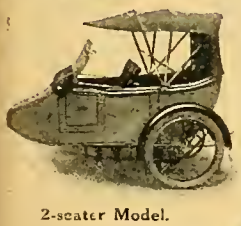

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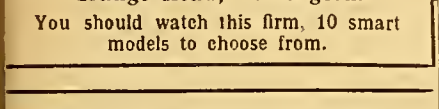

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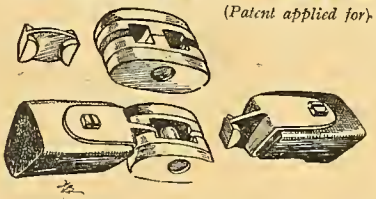

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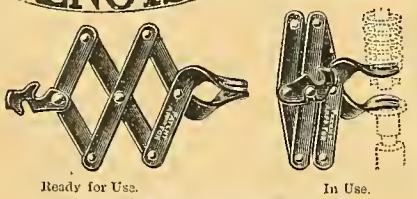

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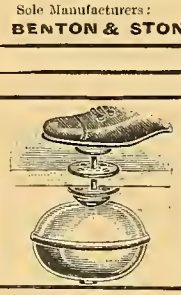

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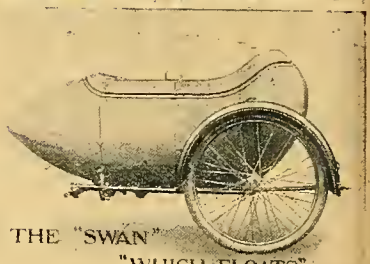

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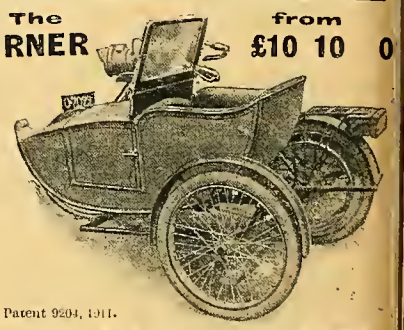

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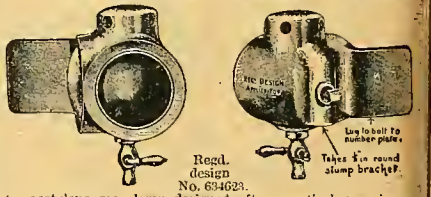

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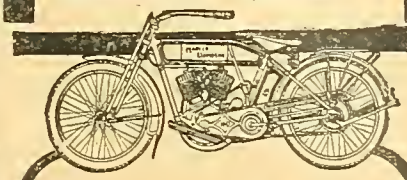

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MOTOR Cycle, less engine and tyres, fitted spring forks and Roc 2-speed gear, £4; Bowden 2-speed, with kick starter, £3; bargains.—Barker, Corporation Works, Prittlewell, Essex. [X2967

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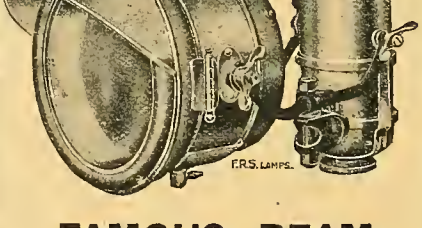

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N.S.U. 2-speed Gears, with standard or h.b.c., to fit Triumph, Bradbury, Rudge, B.S.A., Jap, Premier, Rover, Precision, Singer, and other makes at 1914 reduced prices. The easiest gear on the market to fit, no alteration to the motor cycle necessary, ideal for sidecar work; trade enquiries invited; specialists in repairs to these gears; all spares stocked.—Eagles and Co., N.S.U. London Agency, Acton, W. [X3295

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HILIPSON Governor Pulley, h.b.c., fit Bradbury, 45/-; Amac carburetter, 1912, 12/6; B. and B., /6; ⅞ Whittle belt, 15/-; vulcaniser, G.B., No. 3, t 67/6, sell 35/-; N.S.U. motor bicycle, complete, power plant, £5; 3½h.p. Excelsior engine, vertical, me, wheels, tyres, £5.—Thomson, 502a, High Rd., eatham. [X3373

INERVA Engine, 2h.p., m.o.i.v., 30/-; one pair 26×2in. wheels, £1; motor cycle frame, with tank, l back wheel, 28×2, stand, and tyre, tube, less front k, £2; motor cycle lightweight frame, with 26×2 eels, tyres fitted, and tubes, also a tank, and cogine, crankshaft, £3/10; a.i.v. Minerva 2¾h.p. engine, piston and vaires, £2; steering wheel, 6/-; tricar me, 10/.—T. Hall, 28, Preston Rd., Chorley. [X3075

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BRAMPTON Variable Gear, as new, suit Triumph, or 3½h.p. Precision, as new, accept 35/-; 1914 Brown-Barlow variable jet carburetter, just soiled, a bargain, 18/-; Senspray, 1912 model, perfect, 14/-; Brown-Barlow, B.O.D. pattern, 1912 model, perfect, 12/6; all h.b.—Dene Motor Cycle Co., Haymarket, Newcastle-on-Tyne. [X3318

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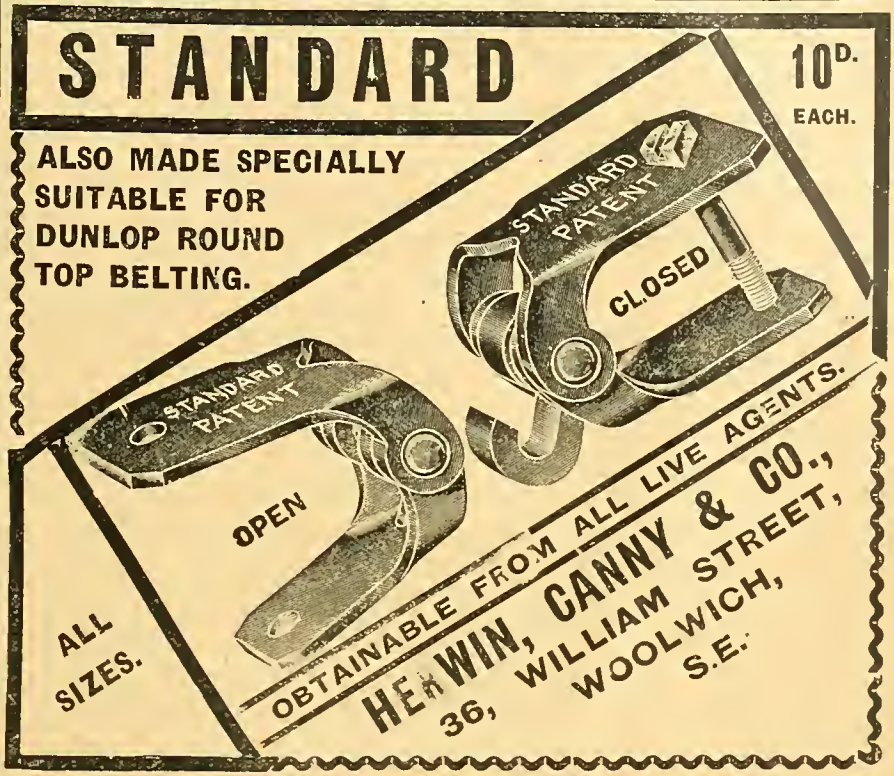

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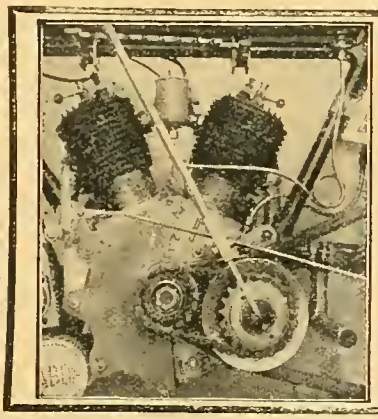

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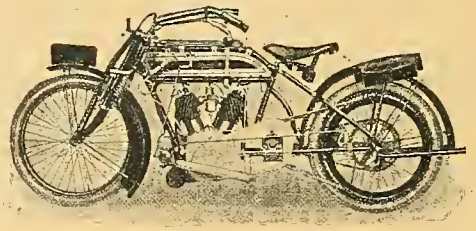

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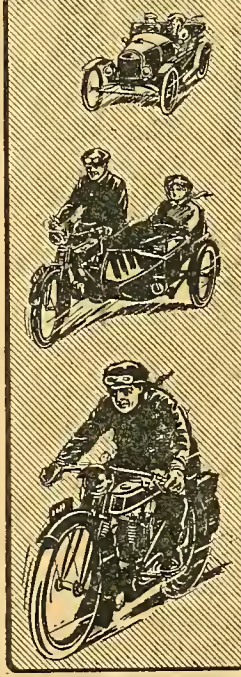

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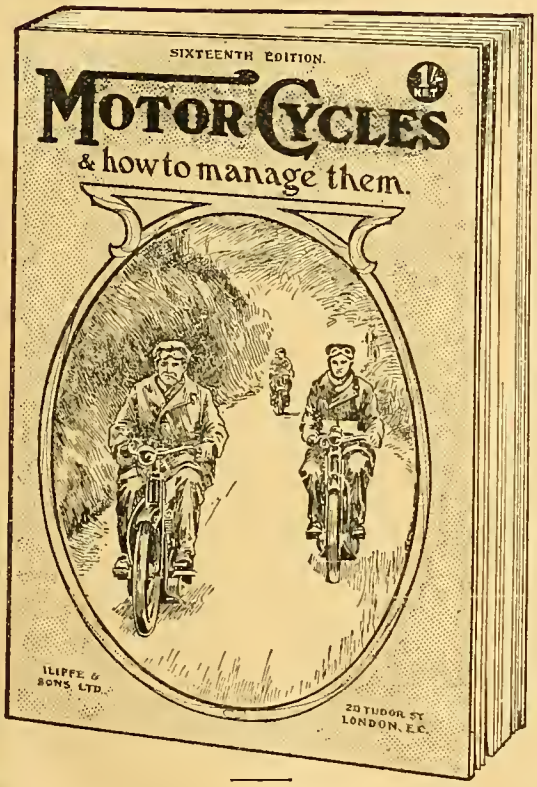

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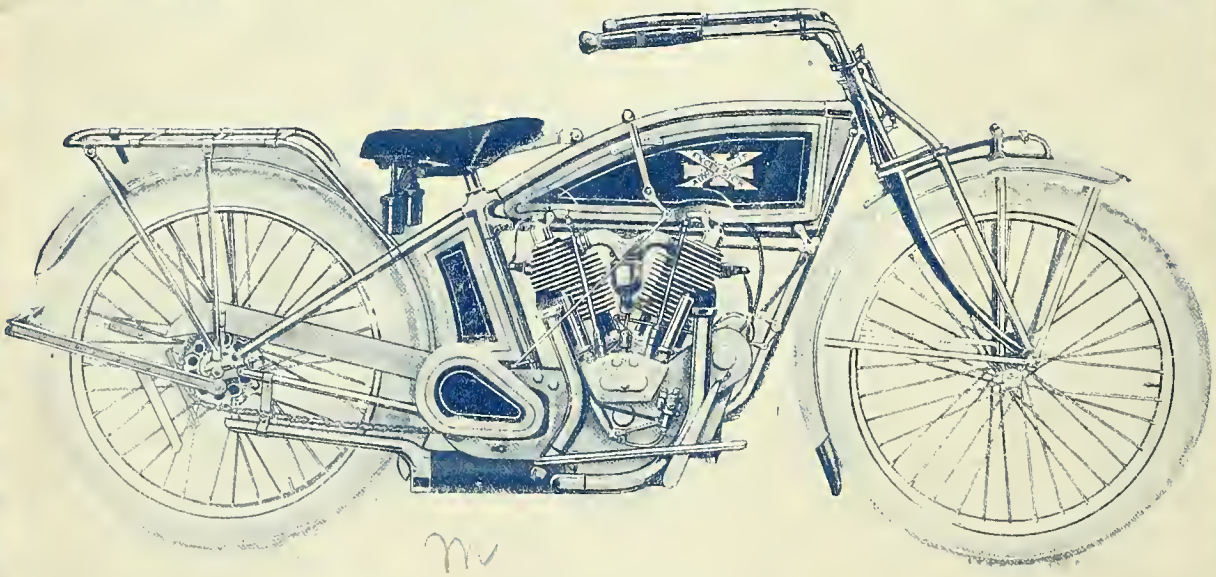

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